Springer Series in Design and Innovation 37

Francesca Zanella · Giampiero Bosoni · Elisabetta Di Stefano · Gioia Laura Iannilli · Giovanni Matteucci · Rita Messori · Raffaella Trocchianesi *Editors*

Multidisciplinary Aspects of Design

Objects, Processes, Experiences and Narratives

OPEN ACCESS

Springer

Springer Series in Design and Innovation 37

Springer Series in Design and Innovation (SSDI) publishes books on innovation and the latest developments in the fields of Product Design, Interior Design and Communication Design, with particular emphasis on technological and formal innovation, and on the application of digital technologies and new materials. The series explores all aspects of design, e.g. Human-Centered Design/User Experience, Service Design, and Design Thinking, which provide transversal and innovative approaches oriented on the involvement of people throughout the design development process. In addition, it covers emerging areas of research that may represent essential opportunities for economic and social development.

In fields ranging from the humanities to engineering and architecture, design is increasingly being recognized as a key means of bringing ideas to the market by transforming them into user-friendly and appealing products or services. Moreover, it provides a variety of methodologies, tools and techniques that can be used at different stages of the innovation process to enhance the value of new products and services.

The series' scope includes monographs, professional books, advanced textbooks, selected contributions from specialized conferences and workshops, and outstanding Ph.D. theses.

The volumes of the series are single-blind peer-reviewed.

Keywords: Product and System Innovation; Product design; Interior design; Communication Design; Human-Centered Design/User Experience; Service Design; Design Thinking; Digital Innovation; Innovation of Materials.

How to submit proposals

Proposals must include: title, keywords, presentation (max 10,000 characters), table of contents, chapter abstracts, editors'/authors' CV.

In case of proceedings, chairmen/editors are requested to submit the link to conference website (incl. relevant information such as committee members, topics, key dates, keynote speakers, information about the reviewing process, etc.), and approx. number of papers.

Proposals must be sent to: series editor Prof. Francesca Tosi (francesca.tosi@unifi.it) and/or publishing editor Mr. Pierpaolo Riva (pierpaolo.riva@springer.com).

Francesca Zanella · Giampiero Bosoni ·
Elisabetta Di Stefano · Gioia Laura Iannilli ·
Giovanni Matteucci · Rita Messori ·
Raffaella Trocchianesi
Editors

Multidisciplinary Aspects of Design

Objects, Processes, Experiences and Narratives

Springer

Editors
Francesca Zanella
Department of Engineering "Enzo Ferrari"
University of Modena and Reggio Emilia
Modena, Italy

Elisabetta Di Stefano
Department of Humanities
University of Palermo
Palermo, Italy

Giovanni Matteucci
Department of Philosophy
and Communication Studies
University of Bologna
Bologna, Italy

Raffaella Trocchianesi
Department of Design
Politecnico di Milano
Milan, Italy

Giampiero Bosoni
Department of Design
Politecnico di Milano
Milan, Italy

Gioia Laura Iannilli
Department of Philosophy
and Communication Studies
University of Bologna
Bologna, Italy

Rita Messori
Department of Humanities, Social Sciences
and Cultural Industries
University of Parma
Parma, Italy

ISSN 2661-8184 ISSN 2661-8192 (electronic)
Springer Series in Design and Innovation
ISBN 978-3-031-49810-7 ISBN 978-3-031-49811-4 (eBook)
https://doi.org/10.1007/978-3-031-49811-4

This work was supported by Centro Studi e Archivio della Comunicazione, Università di Palermo and Politecnico di Milano.

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Paper in this product is recyclable.

Introduction

This book is the result of a long research process. The work started in 2020 with an exhibition held in Parma (*Design! Oggetti processi esperienze*, CSAC Università degli Studi di Parma), and a book of the same title, edited by F. Zanella (with essays by G. Bosoni, E. Di Stefano, G.L. Iannilli, G. Matteucci and R. Trocchianesi) and published in 2023 (Electa Milano) centered on the role of archives as memory repositories and agents for contemporary design. This first period of reflection was followed by an international conference: *Design! O.P.E.N.* (https://www.designopen.it) held in Parma on May 5–6, 2022. The present volume contains most of the papers presented at the conference.

Starting from the first volume (*Design! Oggetti processi esperienze*), the research was always characterized by a multidisciplinary approach, which became even more multidisciplinary at the international conference held in 2022.

In fact, the conference was organized by a network of scholars from the world of design, philosophy and history of art, whose aim was to intertwine several types of knowledge. Consequently, multidisciplinarity is also the main feature of this second volume whose objective is to reflect, in an integrated manner, on the different dimensions of design, using competencies from the field of design and from that of humanities.

The aim of this project is to create a repertoire of opportunities of exchange and of relation among the culture of designers and the applied marketability of humanists in the project and in the innovation processes, in particular those design processes characterized by an important social and cultural impact.

In this context of exploration and experimentation in the territory of bordering subjects, stands the interpretative model in Fig. 1. It represents the potentialities in the interdisciplinary relations which verify the logics and dynamics in the "behavior" of a designer dealing with some project variables. On the vertical axis, humanities and techniques can be found, and on horizontal one, research and project.

Where these variables intersect, there can be four types of intervention:

- The intersection of techniques and research generates technological experimentation considering techniques and technology fields in continuous and fast evolution.
- Where research and humanities intersect, we are in the field of a historical/social/philosophical approach in which the analytical and critical dimensions of the research itself are developed.
- Between humanities and project, we are in the area on which our project focuses: here the meta-project approach becomes the synthetic expression of the relation among the two poles.
- Finally, between project and technique, we are in the area where the executive component of the project itself emerges.

There have already been significant studies which have stressed the importance of humanities for design and have shown that design can be a stimulus for humanities; this

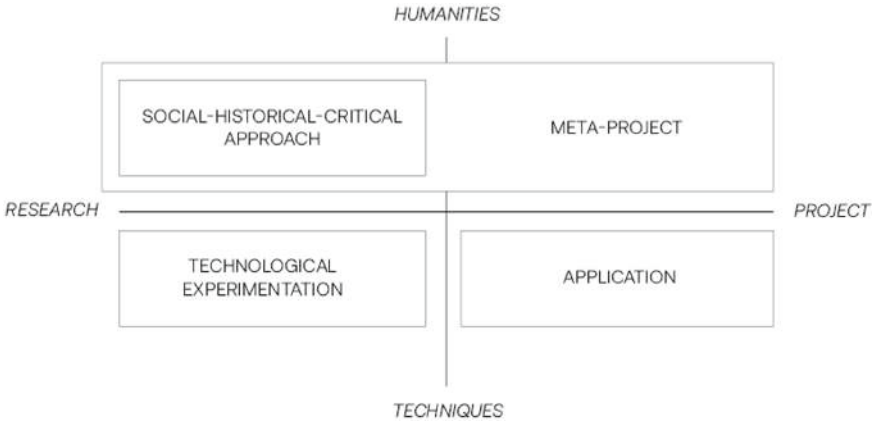

Fig. 1. Potential synergies between design and humanities [1]

is why the conference *Design! O.P.E.N.* intended to be an opportunity for research and debate with the objective of continuing this fundamental line of work.

Some crucial issues which interdisciplinary research must tackle are:

- The research of "new problems for design", that is, the collective need, as a scientific community, to find new directions toward which work must be periodically re-oriented, and this can be done only through a process of joint reflection.
- Research investigating the "meanings" that the product can have for design.
- Research that investigating the "value" that the design product shows.

As far as meanings are concerned, design and humanities integrated research can challenge, in a theoretically sounder way, "sustainability" by enhancing those concepts that are on the boundary between ethics and esthetics. Today, design cannot afford to dismiss ethical reflection, and, in this direction, humanistic culture can help to reinterpret the reflection on the mere functionality, in the more philosophically complex terms of the concept of "suitability for the purpose".

With regards to the analysis of the value generated by the action of design, it may be interesting to speak of "technology of value", which only humanistic investigation can help to process and fill with tools useful to produce not only ex-post critical knowledge, but first and foremost, oriented toward experimentation and to showing new corridors for contemporary design [1].

The volume follows the paths of reflection which structured the conference *Design! O.P.E.N.*, focusing on current themes and issues that are still at the center of the multidisciplinary debate on design, investigated through four keywords: objects, processes, experiences and narratives, which correspond to the book chapters.

The first chapter focuses on object-oriented design, enhancing its functional narrative and experiential values. In fact, objects, beyond their value in use, bear symbolic, anthropological, political and social meanings and worldviews. This section also develops a theoretical reflection on the esthetic categories used to interpret the design object

in relation to the classic dichotomy useful-beautiful, to the category of game, to artistic values and the relation between ethics and esthetics.

The second chapter is on the designer's self-reflective moment which is focused on the analysis and on the definition of processes in various contexts, spanning innovation, social engagement, reflection on emergencies or forecasting. This section investigates how designers develop and test their models, both at production, implementation and research levels. The areas of investigation are those addressing innovation, social engagement and pursuing a reflection on emergencies or forecasting. The section is intended as an arena for discussion on topics revolving around both the different moments in the history of design and the contemporary condition. The contributions collected in the Processes Section reflect the current condition of the disciplinary debate, which is strongly characterized by a profound transformation of design processes due to the comparison with scientific research methods, with a prevailing interest for methodologies and contemporary priorities as the environmental one, or to the dematerialization of processes.

The third chapter focuses on as a theoretical and practical strategy aimed at facilitating and fostering experiential interactions among people, between people and objects or environments. This section aims at investigating the foundations and the implications of a specifically experiential turn in design from various perspectives and in various disciplines. Due to the multifaceted nature of this turn, both theoretical and practice-based research are testified by contributors.

Finally, the last chapter is on narrative. The narrative vocation of design represents a crucial key of interpretation in contemporary cultural expressions such as making history, representing through different media, archiving and exhibiting. This section explores narratives in three different "dimensions": narrative as a scenario (envisioning new contexts, behaviors, uses, spaces); narrative as a tool (creating new ways to trigger innovation); and narrative as a process (framing new methodologies to face complex issues).

Each chapter reflects the results of the conference held in Parma and is constituted by the analysis of concrete case studies and theoretical and methodological proposals aimed at highlighting the "multiverse" character of design. It is organized in the thematic subsection defined for the conference program, just to emphasize the prevailing interpretative trajectories.

A special thanks to the institutions that have funded the conference and the present publication (The Department of Humanities, Social Sciences and Cultural Industries and CSAC, University of Parma; the Department of Philosophy and Communication Studies, University of Bologna; the Department of Humanities, University of Palermo; the Department of Design, Politecnico di Milano; and the Department of Engineering Enzo Ferrari, University of Modena and Reggio Emilia) and all those who, in different ways, have contributed to reach this result (particularly Alice Biancardi and Marta Elisa Cecchi, and also: Okuniev Avhustyn; Katia Botta; Gabriela Del Rosario Abate; Giorgia Ferri; Salvatore Martino; Serena Massimo; Diego Valle; and Laura Xhaja).

Without their help, it wouldn't have been possible to make this event and this volume happen. We hope that this book will become a useful tool of reflection on the theoretical and methodological aspects between humanities and design.

The scientific committee and book editors:

Giampiero Bosoni, Elisabetta Di Stefano, Gioia Laura Iannilli, Giovanni Matteucci, Rita Messori, Raffaella Trocchianesi and Francesca Zanella.

Reference

1. Celaschi, F.; Penati, A.; Trocchianesi, R. Design e Humanities al Politecnico di Milano, pp. 16–30. In M. Celi; E. Formia (eds) Humanities Design Lab. Le culture del progetto e le scienze umane e sociali. Maggioli editore, Sant'Arcangelo di Romagna (2016).

Contents

NARRATIVES. Critical Approach, Languages, Explorations

OBJECTS

Beyond the Beauty-Utility Diatribe

Towards New Aesthetic Categories for the Eco-design

Elisabetta Di Stefano(✉)

Department of Humanities, University of Palermo, Palermo, Italy
elisabetta.distefano@unipa.it

Abstract. The aesthetics of industrial objects has traditionally been framed by the diatribe opposing beauty and utility. Modernism has privileged a simple but functional aesthetic, following the motto "less is more". In the second half of the twentieth century, new aesthetic categories emerged that enhanced playfulness, irony, and memory. At the turn of the century, industrial production faced the challenges of environmental sustainability: this is how ecodesign has come about. Originally quite a niche, this new trend is now practiced by many brands. Design today is geared towards natural fibres and recycled materials, reconciling beauty with the ethics of responsibility. Given these premises, this essay aims to outline a theoretical framework for the aesthetics of industrial objects, which goes beyond the useful Vs beautiful dialectics. In this regard, centre stage is taken by the notion of frugality. Already prominently featured by the sociological and anthropological debate, this notion is now also part of the architectural discourse (see the *Manifesto for a Happy and Creative Frugality*). As it combines beauty, health, and well-being, frugality provides an aesthetic-functional category, and it can notably provide a theoretical model for the production of sustainable objects and clothes. Nevertheless, the challenges faced by design in the ecological transition are broader. They concern in fact a different way of relating to the environment and designing lifestyles. In this regard, frugality can also become an ethical-aesthetic measure of life and a healthy way of inhabiting the world.

Keywords: aesthetics of care · aesthetics of frugality · ecodesign · eco-fashion · lifestyles; aesthetics of design

1 Introduction

The aesthetics of machine-made mass-produced objects has often been framed within the diatribe opposing beauty and utility. In contrast to the artisanal production of unique pieces, which can borrow from the major arts the values of originality, creativity, and beauty, industrial objects would boast greater cost-effectiveness, but little aesthetic value. Design research has consequently strived, as is well known, to bestow beauty on the objects of industrial design [1, 2].

While defining the architecture of the twentieth century, Modernism, and its favour for simple and functional forms, has also strongly impacted object design. The motto

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 3–10, 2024.
https://doi.org/10.1007/978-3-031-49811-4_1

"less is more" coined by the German architect Ludwig Mies van der Rohe, pointed in the direction of essentiality. For Mies, the "steel skin-and-bones" form of an architecture or of an object is the result of rational research aimed at revealing the structure of things, bringing out their intrinsic beauty.

In the second half of the century, new trends emerged which, although pointing in diverging directions, opposed rigid modernist functionalism. In the wake of Robert Venturi—whom we owe the idea that the maxim "less is more" should be replaced with "less is bore" —, but also of Charles Jenks, and of the groups Alchimia and Memphis, a "postmodern" aesthetics featuring eclecticism and decorativism developed.

The industrial objects of the second half of the twentieth century are fun and extravagant, re-reading the Baroque in the light of pop culture. Therefore, they give up not only simplicity, but often also functionality—one could mention, for example, the imaginative creations of Alessandro Mendini, Andrea Banzi, Achille Castiglioni, among others on the Italian scene. Some postmodern objects aim at the recovery of memory and lost roots, becoming carriers of anthropological meanings and ritual values, others instead stimulate fantasy and humor, exaggerating shapes and colours. Form must no longer follow function, pace the well-known modernist principle (*Form Follows Function*), promoted by the American architect Louis H. Sullivan [3], but emotion (*Form Follows Emotion*), according to the intuition of the German designer Hartmut Esslinger.[1] In order to achieve this goal, it is not only necessary to visually seduce, but to stimulate all the senses, engaging the imaginative and affective sphere of the consumer: this is how emotional design comes about [5].

With the emergence of this new theoretical line in design culture, the big groups in the automotive, agri-food, and cosmetics industry have focused their research on the effects of sensory stimuli (i.e., noises, tastes, smells) on consumers. As a result, a paradigm shift has taken place: from a techno-centric design based on rationality and functionality to a holistic and anthropocentric design, which takes into account sensory experiences as well as the relationship between the objects and the user. This trend supports a new assessment of the space occupied by perceiving subjects as well as of the objects they interact with in the light of the aesthetics of atmospheres, as outlined by the German neo-phenomenologist Gernot Böhme [6, 7].

As it lays emphasis on sense perception (*aisthesis*), design culture has been influenced by those aestheticisation phenomena which, since the late twentieth century, have affected all areas of everyday life [8]. In the field of philosophical aesthetics, this issue has been first addressed by Wolfgang Welsch [9], however numerous studies have since then pointed out how the search for beauty, originality, and creativity has transferred the categories of art to everyday objects, and wrapped them up in a sort of "aesthetic ether" [10]. It is no coincidence that some scholars have resorted to the category of aura to indicate the halo of artistry that seems to emanate from certain objects turned into "cult goods" by their branding [11]. Paradoxically, whereas aura for Walter Benjamin was "the unique appearance of a distance, yet near it may be" [12] and was linked to the unrepeatability and authenticity of the work of art, aura is now attached to serial industrial products. Thanks to their brand, design objects acquire symbolic value and,

[1] Founder of Frog Design, Esslinger has collaborated with big international brands such as Sony, Apple, and Louis Vuitton. [4]

consequently, a higher economic value regardless of quality requirements. Although Jane Forsey [13] has remarked that aura is a "weak" category within the framework of design aesthetics, as it fails to explain the appreciation of objects in their ordinary use, there is no doubt that by now capitalism in Western societies has a strong aesthetic connotation and relies on the categories of art to seduce consumers and promote sales regardless of needs. In this scenario heavily featuring the "staging" of goods, design has had—and continues to have—a key role in the various areas of what Böhme calls "aesthetic economy" [14].

According to Lipovetsky and Serroy [15], four eras in the aestheticisation of the world can be distinguished; in each of these eras, the systems of production, distribution, and consumption have been variedly imbued and reshaped by operations of an aesthetic nature. In the most recent era, the "transaesthetic" one, the exposure value has replaced the functional and ritual values still featured in the previous eras. In this phase, the *homo aestheticus* has lost all cultural points of reference, and wanders around chasing the mirages of aesthetic consumerism, whose goal is not to satisfy desires but to always arouse new ones.

Marked by hyper-consumption, fast-fashion [16], excessive production of garbage, and highly polluting waste materials, this phase has had a major role in damaging the environment; consequently, the design must address the crucial issue of "planned obsolescence of products". Design culture today sees a new trend emerge, which—without giving up the aesthetic component (i.e., hedonism, playfulness, image, beauty, creativity)—has also embraced the ethical dimension. Mixed approaches have emerged, such as responsible consumption and sustainable luxury. The hybridisation of ethics and aesthetics, of art and ecology, is the defining feature of our time, what Lipovetsky and Serroy call new transaesthetic capitalism [15]. Products now embody values that go beyond the useful Vs beautiful dialectics, including respect for the biosphere and sustainable development [17]. At this turning point, new avenues are opening up for design culture, and new theoretical models need to be identified which can guide design to devise lifestyles in harmony with the world we inhabit.

2 Sustainable Design Between Ethics and Aesthetics

Nowadays design is facing a new cultural paradigm shift: environmental sustainability. The ecological question actually emerged with the oil crisis of the 1970s and 1980s. Bio-inspired design came about back then, and, based on the aesthetic category of mimesis [18], aimed not only to imitate the morphological aspects of nature, but also to emulate its operating processes and organisational and behavioural models [19]. However, environmental commitment was back then a niche and strongly ideological trend, linked to environmental activism, the political emergence of green movements, and the widespread opening of specific points of sale for organic and natural products—especially in the food and cosmetics sector. Differently, today the awareness of the depletion of natural resources and the risks caused by industrial pollution is more common and has led several people to change their lifestyles. As a result, people are often willing to spend more on sustainable, quality products that reconcile ethics and aesthetics. This is why, according to Lipovetsky and Serroy, in the new millennium the issue of environmental

sustainability has become a "big business" [15]. In fact, a new synergy between industry and ecology, as well as between market economy and sustainable development, has emerged. In these hybridisations, design plays a significant role, in that we expect the design of objects to take into account not only aesthetic and functional factors, but also their environmental impact. As a result, both mass-market and luxury companies openly boast their environmental commitment. A new "green" capitalism has then come about, which creates alliances between consumerist futility and planetary responsibility.

The sustainable aesthetics behind the new design orientations once again revolves around the materials. Modernism favoured solid and transparent materials, such as steel and glass, inspired by a minimalist aesthetic, which for Paul Scheerbart, one of the earliest theorists of *Glasarchitektur,* was also an expression of moral rigor [20]. In the second half of the twentieth century, design used indestructible, hygienic, and "disposable" plastic, in line with the fast-paced life of the economic-boom society.

Contemporary ecodesign uses instead natural fibers, recycles waste, exhibits imperfections, and therefore can find an interpretative key in the aesthetics of care, as outlined by the Japanese-American philosopher Yuriko Saito [21]. Along these lines, what has been thrown away or set aside by the consumer society undergoes creative rehabilitation and comes back to new life [22]. Within this framework, the imperfection of the products, instead of becoming waste, as in the traditional model of production, is enhanced and put on display, as in the Japanese art of *kintsugi* which, by gluing back pieces of pots and ceramic cups with a paste of gold powder, transforms fractures into ornament.

Along these lines design becomes the promoter of behavioural models which put care and respect before hedonism and appearance, guiding buyers towards responsible lifestyles or, as Vanessa Batut and Fred Causse argue [23], towards an "art of living" in which ethics and aesthetics find reconciliation. Among the many creations that embody this ecological philosophy, we could mention the *Spring Rain* lamp by the Japanese designer Nosinger, which is made of rice vermicelli; the *Ekobo* dinnerware in lacquered bamboo; the *Arka Ecopod* coffin in recycled and perishable—as its content—paper.

Research on materials has developed especially in the field of fashion, the sphere of the ephemeral and passing-by. As matter of fact, precisely to counteract the harmful consequences of fast-fashion, which creates new models every week, producing large amounts of waste, the fashion industry cannot avoid confronting the issue of environmental sustainability. This has led to the emergence of several companies that produce sustainable fabrics. Some examples can be found also in Italy. For instance, since 2014, Orange Fiber [24] has been producing fabrics from citrus by-products, that is, from juice production leftovers, which would be otherwise disposed at economic and environmental costs. By using technology to extract from citrus waste cellulose which is suitable for spinning, Orange Fiber is able to produce high-quality fabrics for the luxury fashion market.

Along the same lines, since 2016 Vegea Company [25] has been promoting the integration of chemistry and agriculture; the company name stands for the union of Veg (Vegan) and Gea (Mother Earth). Vegea transforms biomass and agro-industrial residues into new materials for fashion, furniture, packaging, and transport, and it has developed in particular an upcycling process for grape leftovers from wine production.

Other companies have patented materials made from the weaving of vegetable fibres (pineapple, mango, etc.) to replace the leather and avoid the pollution produced by chemical tanning [26]; the experimentation of fabrics derived from corn, soy, and milk—which produce the physiological well-being of those who wear them—has also been developed for the production of clothes and accessories in the field of women's, children's and even high fashion [27, 28]. These are soft fabrics that resemble silk and cashmere to the touch, but are more breathable, absorbent, and hypoallergenic. In particular, the milk yarn—produced from casein—is pleasant and comfortable on the skin. Dairy proteins have the characteristic of nourishing and hydrating and therefore this fabric turns out to be beneficial and stimulate blood circulation. It is no coincidence that these materials find great application in sports clothing and medical devices—such as sheaths, socks, leggings, etc.—that help microcirculation and drainage.

As a result, a new interpretation is provided of the dialectics between aesthetic and functional factors, inasmuch as beauty can no longer be separated from the comfort and physiological well-being of the person, nor can it go to the detriment of those moral values that define a behavioural habit. In light of this new lifestyle, designers and brands that resort to these sustainable fabrics have the opportunity to create objects and clothing items in which aesthetics is reconciled with the ethics of responsibility. Wearing a dress or an accessory is therefore not only a way to protect or beautify one's body, but it can also express a different relationship with the environment.

3 Frugality as an Aesthetic Category for Ecodesign

Although design is increasingly attentive to environmental issues, the theoretical debate is still ridden by ambiguities and uncertainties, and a conceptual framework suitable for the interpretation of eco-sustainable products is still missing. Design theorists are well aware that, in order to solve current environmental problems, it is not enough to develop clean technologies and sustainable processes and products, but it is necessary to impact lifestyles [29]. To this aim, the appeals coming from various quarters in favour of an economic model focused on reducing—i.e., reducing waste, consumerism, waste materials, and energy consumption—should not translate into a reduction in the symbolic value of goods; rather, their symbolic value needs to become richer and denser if it is to transform people's habits, directing them towards healthy models of life in harmony with nature. It is, therefore, necessary to identify aesthetic categories which are capable of promoting new lifestyles without diminishing the symbolic value of products.

In this respect, the category of frugality could produce the desired outcome. Already introduced in the architectural debate by the architect Paolo Soleri [30, 31], and later developed further by an international movement (*Manifesto for a Happy and Creative Frugality in the Architecture and Planning of Urban and Rural Areas* [32]), frugality stands for an architecture profitably integrating natural or recycled materials and counteracting the hyperconsumption and waste which characterises contemporary capitalist societies.

In the wake of Wright's organic architecture, Soleri supports the "lean alternative", which is not only a working method but also a lifestyle based on the principle of "more with less". According to Soleri, each of us, regardless of the amount of resources available, should use the bare minimum. It is not a question of reinterpreting Ludwig Mies

van der Rohe's rationalist motto "Less is More", but of establishing a new relationship between human beings and nature focused on leanness [33]. Soleri's "more with less" might recall Walter Benjamin's words. In *Experience and Poverty* (1933) Benjamin argues that poverty of experience could be an opportunity for renewal and a reason for building from scratch [34]. Upon closer inspection, Soleri's leanness seems to come close to the concept of frugality, that in classical culture expressed the golden middle way between too little and too much [35].

This category seems particularly suitable to interpret industrial production focused on natural fibres and agro-food waste, as the same etymology of the word (from the Latin *frux, frugis*) references fruits, the products of the earth. Moreover, as Roman civilisation believed frugality to be an "agrarian virtue", and connected it to the farmers' ability to know how to tell apart the essential and the superfluous, this notion can provide the "frugal" object or habit with a symbolic value aimed at promoting sustainable lifestyles. In time, the adjective frugal has in fact undergone a metaphorical spin and has been used to qualify a honest, upright, correct behaviour. When it comes to design such a moderation-based approach should not be understood as a renunciation of comfort and aesthetic aspects, but on the contrary as a critical space open to a positive and creative perspective, which symbolically reinterprets the ancient agrarian virtue of frugality. Today both the term frugality and probity have entered the sociological and anthropological debate to indicate a healthy way of life, capable of restoring a balanced relationship with nature. This new harmony between human beings and nature may lead to a condition of well-being—or even happiness [36]— what in the consumerist economic model was only a distant mirage.

Within this context, design can play a decisive role, inasmuch as it can transform an ideal of life into a socially structured and widespread practice. By designing objects made of recycled materials or natural fibres, design can offer "frugal alternatives", counteracting both the "conspicuous consumption" trend [37] typical of contemporary capitalist societies and its harmful impact on the environment. The goal of design, however, should not only be the production of objects, albeit made of recycled materials. In fact, it is not enough to give aesthetic value to waste, as no change is thus produced to the economic model; such a direction could even lead to increasing the production of waste to be recycled. Design should instead act on the symbolic value of goods, proposing lifestyles in which happiness is not connected to luxury but to frugality. Frugality is not, despite the general belief, a negative concept; it does not stand for decrease or renunciation, not even for simple life, as Emrys Weastacott points out [38]. Frugality expresses the pleasure (from the Latin verb *fruor* = to enjoy) that comes from a healthy and moderate lifestyle which, being fully satisfying, does not need the superfluous. By embracing such ecological aesthetics, design can mark out an important space for reflection but, above all, it can initiate creative paths leading to more widespread responsible lifestyles. These latter would ultimately call for a sustainable political and economic system that reconciles human beings with nature.

4 Conclusion

Design culture is nowadays facing the challenges of environmental sustainability. Although many solutions have already been tested in terms of technique and production processes, the theoretical debate still features ambiguities and the available interpretative models lack assertiveness. Design has walked past the traditional diatribe opposing beauty and utility, and new interpretative standpoints are required in order to include the ethics of responsibility and respect for the environment. In this regard, useful input can be provided by the aesthetics of care as aimed at positively assess the creative recovery of waste and the enhancement of imperfections. Furthermore, the aesthetic category of frugality provides a promising framework, inasmuch as, far from pointing to a decrease, it conveys the feeling of satisfaction produced by the right middle way between excess and deficiency. Originating in the agricultural milieu of Roman civilisation, this category does not only fit the production of objects with natural fibres and out of agro-food waste, but it is above all capable to guide design to devise healthy and sustainable lifestyles, ultimately restoring harmony with nature.

References

1. Bologna, F.: Dalle arti minori all'industrial design. Storia di un'ideologia. Laterza, Roma-Bari (1972)
2. Vitta, M.: Il progetto della bellezza. Il design fra arte e tecnica dal 1851 a oggi. Einaudi, Torino (2001)
3. Morrison, H.: Louis Sullivan Prophet of Modern Architecture, 2nd edn. Norton Co., New York (1952)
4. Edwards, O.: Form Follows Emotion. Forbes, 237–238 (11 December 1999). https://www.forbes.com/asap/1999/1112/237.html. Accessed 03 Nov 2023
5. Norman, D.A.: Emotional Design: Why We Love (or Hate) Everyday Things. Basic Books, New York (2005)
6. Böhme, G.: Atmosphäre. Essays zur neuen Ästhetik. Suhrkamp, Frankfurt am Main (1995)
7. Zumthor, P.: Atmospheres. Architectural Environments. Surrounding Objects, 5th edn. Birkhäuser Verlag, Basel (2006)
8. Di Stefano, E.: Iperestetica. Arte, natura, vita quotidiana e nuove tecnologie. Centro Internazionale Studi di Estetica, Palermo (2012)
9. Welsch, W.: Undoing Aesthetics. Sage, London (1997)
10. Michaud, Y.: L'art à l'état gazeux. Essai sur le triomphe de l'esthétique. Hachette, Paris (2004)
11. Francalanci, E.L.: Estetica degli oggetti. Il Mulino, Bologna (2006)
12. Benjamin, W.: The Work of Art in the Age of its Technological Reproducibility (Second Version). In: Selected Writings 1935–1938, Vol. 3, pp. 104–105. Transl. by Edmund Jephcott and Others. The Belknap Press of Harvard University Press, Cambridge (Mass.)-London (2002)
13. Forsey, J.: The Aesthetics of Design. Oxford University Press, Oxford (2013)
14. Böhme, G.: Critique of Aesthetic Capitalism. Mimesis International, Milan (2017)
15. Lipovetsky, G., Serroy, J.: L'esthétisation du monde. Vivre à l'âge du capitalisme artiste. Gallimard, Paris (2013)
16. Choi, T.-M. (ed.): Fast Fashion Systems: Theories and Applications. CRC Press, Boca Raton (2017)

17. Papanek, V.J.: The Green Imperative. Ecology and Ethics in Design and Architecture. Thames & Hudson, London (1995)
18. Halliwell, S.: The Aesthetics of Mimesis. Ancient Texts and Modern Problems. Princeton University Press, Princeton (2002)
19. Benyus, J.: Biomimicry: Innovation Inspired by Nature. Perennial, New York (1997)
20. Scheerbart, P.: Glass Architecture (1914). Sharp, D. (ed.), transl. by S. Palmer and J.C. Palmes. p. 8. Praeger, Westport, (Connecticut, USA) (1972)
21. Saito, Y.: Aesthetics of Care. Practice in Everyday Life. Bloomsbury, London (2022)
22. Dagognet, F.: Des détritus, des déchets, de l'abject. Une philosophie écologique. Institut Synthélabo pour le progrès de la connaissance, Paris (1998)
23. Batut, V., Causse, F.: Design responsable. Guide et inspirations pour un nouvel art de vivre. La Martinière, Paris (2010)
24. Orangefiber Homepage, https://orangefiber.it/it/
25. Vegea Homepage, https://www.vegeacompany.com/
26. Tessile Ecobio Homepage, https://www.tessileecobio.net/eng/
27. Priore, C.: Ricerca e innovazione per tessuti sostenibili e con effetti benefici. TechnoFashion, 54–55 (December 2020)
28. Emilio Ricci Homepage, http://www.emilioriccigroup.com
29. Manzini, E., Vezzoli, C.: Design for Environmental Sustainability. Springer Nature, Berlin (2008)
30. Soleri, P.: Arcology. The City in the Image of Man. MIT Pres, Cambridge, Mass (1970)
31. Soleri, P.: What if? Collected Writings 1986–2000. Berkeley Hills Books, Berkeley (2003)
32. Mouvement pour une Frugalité heureuse et créative Homepage, https://frugalite.org/en/manifesto-for-a-happy-frugality
33. Lima, A.I.: Soleri. Architettura come ecologia umana. L'opera completa. Jaca Book, Milan (2000)
34. Benjamin, W.: Experience and Poverty. In: Selected Writings 1927–1934, Vol. 2, pp. 731–736. Transl. by R. Livingstone and Others. Jennings, M.W., Eiland, H., Smith, G. (eds.). The Belknap Press of Harvard University Press, Cambridge (Mass.)-London (1999)
35. Di Stefano, E.: Frugality. An aesthetic category for a sustainable art of living. Contemporary Aesthetics (forthcoming 2024)
36. Rabi, P.: Vers une sobriété heureuse. Actes Sud, Paris (2010)
37. Veblen, T.: The Theory of the Leisure Class (1899). Oxford University Press, Oxford (2009)
38. Weastacott, E.: The Wisdom of Frugality. Why Less is More – More or Less. Princeton University Press, Princeton (New Jersey) and Oxford (2016)

“The Useful-Beautiful Couplet”: On the Aesthetic Appraisal of Designed Objects

Jane Forsey(✉)

University of Winnipeg, Winnipeg, Canada
j.forsey@uwinnipeg.ca

The design!open conference held in Parma, Italy, in May of 2022 exhibited the wealth of recent work in interdisciplinary approaches to design. One ‘track’, in which I was invited to participate, focused on design objects, and suggested that design is a “carrier of functional, symbolic, narrative, experiential values” that “go beyond the traditional useful-beautiful couplet.” [1] In this regard, my presence as a philosopher rather than a design theorist was somewhat that of an outlier, for my aesthetic theory of design remains precisely within this couplet and seeks to understand the relation of form and function as two central elements of designed objects relevant to our aesthetic appraisal of them as being beautiful or aesthetically valuable. This is not to deny the many ways in which designs can be used to display symbolic and/or expressive import but that this import takes us beyond a specifically aesthetic theory of design, which it is my concern to sketch here.

Beauty is the original focus of philosophical aesthetics, and much of the history of the discipline has been an attempt to produce what I will call a unified theory of beauty—defining what beauty is, on the one hand, and how we come to perceive or experience it on the other. Immanuel Kant’s theory is perhaps the most comprehensive and influential, and has informed my work on design [2]. What unified theories of beauty have in common is that they claim beauty is the same wherever it appears, and objects that are beautiful are all beautiful in the same way, or for the same reasons, or as a result of the same singular experience, or due to the same judgement. So, a sunset, a human figure, a work of art, a designed object—if beautiful—will share the same property, and be equally worthy of the same attention and appreciation. Even if we broaden the notion of beauty to that of ‘aesthetic value’ more generally, as has been the practice in most contemporary aesthetics, we find the same search for the same unified theory: aesthetic value has been defined as intrinsic and sui generis—again, as being therefore the same across all possible objects and experiences. As Robert Stecker has recently argued, aesthetic value is “everywhere. [It] can be realized in different ways in different media but it cannot be a different value in different media” [3]. And so beauty is seen as a singular value that is shared by all objects that merit our appraisal.

This is not the place to debate the merits of a unified theory of beauty except to point out that were it true, there would be no need for an aesthetics of design as a uniquely interesting object of philosophical investigation: beauty would be beauty wherever it appeared, in art, sunsets and flamingoes no less than in shoes, kettles, and bicycles. Yet my position has been that designed objects have certain characteristics that make our appraisals of them importantly different from nature and art, characteristics that

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 11–20, 2024.
https://doi.org/10.1007/978-3-031-49811-4_2

merit closer philosophical attention. From the point of view of users or consumers of design, rather than creators, manufacturers or marketers of them, designed objects are an important part of our everyday lives and activities and in this their functions cannot be overlooked in favour of their form alone.

In one sense, the unified theory is not wrong: we can go to a museum, such as the Louvre, or the MOMA in New York, and look through protective glass at delicate porcelain, at 18th century inlaid desks, and admire their grace, elegance and symmetry, or their arrangement of shapes, forms and colours, and find them beautiful or aesthetically pleasing. The unified theory of beauty places its emphasis on how things look and the pleasure we take in them for that reason. And sometimes we respond to designed objects in just this way. Kant would call this 'free beauty' or the purely beautiful, and it can apply to anything, as the unified theory suggests.

But this approach treats designs as *objets d'art*, or what in English we also call 'conversation pieces', or 'decorative art', where a vase or a table is not used, but displayed, with the intention of being merely appreciated for its look and formal qualities alone. We are not in this regard treating these things expressly *as* works of design however: we are aestheticizing them, in effect moving them from one ontological category of object to another. Categories admittedly can be fluid, and mutable: what was once a designed object meant to be used can become a museum piece of decorative art, or even gain the status of artwork proper, such as African tribal masks, early Christian altarpieces or ancient pottery. My work does not define design in essentialist terms, according to a set of necessary and sufficient conditions but remains sensitive to these historical fluctuations. Nevertheless, my focus is on the appraisal of design *qua* design, when (and while) the object forms part of our quotidian lives. Further, it is important to note that we can make a number of different kinds of judgements about the same object: we can assess a painting for its financial or investment value, or make a prudential judgement about whether hanging it *over there* will cover a hole in the wall; we can judge a shoe ethically as to its materials or the labour practices involved in its manufacture, or *purely* aesthetically as to its elegance in shape, colour and form. Kinds or types of judgements are equally fluid and mutable but need to be distinguished for the purposes of analysis. By 'appraisal' of design, I mean specifically the *aesthetic* judgements we make of designed objects when they are taken *as* design rather than *as* art or *as* conversation piece or *as* carrier of narrative/symbolic meaning (or *as* marketing tool)—and these judgements taken in isolation from our other moral, economic or instrumental concerns.

When focusing on the ontological category of designed objects *per se*, we can observe relatively uncontroversially that while designs have formal properties of shape, colour and so on, they are also purposive things: designs are functional objects, and these functions are relevant to our appreciation of them because when we make an aesthetic judgement about a thing, this judgement cannot ignore the object's ontological status (however loosely we define it to be). We evaluate works of art in a particular way when we know they are artworks (for instance, we interpret them for their meaning). While judgements of free or pure beauty are always possible, even Kant accepted that they occur mostly in nature, as when we appreciate a flower or a seashell for its form alone. The rest of the time, our aesthetic experiences are more complex, and are conditioned by our knowledge of the kind of thing we are presented with.

Designed objects have (at least) two important elements for the consumer or user: form and function—the couplet—and our task becomes one of understanding how these elements come together in an aesthetic appraisal of a given work of design. If we emphasize form over function, we are led in the direction of someone like David Pye's theory of design, who writes that "whenever humans design and make a useful thing, they invariably expend a good deal of unnecessary and easily avoidable work on it which contributes nothing to its usefulness". For Pye, design is all about decoration, or embellishment, which he sums up as "primarily doing useless work on useful things" [4, 11–13]. This, as I have noted, amounts to the aestheticization of design. And if this were indeed the case, we could merely rely on a unified theory of aesthetic value, and have no need to talk about the particular nature of an aesthetics of design at all. Design appreciation would be the same as all other aesthetic appreciation, which I contend it is not.

The alternative, that we emphasize a work's functional properties instead, brings us up against the opposite extreme, in the likes of Adolf Loos, who saw ornament as a crime in design, or a symptom of vulgarity. Dieter Rams, one-time president of the German Design Council and chief designer at Braun, claimed that "people do not buy a specific product just to look at it, rather because it performs certain functions…The festival of colours and form and the entertainment of form sensations enlarges the world's chaos…[Design] must conform in the best possible way to the expectations that result from the function the product fulfills" [5, 111–113]. While both positions may accurately reflect moments in design history, I do not think that either of them are complete. We do not present design awards to things based solely on how they look, regardless of whether they work, but nor do we celebrate the purely functional while ignoring its form. If we did, museums would be filled with hammers, paper bags and toothpicks. Instead, we need a more integrated approach, where form and function are taken together in our aesthetic appreciation of design; Kant called this 'dependent beauty', but I prefer something like 'functional style'.

Let me begin with function. The function of an object refers to what it was intended or meant to be, and must not be confused with the use to which it may later be put. A snow shovel may well be used to prop open a door, but that is not what the shovel was designed for—it was intended to remove snow. Even if the shovel works very well to keep my door open, I do not then call it a doorstop, but I acknowledge that it remains a shovel: I place it in a certain ontological category as being a particular kind of thing, even if my own subsequent use of it is somewhat idiosyncratic. When we appraise a design—in a competition, for instance, or as a potential buyer—we need to understand the object in terms of this 'originating' function—what it was designed to be, whether by creator alone, or creator in conjunction with commissioning client, or by corporate directive—rather than how it might later come to be used. We slot designs into different categories in competitions, and these categories rely on some definition that is grounded in originating function that stays with the object, rather than in a history or pattern of use, or indeed in the forces operating in the marketplace [6]. This is an avowedly intentionalist approach to design ontology, and draws a distinction between function and use, which I think can be too easily elided. David Pye, for instance, is guilty of such an elision when he defines function as "[w]hat someone has provisionally decided that a device may

reasonably be expected to do at present" [4, 14] but this flies in the face of linguistic and conceptual evidence. We may *use* objects in any number of ways without effecting an alteration in what they actually *are* or are designed to be. As Parsons and Carlson note, "[w]e do not need a theory to tell us *that* propping up a garage door is not the 'right' function…of a particular shovel, but we do need a theory to tell us *why* this is the case" [7, 88] and Pye's elision does not provide such a theory as it eliminates the notion of 'designed-to-be' altogether in favour of a kind of ontological subjectivism, where objects become whatever he says they are, whether they start out as shovels or even rocks and other natural phenomena. By contrast, the categorization of an object—what it *is*—must be grounded in, and determined by, some originating function that gives it a stable identity. Uses to which an object may be put do not have the ability to alter its ontological status as being a thing of a certain kind (and objects of nature cannot be said to have functions in the appropriate sense, not matter how useful they may be).

The originating function of an object need not be found in the designer's intention as I have located it (for Parsons and Carlson it is determined more by marketplace success). But however the notion of function is parsed, it remains distinct from use, and we need to know what ontological category in which to place an object in order to be able to make a specifically aesthetic judgement about it. Aesthetic assessment is grounded in the identification of the object, if we seek to appraise it *qua* design. For a unified theory, or a judgement of 'pure' beauty, what the object is does not matter: as Kant has noted, in these judgements "one does not want to know whether there is anything that could be at stake, for us or for someone else, in the existence of the thing, but rather how we judge it in mere contemplation (intuition or reflection):"—that is, on the basis of the mere appearance of a representation to the mind when we are "indifferent" with regard to the "real existence of the object of this representation." [8] An instrumental assessment, such as a painting being useful to cover a hole in the wall, equally does not have this strong requirement of knowing the object's originating function: it doesn't matter in this case that it is a painting, just that it is the right size and shape to perform the use we seek to make of it. But to make an aesthetic appraisal of a design, it must be understood to *be* a designed object, first, and second to be a particular object that can be identified as such in order for evaluation to get off the ground.

Further, knowledge of a design's function must be *direct* rather than theoretical. Reading about the physics of balance and load, the manufacture of metals and plastics, cold and heat resistance, and so on, will not help me assess a particular snow shovel unless (i) I am directly acquainted with snow and its removal, and (ii) I actually hold, touch and work with the shovel in my hands. The consequence of this direct knowledge is that aesthetic evaluation of a design will be historically and culturally specific: those who can appreciate a design will be those who are from a place and time where the object is directly relevant to their daily lives. And this relevance will count for nothing without hands-on experience. We cannot appraise a desk, a mask or a shovel by merely looking at it behind glass in a museum: what I have called the 'aestheticization' of design on the lines of a unified theory of beauty is also an *alienation* of the object from our lives, that forces us to consider its formal properties alone. Equally, knowing the originating function of a design is also not enough: when we appreciate an object, we are concerned with its *success* in fulfilling its function: we do not award merit to, appreciate—or

intentionally purchase—designs that fail, or work poorly, or are inferior in doing what they were meant to do. Kant called this the requirement of 'perfection' in his discussion of dependent beauty, but what he seems to have meant was that we need to know not only what kind of object a thing is meant to be, but whether or not it is also a *good* thing of its kind. Someone who has no experience of clearing 60 cm of snow on a February morning will be ill-equipped to appraise a shovel's design without getting outside and using it. But if one *can* appreciate it, then when they do, it will be because, in part, the shovel works very well, or fulfills its (known) purpose. Thus, to appreciate a given design, we need to ask of the object in front of us, "what is it?", and when we do, we do so in terms of the auxiliary questions of "what is it meant to be?", or "what is it for?", and finally, we ask "is it any good?", and those competent to give this assessment will require direct, hands-on experience with the design in question. Knowledge of originating function is a necessary condition for the aesthetic appreciation of design.

But this gets us only so far. After all, the knowledge requirement on its own does not seem to be so much *aesthetic* as cognitive and it is not yet clear what it has to do with a design's beauty. It is also, in part, a merely negative constraint: it suggests that we will not find failed or poor designs to be aesthetically valuable, even if they can be beautiful in the pure or free sense of the term. But, conversely, even if something works very well, like a hammer does in driving in nails, this does not *on its own* make it aesthetically praiseworthy: success in function may be necessary, but it is not sufficient, for aesthetic value. A further step is needed to complete this sketch, and here we can make use of the notion of 'functional style' through a distinction between ornamentation and decoration.

By 'style', I will follow the philosopher Leonard B. Meyer and define it quite narrowly as "a series of choices made within some set of constraints" [9], and we have already seen that success in function is one constraint upon the beauty or aesthetic value of a design. But within that constraint, there is choice about the *way* a design fulfills its function, and this directly involves its form as well. While the specific function of an object is determined on an intentionalist account, form is importantly *underdetermined* and herein lies room for differing aesthetic judgements of design. The function of an object gives it ontological stability, and our knowledge of that function, even while culturally and historically specific, grounds the aesthetic appraisals we make of it as a design. But this cognitive element lacks, and even perhaps seems to impede, the normativity of aesthetic evaluation, with all of its room for disagreement and variety. One easy way out of such an impasse is to suggest that the aesthetic element of design rests solely on its form; I reject this as a reversion to the unified theory. Instead, functional style must take up both form and function in aesthetic appraisal, while allowing for a breadth of responses.

Equally good bicycles, for instance, can be widely different, as having hand brakes, or brakes in their rear wheels, as having 12 gears or none, as being upright or recumbent, and so on. These reflect stylistic choices in how a given design will fulfill its function. What makes one more aesthetically valuable than another? When we appraise a design, we appreciate its style—the visual, auditory and tactile *result* of choices made within functional constraints that have created *this* thing in front of us instead of something else, or as Robert Wicks put it, "the *contingency* of the way the object realizes its purpose so very well." [10] The properties that make an object a good member of its kind are actually

aesthetically relevant in our judgements because they are apparent to us, and they *show up*: they are not merely background knowledge which we need to have, that we can then ignore in order to go on and have an aesthetic experience of a bicycle's formal elements alone; they are part of our assessments of a bicycle's aesthetic value. This also means that, unlike in cases of the pure beauty of a seashell, the complex beauty of design will always have a cognitive basis, and will always involve comparative judgements—how this bicycle achieved its goal as opposed to that one, what choices this object displays as opposed to another: "we compare alternative means to a single purpose, as we reflect upon the contingency of an object's form as this form realizes the object's purpose." [11] When we appraise a design's style, we make an aesthetic judgement about the way it achieves its purpose, and how that way is clear in the finished product. Two bicycles may be equally good for riding, even if vastly different in the way that they achieve their function. Our aesthetic appraisal of one as more beautiful or aesthetically valuable than another will involve (i) our knowledge that it is a functional bicycle, and (ii) our perception of the way that it fulfills its function, or the choices the designer made in its conception, or the style it displays as a result of those choices, in contrast with other choices, other styles, other innovations in objects of the same type or kind. The formal elements of a design reflect these stylistic choices and can lead to widely differing results. We respond to these differences and when we do, we are not responding to form alone but to the play of form and function in the finished product.

It was Kant who made a distinction between ornamentation and decoration which might sound strange to us now, as we tend to use the terms interchangeably in English, but the distinction is useful to elaborate on this notion of style [12]. Ornament, Kant claimed, can add to our aesthetic pleasure, through a play between function and form; while it is subordinate to function, it is not simply applied after the fact but is integral to our aesthetic experience of the object. Decoration, he dismissed as superficially adding mere charm or emotion, and hence as *irrelevant* to an object's beauty, or in fact perhaps even hindering it, as it speaks to merely subjective preferences at best, or even at times to the manipulation of them.[1] Ornament need not always highlight a design's function, or make it look most fit to fulfill its purpose—fittingness, or seeming fit to perform a function, is too rigid a normative standard for design appreciation. Ornamentation can play with, question, down-play, or even partly conceal an object's function—but in any case, it is always taking up and *responding to* what the object is meant to be in its resultant stylistic choices. Consider the many different colours, intensities, and shapes of bicycle lights, for example. These are design choices that are nevertheless still related to the limitations of a bicycle needing a light of some kind (by law, in Canada) as part of its basic function. These are part of the functional style of the finished product but they also exhibit a great deal of latitude in ornamental details. And here aesthetic disagreement can occur: some may think that magnetic clip-on bicycle lights are an elegant solution to more cumbersome permanent structures that ruin the lines of a bike's frame; others may find they are too likely to fall off, get stolen or be too dim. Some find the bluish tint of LED lights not visible enough; others find halogen lights too blindingly bright. Within the parameters of function, style involves formal decisions but these are not *only*

[1] Kant's example was of a gilt frame around a painting as a way of making an inferior work seem more appealing by obscuring the object of our intended appraisal with its decorative casing.

formal, or purely about form, as they emerge from, and make reference to, functional requirements, and in the Kantian sense are ornament rather than mere decorative touches. Some may find the elegance of magnetic lights a suitable price to pay for their fragility; some may prefer the boxy look of permanent structures. We can—and do, especially in design competitions—discuss, and disagree about, the advantages and disadvantages of stylistic choices in our aesthetic appraisals. And these involve ornamentation in the Kantian sense of the term.

To be clear, there are also designs with no ornamentation at all. As such, they will have no style: the possible aesthetic choices within the object's functional constraints were simply overlooked or ignored. Without style, these objects will not have aesthetic value, even if they work particularly well—their value will be functional at best. Similarly, there are designs that are decorated or even highly decorated, where formal decisions have taken precedence over the objects' functions, or even ignored them altogether—and these will also lack aesthetic value as designs. For example, what makes most hammers aesthetically indifferent to us is their utter lack of ornament: they appear exactly as the utilitarian functional tools that they are, without style of any kind. They simply drive in nails, do it very well, and have not appreciably changed since their modern incarnation. But if we consider a recent North American trend of marketing pink tools (presumably to appeal to female customers) we find an example of mere decoration: their colour is completely incidental to, and unconnected with, their function, and in this case is, perhaps, even manipulative. Decoration is indeed Pye's 'useless work on useful things', while ornamentation is the visual result of style choices that take up, and respond to, the challenge of how an object might realize its function. Ornament is never merely contingent or extraneous, and is not simply decorative.

This distinction is helpful. First, while it shows that David Pye is wrong in his claim that form and function are unrelated, it also does not suggest that form merely *follows* function. Designer Stephen Bayley writes of Dieter Rams that he "admitted to making last-minute adjustments to a razor design because…[it] did not achieve the effect he had in mind. He did not admit to having *styled* it, but that was what he meant" [13, 53]. Rams was concerned with how the look, or the form, of the razor would play with its purpose and how that style would achieve aesthetic effect. Even for an avowed functionalist like Rams, form mattered *as* ornamentation and *as* integral to his design rather than as mere subsequent aesthetic detail.

Second, the styled choices in response to a design's function, while always relevant, can in fact lead to aesthetic failure, when they seem to, or actually do, violate what a thing is meant to be, and our aesthetic judgements reflect this as well. When the ornamented form of an object plays too much—strays too far into making it look unfit to fulfill its purpose, as when a teapot is shaped like a cat, an armchair, or a toilet, we approach kitsch: the object, while it does work, seems so inappropriate that it cannot sustain our appreciation because it does not appear to be what it is, and does not seem like it *could* work. Shaping a teapot like a cat is not mere decoration after the fact of manufacture, like a painted cat on a standard teapot would be: it is an ornamental stylistic choice in how this teapot in particular will fulfill its function and, because it strays too far, in seeming

to be inutile, or seeming to be a design failure even when not, we reject it, or downgrade it in our assessment of it.[2]

Finally, when the styled choices of a design actually *violate* its function, as with ceramicist Carl Borgeson, who makes deliberately non-functional teapots with their lids glued shut, or architect Katerina Kamprani's open-toed rain boots that let water in, we come to the actually non-functional and will have to exclude these objects from our appraisals of design beauty altogether. Krampani's works, in their extreme questioning of, and commentary on, the purpose of typical consumer products, actually effect a category shift, from design to perhaps work of art, and we respond to them differently by, for example, interpreting them for their meaning. But then they are no longer designs as such, and we are no longer making judgements of their aesthetic value *as* designs. A teapot that does not hold tea, a pair of boots that let in water rather than keeping it out, violate the necessary condition that designs need to work in order for us to even begin to appraise them aesthetically, and work well in order for us to find them beautiful. Lucía Jiménez Sánchez has argued that my exclusion of, for instance, Krampani's work unduly restricts an aesthetic theory of design to objects that are mundane and merely practical. She notes that functional accounts such as mine "are not consistent with design cases in which aesthetic judgements are not entirely supported by the object's practical or functional success." [14, 144] She is correct that my account excludes the impractical and the non-functional alike, but she is misguided to see this as a weakness: the unified theory of beauty applies to all objects, functional or not, and Krampani's work can therefore easily been seen to have aesthetic merit. But, further, Krampani's work can better be appraised, as Favara-Kurkowski notes, as "sculptures or a physical manifestation of a critique of design theory" in that it reflects on the practice and theory of design and expands it towards the overtly conceptual, "sabotaging the user experience" in the service of expressive or symbolic meaning [15]. In this it, again, effects a category shift from bona fide designed object as I have described it, to, perhaps, art itself. This returns us to the beginning: works appraised for their symbolic, expressive or critical meaning are not being appraised *as* quotidian, functional design for their aesthetic value. Design can indeed have these other uses but our responses to it will perforce reflect these and differ accordingly.

The notion of functional style, rather than unduly restricting an aesthetics of design, frees it from operating within the traditional parameters of an aesthetics of nature or free beauty on the one hand, and the appreciation of fine art on the other. To seek to include work such as Krampani's or Borgeson's—to defend design as having a status akin to that of art—in fact serves to reduce its scope: design is more complex than this because it is not always or only an aesthetic object, and our responses to design are more varied

[2] This is not to suggest that all of us do: some like kitsch for its qualities of playfulness or 'fun'. What I am trying to offer here are some general normative criteria for design appreciation that, while subject to disagreement and discussion, do not lapse into purely personal preference or 'liking'. We can imagine someone saying, 'sure it doesn't seem like it works, but it's pretty and I like it anyway'. But that, I maintain, is a purely subjective response that says more about that person than it does about the object being appraised. Aesthetic judgements, as normative, must make some gesture towards critical assessment and possible communication if they are not to be mere preferential or emotive responses.

because of the many ways it intersects with our daily lives. But if we seek to achieve a particularly *aesthetic* theory of design appraisal, then the beauty of design, when taken *as* design, will require the elements I have laid out: that we know what the object is meant to be, that we have direct first-person experience in the use of it, that it is seen as successful in fulfilling its function, and that its aesthetic value is derived from the style in which it does so. Designs without style may be very good and useful but will have no beauty. Adding decoration to them will not make up for, or mask, their lack of style. And ornamentation is that which augments our pleasure—until, and unless, it serves to detract from it. Objects that appear unfit to be used (even if they can be) will fail almost as quickly as those that do not work at all. The sketch I have offered here distinguishes design beauty from that of both nature and fine art, and shows us that a unified theory of aesthetic value is insufficient to account for the unique elements that make up the aesthetic appraisal of design.

References

1. See https://www.designopen.it/objects. Retrieved 13 October 2022
2. Forsey, J.: The Aesthetics of Design. Oxford University Press (2013)
3. Stecker, R.: Artistic value defended. J. Aesthet. Art Criticism **70**, 361 (2012)
4. Pye, D.: The nature and aesthetics of design. Van Norstrand Reinhold **11**, 13 (1978)
5. Rams, D.: Omit the Unimportant. In: Victor, M., (ed.) Design Discourse: History, Theory, Criticism, pp. 111–113. Chicago University Press (1984)
6. See for example the Industrial Designers Society of America's (IDSA) annual design competition, whose categories include furniture, children's products, sports, packaging and automotive, to name a few. https://www.idsa.org/idea-categories. Retrieved 13 October 2022
7. Parsons, G.: and Allen Carlson, Functional Beauty, p. 88. Oxford University Press (2008)
8. Kant, I.: Critique of the Power of Judgement. Ed. Paul Guyer. Cambridge University Press, Ak 5: 204-5 (2000)
9. Meyer, L.B.: Toward a Theory of Style, The Concept of Style ed. Berel Lang, p. 21. Cornell University Press (1987)
10. Wicks, R.: Dependent Beauty as the Appreciation of Teleological Style. J. Aesthet. Art Criticism **55**(4), 387–400 and 393 (1997)
11. Ibid
12. Kant, I.: Critique of the Power of Judgement, Ak 5: 226. See also Aviv Reiter and Ido Geiger, "Kant on Form, Function and Decoration". In: Proceedings of the European Society for Aesthetics, for a discussion of the relation between ornamentation and function, vol. 7. Pp. 234–245 (2015)
13. Bayley, S., Conran, T.: Design: Intelligence Made Visible, p. 53. Firefly Books (2007)
14. Sánchez, L.J.: Understanding Design Aesthetics Beyond Functional Beauty Accounts. Laocoonte. Revista de Estética y Teoría de las Artes **6**, 137–149 and 144 (2019)
15. Favara-Kurkowski, M.: In Defense of Forsey's Aesthetics of Design. Avant **XII**(1), 1–10, 5 and 4 (2021)

Imaginative Object and Mimetic Object

Andrea Mecacci(✉)

Università Degli Studi di Firenze, Florence, Italy
andrea.mecacci@unifi.it

Abstract. The mimetic and imaginative dimension of the object defines the very essence of objects and their use. Their interaction is seen in an exemplary way in that specific object with which every human being begins their relationship with reality: the toy. The aesthetics of the toy thus makes it possible to ascertain how mimesis and imagination cooperate and/or conflate in the constitution of the object. To investigate this dialectic, the essay examines Alma Siedhoff-Buscher's toy *Bauspiel: Ein Schiff* in which imagination becomes the center of the child's user experience. Leaning on a number of theoretical considerations on the toy, from Plato to Benjamin, the essay seeks to emphasize the aesthetics of toy as a space of creative freedom even in its opposition to the mimetic declination of the object understood as the adult's ideological interference in the child's world. Imagination, expressed in play, thus becomes the configuration of a possible world that, in Siedhoff-Buscher's perspective, the mimetic object would seem, on the contrary, to deny.

Keywords: mimesis · imagination · aesthetics of toy · child object · Bauhaus · Alma-Siedhoff-Buscher

1 Introduction

There is a certain ill-concealed awkwardness and at the same time a certain amount of arrogance when some adjectival aesthetic category comes alongside a noun. An epistemological strategy that philosophy, and of course aesthetics in particular, implements with smug assiduity. The title of the present paper only perhaps guiltily consolidates this practice. I have therefore also fallen into this almost constitutive temptation of my discipline, aesthetics. Imagination and *mimesis*, the space of the possible and the space of representation of the real, how do they accord with an object? A rather rhetorical question because it already admits a precise idea of what is meant by an object, that is, that material dimension that always evokes its double, the subject. But also to recall the William Morris of *The Lesser Arts* [1], the idea, perhaps not highly original but always worth remembering, that the object - Morris says - is like a window through which it is possible to glimpse the meanings of an entire civilization: indeed, those who devote themselves to the study of «historical industry», of these lesser arts «are able as if through windows to look upon the life of past» [1, 2, 4]. However, in the object there always remains an ambiguity, as Japer Johns reminds us in some of his remarks. The first one

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 21–27, 2024.
https://doi.org/10.1007/978-3-031-49811-4_3

contained in his notebook dated 1963–1964: «Invent a function / Find an object» [3, 54]. The second, in an interview from the same period: «The moment one says something, it is something - at a certain point, though, it becomes something else, as object, as idea. In which moment is it an object? If one burns a book, in which moment is it something else than a book? » [3, 91].

2 Aesthetics of Toys

To test imagination and *mimesis* I will treat, taking the directions of this panel literally, a determinate object, a case study. Here my case study will be a toy, we will see which one shortly. First of all, the reason why I chose the toy category. The toy is the object that anthropologically marks the beginning of our relationship with the real, we have all, more or less, experienced the toy. Here, starting from this generic premise, I found the imagination-*mimesis* partition precisely in an essay Baudelaire dedicates to the toy in 1853 *The Philosophy of Toys* (*Moral du joujou*). Baudelaire writes: «All children talk to their toys, the toys become actors in the great drama of life, reduced in size by the camera obscura of their little brains. In their games children give evidence of their great capacity for abstraction and their high imaginative power. They play without playthings» [4, 198]. They play without objects. They play with imagination. To this dimension Baudelaire opposes the real toy (girls' dolls, children's weapons), the mimetic one that puts into representation the child's social placement in future adult life. Exactly one hundred years ago a toy was designed, perhaps the most famous toy of the twentieth century, which can be taken as a paradigm of the conflict between imagination and *mimesis*: *Bauspiel: Ein Schiff* by Alma Siedhoff-Buscher.

Would you, please, forgive me for taking you one hundred years back, but the centrality of this object to at least an aesthetically oriented thought on design is, in my opinion, inescapable. The *Bauspiel* is an enduring reminder of that *mimesis* of the possible that an human being first grasps in those specific objects rubricated under the somewhat hasty and belittling label of "toys". *Mimesis*, play, toy, imagination then become the dimensions that *Bauspiel* manifests to the highest degree, in which anthropological questioning and aesthetic analysis are intertwined in the same research.

Working at the Wood Sculpture Workshop under the direction of Josef Hartwig, Siedhoff-Buscher was a key-participant in the 1923 Bauhaus exhibition, the so-called Haus am Horn. Charged with the design of the children's room, Siedhoff-Buscher designed not only the furniture but also a small accessory, a toy, which in miniature echoed the entire formal and functional idea of the room. Thus, *Bauspiel: Ein Schiff* was born. It is the designer herself with a laconic note who describes this toy: «It doesn't want to be anything – no cubism, no expressionism, just a funny play of colors from smooth and angular shapes according to the principle of the old construction blocks» [5, 29].

Siedhoff-Buscher's production during the years of her membership in the Bauhaus finds its own theoretical support in three short contributions (*Kind. Märchen. Spiel. Spielzeug*; *Kindermöbel und Kinderkleidung*; and *Freie Spiele - Lehrspiele*) in which the aesthetics of childhood proposed by the designer are made explicitly clear: the rejection of a fairy-tale idea of childhood and the adherence to a perceptual-imaginative conception

of the child's potential, the thematization of free play as opposed to didactic play, the consequent critical revisiting of the outcomes of modern pedagogy (from Friedrich Fröbel to Maria Montessori), and the practical translation of this conception into the operational form of the toy as an object of the possible and not as a mimetic object.

To come to an understanding of what the *Bauspiel* really is, it is necessary to start with the children's room in Haus am Horn. The ethorodox heir of Fröbel's Kindergarten and Montessori's "children's house", this room effectively banishes adult intervention. No pedagogical purpose, even implicit, is allowed except to initiate the child on their own path to total autonomy. Siedhoff-Buscher's room is not a place that in miniature reproduces adult space, a mimetic place littered with objects that refer to future adult life (as in the case of the Montessori children's house). The room is thus a perpetually constructible space in which especially the cubes, thanks to their modularity, open up to potentially infinite polyfunctionality. Registering this exclusivity of the child's space is what Siedhoff-Buscher refers to by the term *Phantasie* to be considered in its Kantian sense of productive imagination as the title of the designer's third essay, *Freie Spiele - Lehrspiele*, makes explicit; where, moreover, the opposition between free play and didactic play refers back to the free play of the faculties of the third Kantian critique. I shall not delve into the complex distinction between fantasy and imagination here, which from the eighteenth century onward will find reformulations not only theoretical – precisely Kant's *Phantasie*/*Einbildungskraft* and Coleridge's Fancy/Imagination – but also pedagogical as in Montessori (who takes up the two terms differentiating them sharply) or in design as in the case of Munari who, however, contrasts fantasy not with imagination but with creativity. The child's room, and in parallel the *Bauspiel*, make visible this free play in which the autonomy of imagination that is activated in the practice of playing is opposed to a heterodirected imagination that Siedhoff-Buscher identifies with the fairy tale. And it is in this assimilation that Siedhoff-Buscher reveals herself to be totally faithful to the anti-romantic philosophy of German functionalism: «Child and fairy tale = confused complex of ideas. Child and fantasy = natural fullness of thought» [6, 188].

The fairy tale is interpreted as extrinsic to the child's cognitive capacity, an artificial imposition on the natural development of thought. Moreover, the fairy tale implicitly or explicitly conveys moral content; it is the way in which the adult's universe begins to shape the universe of the child. Just as the fairy tale is a dimension external to the nature of the child, so decoration is a dimension external to the nature of the object. It is in this parallelism that Siedhoff-Buscher aligns herself with the functionalist rejection of Romantic ideology. The fairy tale represents an already closed world in the same way that the bourgeois toy represents a finite object. Both are expressions that nullify any exercise of the possible, that is, of imagination. The fairy tale confuses the child in the same way that decoration confuses the subject who has to use an object: there is in both the fairy tale and decoration an excess of information that misdirects, disorients.

When the toy was marketed, the designer was asked to include instructions, even cursory ones, for the purchaser. The instructions were affixed directly to the wooden packaging with illustrations: «A ship that can also be a roller coaster, a door, an animal and many other things». The ship then was just one possibility of the toy that negated the idea of the "finished toy" and opened up to the dimension of "free play" in which

shaping the toy was the momentary idea of the child's chosen play. The *Bauspiel* becomes in this sense the perfect translation of imagination, the construction of the possible, *Einbildungskraft*. For if a toy representing a ship always remains a ship (the mimetic or «finished» toy in Siedhoff-Buscher's terminology) and can be anything else: at the cost of enormous imaginative effort on the part of the child, the *Bauspiel* is a ship but, at the same time, also «many other things». It seems from this perspective that Siedhoff-Buscher tends to assign to the toy (*Spielzeug*) itself that imaginative capacity that is, instead, usually attributed only to play (*Spiel*) in the broad sense: «Toy: shouldn't we meet the child halfway? Shouldn't the toy - the child's tool - already be allowed to be serious? Not a finished toy - as offered by the luxury stores - the child develops, in fact he pursues – he searches. A seemingly finished toy, in this search full of attempts, can only become a destroyed toy» [7, 157].

This definition of toy, formulated in a somewhat involute way, to tell the truth, shows, in addition to the explicit rejection of the commercial toy, an ambiguity that needs to be clarified. The insistence on effort, searching, and trying that the child experiences in the toy is not to be read negatively. The child's search is expressed in pleasure. There is no didactic imposition. The child's attempts are expressions of pleasure and not didactic paths. It is in this difference that the obvious parallelism between the *Bauspiel* and Fröbel's *Aufgaben*, the gifts, reveals its limitations. Fröbel's gifts were heterodirected: they defined paths already laid out for the child to follow according to the cognitive development. Play was actually a learning process of shapes, colors and bodies. Described by the designer herself as an entirely coincidental filiation – «The fact that there are parallels between some of my games and Fröbel's is a coincidence» [8, 464] – Fröbel's legacy is rather received as an oppositional pole to her own conception of play. Indeed for Siedhoff-Buscher play, and consequently the toy, is never a dimension that transcends the child's universe. The relationship with Fröbel is, however, more complex and problematic than the perhaps somewhat overly schematic opposition between «free play» and «didactic play» says.

A further parallelism that it is permissible to point to, from this perspective, is that between the *Bauspiel* and Montessori teaching materials. Not so much in the formal modes, where the connection with Fröbel's gifts probably remains stronger, but in the concept of «materialized abstraction»: the mode of making the child's early abstraction processes accessible to experience through concrete objects. Montessori's objects, however, revealed a dual nature that the *Bauspiel* could partially share. The object presented itself as a toy, embracing the child's cognitive interest, but in its essence it was still a teaching material with an explicit purpose: to translate an abstract concept (e.g., quality or quantity) into a concrete medium appropriate for the child. This bipolarity between form and content, toy and teaching material, play and learning was precisely what *Bauspiel* rejected in favor of an integrally playful experience.

3 Mimesis, Imagination, Pleasure

Probably one of the initial sites of an ontology of the toy, useful for understanding the centrality of the *Bauspiel* in twentieth-century design as a whole, is the passage in the *Laws* (634b-d) in which Plato asks whether the problem of the real purpose of play, and

thus the idea that structures every object that is employed in play, is the initiation of the child into their future as an adult. If this is the case, then children would use in their games «miniature tools that copy the real thing» [9, 72] to accustom themselves to future work. These *mimemata* are educational tools, however, which immediately shift the problem to another plane: for if play is a preparatory stage to the adult world, and for Plato it is, it seems clear that the force that the mimetic has toward the child is not so much in its connection with the formative process, but with pleasure. Following a Platonic example (the child-to-be rider who is engaged in «riding a horse for fun»), one must then ask whether play will find its essence in pleasure or *mimesis*: is it pleasure that enables me to turn a piece of wood into a horse or does the very fact of seeing a horse in a piece of wood give me pleasure?[1] In other words: does the game proceed from pleasure to mimesis or from mimesis to pleasure? Plato seems to indicate the first option by combining play and pleasure in the same formula in various places in his work and, even, as a passage in the *Statesman* (288c) points out, by grouping all art forms (*mimesis* and non-*mimesis*) under the banner of amusement and play, those representations «which have been executed soley to give us pleasure. […] We call a "plaything". Well, this one name will be fittingly given to all of them; for it is not the case that any of them is for the sake of a serious purpose, but all are done for the sake of amusement» [10, 113]. The primacy of pleasure would also seem to be credited, and unexpectedly so, by an Aristotelian passage in which the pleasure of mimetic recognition recoils before aesthetic pleasure per se. If mimetic pleasure is an intellectual pleasure, (re)seeing a thing always means initiating a process of learning, discernment, and comparison, and pleasure depends essentially on the connection between the representation and the represented object, what happens when one takes pleasure in front of a never-before-seen object? «One's pleasure will not be in the picture as an imitation of it, but will be due to the execution, colouring or some similar case» [11, 2318]. What is interesting to emphasize here, beyond the problematic pleasure-mimesis nexus, is how Aristotle points to objective characteristics as the source of eminently perceptual pleasure: an object is appreciated for "how it is made" (*apergasia*), for its color and similar properties. This is the same explanation provided by Siedhoff-Buscher with respect to his *Bauspiel* in order to emancipate himself from the legacy of Fröbelean pedagogy. Pleasure appears here as that connection between aisthesis and techne, between play and toy, which seems to discard the idea that the mimetic appears as the ontology of the toy. Let us repeat: is it pleasure that allows me to turn a piece of wood into a horse, or does the very fact of seeing a horse in a piece of wood give me pleasure? A literal example may be the opening scene of Herzog's *The Enigma of Kaspar Hauser*. Kaspar, imprisoned in a cellar (Plato's cave?) plays with a toy: a wooden horse. We do not know how long Kaspar has been a prisoner, but Herzog seems to suggest that he knows nothing about the outside world, so he has likely never seen a real horse. Kaspar therefore plays not because he has the pleasure of recognizing a horse in miniature nor because he will be a rider in the future (although this may be

[1] It is interesting, if not paradigmatic, that even Gombrich, without mentioning Plato, takes to define his theory of representation precisely as an example a wooden horse, or precisely a hobby horse. In Gombrich, however, the difference posed by Plato is *de facto* nullified. What matters is the function, the play, that allows one to move from *mimesis*, the form of the external object, to fiction, the wood replacing the horse [12].

a possible, though unlikely, future hypothesis) as the mimetic motivation adduced, but then diluted, by Plato in the *Laws* would seem to indicate: he plays because he likes to touch that wooden object and to hear the sound it makes. The only mimetic moment, the first stage of *Bildung*, if anything, is when Kaspar's jailer ("the Stranger") teaches him to name that object with the word "horse", which Kaspar begins to repeat mechanically almost to reinforce the pleasure of his playful experience.

And it is from this perspective that the *Bauspiel* finds its most stringent reading in Benjamin's considerations on the toy, a series of essays published between 1928 and 1930. In the play-toy dialectic Benjamin reinterprets the problem of *mimesis* by disengaging it from any didactic purpose and reinserts it into a more complex reformulation of the imaginative space that is made explicit in play. Play is the ontogenetic translation of what in a phylogenetic perspective is offered in the very history of the mimetic faculty. For Benjamin, play is a pedagogy wholly internal to the development of the mimetic faculty: «the child plays at being not only a shopkeeper or teacher, but also a windmill and a train» [13, 333]. In this understanding of the mimetic faculty as an activation of the imaginative process it is possible to discern the deep core of the *Bauspiel*. In his 1928 essay *Cultural History of Toys* Benjamin emphasizes the dimension of mimetic constructibility that the child «assembler» activates in his own play. The *Bauspiel* exhibits, in a completed but not «finished» project, exactly the idea of this imaginative procedure.

The absolute Benjamin and Siedhoff-Buscher convergence lies precisely in the attempt to grant the child this autonomous space, almost alien, one might argue, to the instrumentality of the adult world. Siedhoff-Buscher's children's room through the modularity of its elements exhibits the Benjaminian conviction, which already attests to a precise critical-political orientation, for which *mimesis* (Benjamin) converges in *fantasy* (Siedhoff-Buscher): in this way children «do not so much imitate the works of adults as bring together, in the artefact produced in play, materials of widely differing kinds in a new, intuitive relationship. Children thus produce their own small world of things within the greater one» [14, 53].

Siedhoff-Buscher's ship, and «so many other things», traversed the twentieth century bearing witness to the utopia of the possible and, unintentionally, also to the horror of the real. That of the *Bauspiel* was a long journey that, begun in a workshop in Weimar in 1922, after a hundred years still seems unfinished. Also, the deep meaning of that toy appears almost revealed to us in Siedhoff-Buscher's last words that we were given to know, before she died under Allied bombing. In an interview with *Magazin*, the monthly insert of the *Frankfurter Allgeimeine Zeitung*, the designer's son, actor Joost Siedhoff, revealed the contents of the last letter his mother wrote to him when he was an 18-year-old soldier on the Eastern Front. Happy about a trip to Kronberg im Taunus, 10 miles from Frankfurt where she had been visiting her friend, painter Karl Peter Röhl, also for a while a member of the Bauhaus, the designer wrote, unaware of her impending death, to her son: «Take a breath from the war. I write to you in such detail about Kronberg, so that you would see: in every desolate time there are also bright hours and you should take them with you. This gives new strength. Peter Röhl painted sunsets all the time. From now on he wants to paint sunrises!» [15, 65].

References

1. Morris, W.: The Lesser Arts, In: On Art and Socialism, ed. by N. Kelvin, Dover, New York (1999)
2. Mecacci, A.: Estetica e design, il Mulino, Bologna (2012)
3. Johns, J.: Writings, Sketchbook Notes, Interviews, Ed. by K. Varnedoe, The Museum of Modern Art, New York (1996)
4. Baudelaire, C.: The Philosophy of Toys, In: The Painter of Modern Life and Other Essays, ed. by J. Mayne, Phaidon, London (1964)
5. Siebenbrodt, M. (ed.): Alma Siedhoff-Buscher: eine neue Welt für Kinder, Stiftung Weimarer Klassik und Kunstsammlungen, Weimar (2004)
6. Siedhoff-Buscher, A.: Kind. Märchen. Spiel. Spielzeug, Junge Menschen **5**(8), 188 (1925)
7. Siedhoff-Buscher, A.: Kindermöbel und Kinderkleidung. Vivos Voco **4**, 156–157 (1926)
8. Siedhoff-Buscher, A.: Freie Spiele – Lehrspiele. Offset. Buch und Werbekunst **10**, 464–469 (1927)
9. Saunders, T.S. (ed.): Plato: The Laws. Penguin, London (1970)
10. Plato: The Statesman, ed. by C.J. Rowe, Aris, Phillips, Warminster (2005)
11. Aristotle: Poetics, In: The Complete Works, vol. 2, ed. by J. Barnes, Princeton University Press, Princeton (1994)
12. Gombrich, E.H.: Meditations on a Hobby Horse and other Essays on the Theory of Art. Phaidon, London (1963)
13. Benjamin, W.: On the Mimetic Faculty, In: Reflections, ed. by P. Demetz, Schocken, New York (1986)
14. Benjamin, W.: One-Way Street and Other Writings. Harcourt Brace Jovanovich, New York (1979)
15. Locke, S.: Mutter am Bauhaus. Magazin **5**, 64–65 (2019)

OBJECTS. Objects Between Anthropology and Material Culture

Seaweed Fabrics for Fashion Design. A Field Research Experience

Paolo Franzo(✉)

Università Iuav di Venezia, Venezia, Italy
paolofranzo@iuav.it

Abstract. The essay addresses the reasons why fashion design is manifesting an increasing interest in the marine environment as a context where to identify new materials for fashion, focusing on the particular case of seaweed. Through a field research, which involved MA fashion students at Università Iuav di Venezia, it is possible to demonstrate how an object such as seaweed fabric is not only a response to the need for new sustainable materials for fashion, but it is also interpretable through the framework of new materialism in a posthuman perspective. These fabrics, perceived as vibrant, represent a stimulus to redefine fashion design and its relations with environment, territories, people, and bodies. In the experimentation with seaweed, nature becomes raw material for constructing aesthetic and cultural imagery in a multispecies landscape.

Keywords: Fashion Design · Seaweed Fabrics · New Materialism · Posthumanism · Vibrant Matter · Fieldwork

1 Introduction

During the 21st century, the research of new materials for fashion is particularly active and has produced important results, thanks to increasing investments in research and development [1, 80]. Among bio-fabricated textiles, seaweeds are gaining an increasingly prominent place, thanks in part to the development of textile technologies in the 1990s that analysed their properties and benefits for the body [2]. The paper analyses this phenomenon not only as an example of biotechnological innovation in the field of sustainability, but also as a producer of new imagery and activator of new dynamics in fashion design. Investigation filters are the theories on the new materialism that are spreading in fashion studies, also thanks to the contribution of Anneke Smelik, Professor of Visual Culture at the Radboud University Nijmegen and visiting professor 2022 at Università Iuav di Venezia on the proposal of Alessandra Vaccari.[1]

[1] Alessandra Vaccari, fashion historian and theorist at Università Iuav di Venezia, is the principal investigator of the ongoing research *BioFashion. Weaving the Lagoon Between Ecocriticism and Visual Imagery* focusing on the production of value in terms of sustainability within current creative practices in Venice and Italy, including fashion, textiles and clothes produced from seaweed. This contribution represents one of the outcomes of the research work.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 31–40, 2024.
https://doi.org/10.1007/978-3-031-49811-4_4

2 New Materialism Within the Water

Placed in the philosophical horizon of posthumanism, which tries to overcome anthropocentrism and opens up the interconnections between human and non-human [3], the new materialism responds to the demands of a fashion in which the human is decentralised and related to plants, animals, and digital technologies. What posthumanism and the new materialism share is their effort to overcome dualisms. Consistently, posthuman fashion questions the notion of material agentivity [4], engaging with the increasingly performative role of the relationship between body and dress in the process of embodiment [5]. In this perspective, design practices mediate the experience of oneself and one's surroundings in material and imaginative ways, transforming the interrelationships between individuals, the social environment, imaginaries and ecology. Mediators of this experience are precisely the materials, which become "vibrant" [6], living and intelligent matter.

One example of this is the recent experiments on the transformation of seaweed into fabrics and materials for fashion, the object of this contribution. It is worth emphasising that, unlike the traditional materials used in fashion whose imagery has over time become linked to fast fashion, intensive production and lack of sustainability, seaweeds are perceived as pristine. They are plants historically associated with an idea of well-being and health due to their extensive use in cosmetics. What is even more relevant is their relationship with water. Seaweed vegetates within (salt) water naturally, without human intervention and without requiring the consumption of fresh water during the plant's growth, thus overcoming one of the main critical issues in the relationship between fashion and this element. According to a 2017 report by the Ellen MacArthur Foundation, in fact, the textile industry for fashion uses approximately 93 billion cubic metres of water each year, accounting for about 4% of global freshwater withdrawal [7, 38]. Since the second half of the 20th century, the relationship between the textile industry and water has been marked by a growing awareness of its no longer sustainable impact on this resource, due to the need for irrigation in the cultivation of fibres, the use in operations to convert them into textiles, and the spillage of chemicals used during manufacturing processes into groundwater [8].

In recent years fashion design has been considering water not only as a resource to be safeguarded, but also as a natural environment capable of providing new materials, particularly seaweed, to be transformed into yarns and fabrics [9]. Actually, interest in seaweed was not born in the 21st century, but the first studies on the properties and potential of seaweed in manufacturing, including textiles, appeared in the second half of the 19th century, although they did not subsequently find significant development and application [10]. Commenting on the words of writer Margaret Gatty, author in 1863 of *British Sea-Weeds*, ecocriticism researcher Stephen E. Hunt observes that this fusion of sea and nature simultaneously creates a sense of familiarity and estrangement in the midst of other creatures [11, 20, 21]. Hunt's reflection helps to understand the motivations behind the current diffusion of seaweed-based materials in fashion and other design disciplines, which do not seem to be exclusively traceable to the search for innovative and sustainable materials. Indeed, as Chiara Scarpitti writes, the increasing cooperation between design and natural sciences is also due to the rise of independent design

practices, which on an international level have translated the utopia of transdisciplinary dialogue into a reality [12, 83].

Aquatic exploration in search of new wearable materials can be interpreted, on the one hand, as a metaphor for the "making kin" advocated by Donna Haraway [13], in the form of new alliances between biology, technology, design, and environment [14, 15]; on the other hand, as an effect of the contamination typical of the multispecies landscape, in which each organism becomes itself only with the assistance of other species [16]. The body, mostly composed of water, metaphorically becomes the support on which the seaweed-based garments come to life. Seaweed thus becomes the raw material for making objects capable of defining new aesthetic and communicative imagery through tangible experiences.

3 A Workshop with Fashion Design Students

This contribution analyses the outcomes of a field research that involved from October 2021 to February 2022 first-year students of the Master's degree course in Fashion at Università Iuav di Venezia in the development of a project starting from seaweed fabrics.

The fabric was provided by Tabinotabi, partner in the research project and one of the first companies in Italy to introduce seaweed as a material for fashion. In 2018, founder Alessandra Defranza developed the idea of a fashion project in Venice to be made with new-generation fabrics. Her research, conducted in collaboration with a Tuscan textile company, initially explored different possibilities of non-traditional materials and finally the choice converged on seaweeds, also because of the imagery that links them to Venice and its lagoon [17]. The fabric is produced by Tabinotabi using SeaCell fibre, made by a German company incorporating brown seaweeds harvested in the Icelandic fjords, dehydrated and pulverised, into a natural cellulose fibre. The harvesting of this seaweed is certified as sustainable, as only the part that is able to regenerate is taken from the underwater plant. After harvesting, the seaweed is not processed, thus keeping all beneficial properties intact.

Tabinotabi is one of the brands that have been researching the possibilities of seaweed in fashion in recent years. AlgiKnit, for example, is an American start-up that makes strong yet biodegradable yarns with Kelp seaweed; the alginate from the seaweed is pulverised and turned into a water-based gel to which natural dyes are added and finally extruded into long filaments. Seaweed also plays a leading role in the technical clothing brand Vollebak, which has created a compostable t-shirt to be buried in the garden at the end of its life, where it biodegrades in 8–12 weeks depending on temperature and humidity. It is made of eucalyptus, beech pulp fibres and algae grown in laboratories inside bioreactors, in line with their approach of artificialising nature; the t-shirt is printed with green ink based on spirulina algae, a natural pigment that oxidises and fades with air, inviting one to care for it as if it were a living being. Care is also at the heart of the Biogarmentry non-woven fabric, designed by Roya Aghighi in collaboration with AMPEL Lab and Botany Lab at the University of British Columbia; born from the challenge of providing survival to photosynthetic cells of algal origin on fabrics made of natural fibres based on cellulose and proteins, these "living clothes" are activated by the sun and are an invitation to literally take care of one's wardrobe.

As reported by Defranza,[2] the possibility of using seaweed from the Venice lagoon was experimented, trying to favour local resources and encourage a greater relationship with the territory. However, the results were not satisfactory, given the type of local seaweed that required excessive complexity during the production process and a low final quality of the yarn. Despite the fact that seaweed from Venice are currently not usable in the production of new-generation fabrics and it is necessary to use raw material from northern Europe, what is relevant for the purposes of this research is the material's ability to generate new dynamics within the fashion design process. For this reason, it was decided to develop a field research, involving fashion design students, to observe their approach to seaweed fabrics, the influences on design methodologies and the relationships activated. In this contribution, therefore, seaweed fabrics are analysed not so much for their different sustainability compared to traditional materials, but for new dynamics that modify design and designers. Designers are observed in this investigation for their ability to redirect the present [18] through a practice that involves new materials.

As part of the Advanced Workshop of Fashion Techniques and Materials, of which I am lecturer, the students were asked to design a collection from seaweed-based fabrics. During the first meeting of the workshop, the 37 students were introduced to the fabric and some samples were shown, without referring to examples of material use in order to avoid any conditioning in the subsequent design activity. The students, who mostly did not know each other as they came from different BA degree courses, were asked to divide into 7 teams, trying to hybridise their different previous training experiences. No project brief was given, the only element was the fabric, with the request to design and realise a capsule collection that would enhance it.

Initially, there was a partial diffidence of the workshop participants, caused by two reasons. The first one is that the request to work in a team, with unknown people, contrasts with the need for the expression of individual creativity and design identity that is almost always found in students; this request, however, stemmed from the desire to encourage a collaborative approach, somehow experiencing the idea of making kin first hand, to cancel design methodologies consolidated in previous experiences, and start again from the material. The second one is related to the fact that seaweed fabric was initially brought back by the students to the category of sustainability, even though this term was not used in the project presentation: the concept of sustainability in fashion, in fact, often remains anchored to an idea of limitation, deprivation, less creative freedom, and lack of aesthetic research.

In spite of these initial criticalities, the teams began the design research phase, questioning themselves on what it entails to deal with a fabric like this, what differences there are – from a conceptual as well as a physical point of view – compared to traditional fabrics, what it means to develop this project in Venice, a city whose imagery has often been associated with seaweed, but which today also represents a critical element from an environmental point of view, invading the canals with alien species. The following are some of the projects developed during the workshop, which provide an insight into how the students related to this material.

[2] The interview was conducted by the author on 8 July 2021 at the Tabinotabi store, located at the foot of Rialto Bridge in Venice.

4 From Seaweed to Bodies

The project entitled *Symbiosis* was developed from the symbiotic relationship between seaweed and humans in the field of biological engineering. Also through the analysis of some living textiles case studies, such as those of the designer Paula Ulargui Escalona, the team decided to work on the idea of clothing as a second skin. Considering the beneficial properties of SeaCell fibre, the project was configured as a layering of garments adjacent to the human body, in symbiosis with each other and with the body. A layering of transparencies that covers the body and partially conceals it. In this case, the material stimulated an in-depth reflection on the relationship between dress and body, on the need for fashion to design the boundary between the individual and the space around it. The body returns as the protagonist of the fashion project, it becomes an object of attention and care [19, 113].

The *Confini* (*Boundaries*) project starts from a reflection by Iosif Brodskij about the relationship between seaweed and rock [20], in an idea of colonisation, of contrast between visible and invisible, between rigid and organic form. This originates a series of felt garments with increased and defined geometric volumes, apparently bare, aseptic and separated from the body. In reality, inside them they enclose sensorial, soft and living embroideries, made with the waste from the processing of seaweed fabric, enhanced through manual stitching and dyeing. The seaweed fabric is therefore hidden inside, in contact with the body, stimulating an intimate, tactile, and non-visual relationship. In contrast to what is usually done, the focus is on the inside of the garments and not on their outward appearance.

Moving from Gilles Clément's idea of the "third landscape" as a refuge for diversity [21], the *Residui* (*Residues*) project consists of a set of garments capable of accommodating different bodies. Going beyond a hierarchical scheme that places humans at the top in the relationship with plants and animals, the team investigated how to encourage an attitude of care and balance. To this end, students focused on the beneficial properties – antioxidant, anti-inflammatory, anti-ageing – of SeaCell fibre, designing a "second skin" garment to be worn as a first layer in contact with the body, promoting cell regeneration and breathability. Above this, the other garments can be adjusted in length and width through belts, buttons and laces to fit every kind of body. A project, therefore, that goes beyond the idea of size and standard, encouraging a hypothetical more sustainable production system. The result is an idea of inclusive fashion, capable of accommodating different bodies, which can be realised through size-less garments that, with a view to mass production, allow for a reduction in prototypes and waste (Fig. 1).

The *Algae* project intervenes more directly on the sustainability needs of fashion, translating physical experimentation with seaweed fabrics into a conceptual exploration that intersects processes of co-creation, valorisation of the archive, and do it yourself. The output is an editorial project, a magazine that responds to an educational commitment of the designer: not only the capsule collection created is presented, but each reader is given the opportunity to reproduce one of the garments thanks to the paper pattern that is provided using available fabrics and obtaining accessories from second-hand garments. The garments are conceived as decomposable and interchangeable, in a logic of optimising consumption and reducing waste: one and the same garment can be transformed into different garments responding to different needs of wearability and use. In

Fig. 1. *Residuals* project. MA students in Fashion and Visual Arts, Università Iuav di Venezia, 2023.

some of the garments made, zero-waste design methods are adopted, which optimise the consumption of seaweed fabric and eliminate manufacturing waste (Fig. 2).

The latest project is *Fisciù. Venetian constellations*, significant for shifting the focus of the project from the body to the territory. The seaweed fabric suggested a reinterpretation of Venice, resuming that relationship between imaginaries mentioned earlier. The visual representation of the city, analysed through postcards, photos and archive documents, gave rise to colour maps with which *fisciù*, neckscarves typical of 17th and 18th century Venetian fashion, were designed. These were made from felt by water-textured manipulation of textile fibres on a fabric and translating the colour maps through manual natural dyeing. The project is completed by the packaging of the *fisciù*, consisting of a print of a map of Venice on which a possible itinerary for discovering the city is suggested: the fashion object is thus transformed into a device that encourages a relationship with the place (Fig. 3).

Fig. 2. *Algae* project. MA students in Fashion and Visual Arts, Università Iuav di Venezia, 2023.

These are just a few of the projects developed during the workshop, but they are enough to bring out some important reflections on the investigation carried out. It was observed that seaweed fabrics were not only considered by the participants as a new, more sustainable material to be applied within traditional creative processes, but also stimulated the exploration of new approaches and new relationships between fashion

Fig. 3. *Fisciù* project. MA students in Fashion and Visual Arts, Università Iuav di Venezia, 2023.

and the human and non-human world. They have been perceived as 'vibrant', living materials, evolving over time, important to care for and that activate a caring dynamic with the wearer, in a redefinition of the concepts of fabric and fashion. Unlike traditional natural plant fibres, such as cotton and linen, seaweed is characterised not only by evoking an exotic and still unfamiliar imagery, but also by a low-impact production system: it is abundant in nature; it does not require irrigation; only the part that can regenerate is used; it does not consume arable land or require pesticides or fertilisers; it biodegrades quickly; it is naturally fire-resistant, reducing the need to add toxic flame retardants to clothes; it is processed in plants that are already geared towards energy optimisation [22]. However, the possible criticalities of this phenomenon should not be overlooked: emissions and costs related to transport, as most of the production is located in Iceland; loss of centrality of territories historically used for the cultivation of traditional fibres; colonisation of new marine areas for the development of intensive seaweed cultivation with possible imbalances in the ecosystem.

5 Conclusions

This research thus demonstrates how an object such as seaweed fabric is not only a response to the need to identify new sustainable materials for fashion, but represents a stimulus to redefine the fashion design itself and its relations with environment, territories, people, and bodies. In the experimentation with seaweed, nature becomes raw material for constructing aesthetic and cultural imagery. The theory of a new materialism in the post-human perspective has thus found confirmation, committed to bringing matter and bodily experience back to the centre of the debate in its weaving interconnections with the world.

References

1. Segre-Reinach, S.: *Per un vestire gentile. Moda e liberazione animale* [For a kind dressing. Fashion and animal liberation]. Pearson, Milano (2022)
2. Liu, B., Chen, L., Qu, C., Qin, Z., Wang, L.: Seaweed fabric research and application for the field of elderly clothing technology. Advances in Social Science, Education and Humanities Research **653**, 993–998 (2022)
3. Braidotti, R.: The Posthuman. Polity Press, Cambridge (2013)
4. Smelik, A.: New materialism. A theoretical framework for fashion in the age of technological innovation. Int. J. Fashion Stud. **5**(1), 33–54 (2018)
5. Smelik, A., Toussaint, L.: Solar fashion. An embodied approach to wearable technology. Int. J. Fashion Stud. **3**(2), 287–303 (2016)
6. Bennett, J.: Vibrant Matter. A Political Ecology of Things. Duke University Press, Durham (2010)
7. Ellen MacArthur Foundation: A new textiles economy. Redesigning fashion's future (2017). https://ellenmacarthurfoundation.org/a-new-textiles-economy, last accessed 15 December 2022
8. Porter, J.J., Lyons, D.W., Nolan, W.F.: Water uses and wastes in the textile industry. Environ. Sci. Technol. **6**(1), 36–41 (1972)
9. Franzo, P., Moradei, C.: Blue fashion. Le alghe come materiale per la moda [Blue fashion. Seaweeds as material for fashion]. MD Journal **13**, 162–171 (2022)
10. Scott, W.L.: On the economic applications of seaweed by Edward C. C. Stanford. The Journal of the Society of Arts **10**(482), 185–200 (1862)
11. Hunt, S.E.: 'Free, bold, joyous': the love of seaweed in margaret gatty and other mid-victorian writers. Environment and History **11**(1), 5–34 (2005)
12. Scarpitti, C.: Oggetti pensiero. Storie di design, organismi e nature postdigitali [Thought objects. Stories of design, organisms and postdigital natures]. LetteraVentidue, Siracusa (2020)
13. Haraway, D.: Staying with the trouble Making kin in the Chthulucene. Duke University Press, Durham (2016)
14. Vanni, I., Vaccari, A., Franzo, P.: 'Making kin' in fashion design. From agri-food waste to sustainable materials in Italy. In: Arboritanza, L., et al. (ed.) The ecological turn. Design, architecture and aesthetics beyond 'Anthropocene', Tu Delft Open-CPCL Journal, Delft-Bologna, pp. 305–317 (2022)
15. Payne, A., Quijano, L., Speight, R.: Future fashion, biotechnology and the living world. Microbial cell factories and forming new 'oddkins'. Continuum **35**(6), 897–913 (2021)
16. Tsing, A.L., Lien, M., Swanson, H.: More than Human. Aura's openings. AURA Working Papers 1 (2015)

17. Vaccari, A., Franzo, P.: Futuring Venice. A one on one fashion and tourism experience. ZoneModa Journal **11**(2), 71–89 (2021)
18. Fry, T.: Redirective practice: an elaboration. Design Philosophy Papers **5**(1), 5–20 (2007)
19. Vaccari, A., Franzo, P.: What If? Prove di futuro della moda in Italia [What If? Rehearsing the future of fashion in Italy]. LetteraVentidue, Siracusa (2022)
20. Brodskij, I.: Watermark. An Essay on Venice. Penguin, London (2013)
21. Clément, G.: Manifesto del Terzo paesaggio [Third landscape manifesto]. Quodlibet, Macerata (2005)
22. Bak, U.G., Bonefeld, B., Gregersen, Ó., Gunnarsdóttir, K.Ý., Zwaanenburg, L.: A feasibility study on Blue Fashion using cultivated seaweed for textile production. Nordic Atlantic Cooperation NORA (2019)

Material Objects as Dispositive of Memory

Toufic Haidamous(✉)

American University in the Emirates, Dubai, UAE
toufic.haidamous@aue.ae

Abstract. This manuscript narrates a pedagogic experience in a Furniture Design course at the American University in the Emirates (AUE). Senior students enrolled in the Interior Design Program tackled a studio project which was about designing a piece of furniture inspired by a pavilion of their choice pertaining to Dubai World Expo 2020. The direct learning outcomes were assessed through technical drawings and three-dimensional printed physical models scaled one tenth proceeded by real scale prototypes of the chairs. The indirect outcomes are considering these material objects, the furniture items, as tools of memory, holding symbolic and cultural connotations. The design process would allow a space of reflection on contemporary practices and rethink prototypes as tools for analysis and research. Beyond functionality and aesthetics, objects become means of communicating personal findings, translating urban, architectural, cultural, and social attributes. This research will demonstrate through combined research strategies how products of the real and the imaginary give material form to memory.

Keywords: Furniture Design · Prototypes · Artifacts · Dubai World Expo 2020 · Memory · Place-Making

1 Research Methodology

In design, how do material outcomes lead to objects of memory? To answer the research question, this paper makes use of linear combined strategies, each of which leading to observed results that constitutes input to subsequent conceptual framework [1]. The first 'logic-in-use' is deduction (see Fig. 1). The former is a reasoning pattern that allows us to observe the material objects, 3D-printed prototypes and corresponding furniture artifacts. In his article, the Core of Design Thinking and its Application, Dorst formulates reasoning patterns by specifying knowns and unknowns in simple equations that will be explicitly utilized in this research [2].

In deduction, we know the 'what' that is the design tools and the 'how' that is the design process or the design methodology. The first sets of results (results 1) generate physical objects that enable description and 'reflective practice' of the artifacts that would, themselves, serve as the 'what' in the abduction reasoning pattern. In addressing the role of designers, specifically architects, landscape architects, interior or industrial designers, Schon explains that they make 'physical objects that occupy space and have plastic or visual form [3]. In a more general sense, a designer makes an image—a

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 41–55, 2024.
https://doi.org/10.1007/978-3-031-49811-4_5

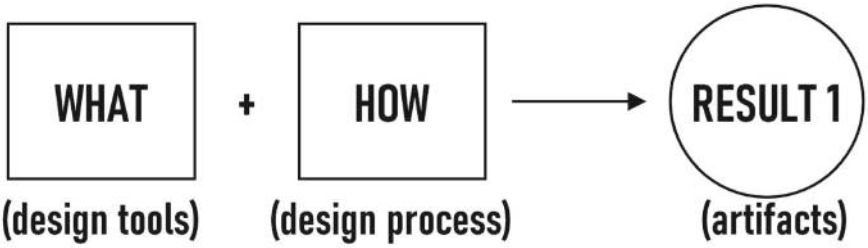

Fig. 1. Deductive method

representation—of something to be brought to reality, whether conceived primarily in visual, spatial terms or not.'

In abduction (see Fig. 2), the equation makes a slight modification so that the outcome (result 2) is the achievement of an aspired 'value' (memory of Dubai World Expo 2020) rather than a statement of truth.

What is missing in the abduction equation is a 'what' and a 'how'. As previously explained, the material objects that were the results of the deductive method provide 'the solution space' in the 'what'. What remains is the creation of a 'working principle.' This principle entails a phenomenological study (see Fig. 3) that examines the shared significance of phenomena experienced by a number of design students based on their particular 'object' of lived experiences [4].

This shared experience is a pedagogical design activity that integrates Dubai World Expo 2020 in the design process; furthermore, the author of this paper will discuss the context and environment that shaped their experiences in an attempt to comprehend how students express their personal, cultural, and social approaches through design [5]. Phenomenology, as a qualitative technique, has focus on human interactions with the physical environment.

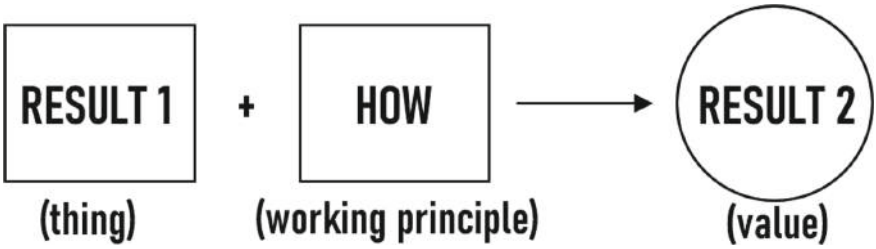

Fig. 2. Abduction

2 Deductive Method: Designing Material Objects

As a reactive ode to returning to 'normal life' and the return of events in Dubai, third year Interior Design students were asked in one of the assessments in a Furniture Design course, held on campus, to design a physical piece of furniture- referred to as 'material

object' in this research- inspired by a pavilion in Dubai World Expo 2020. The mega event, World Expo Dubai 2020, coincided in timing with the initiation of a Furniture Design course (September to December 2021) delivered by the author of this paper. The course was held in-person in the College of Design (CDES) at the American University in the Emirates (AUE) campus after one year of distance teaching and MS Teams meetings. At that time, the world was weary of the social estrangement and preventive measures taken as a result of the COVID pandemic. Following the UAE Ministry of Education's directives, universities in Dubai welcomed the return of students on campus in fall 2021–2022 semester. Visits to the World Expo Dubai was made possible as an extra-curricular activity, and, consequently, students had the opportunity to physically visit the pavilions, thus, note their observations on site. How an ephemeral event like Dubai World Expo 2020 act as a starting point for a design project? Through a pedagogic experiential learning, participants were exposed to a design methodology aiming at translating personal perception of spaces created by the architecture of the pavilions into a product scale. This methodology will be explained in the following section.

2.1 Design Methodology

The following phase involved participating the students in a professional workshop conducted by BorgiBastormagi [6]. Designers Etienne Bastormagi and Nada Borgi were invited for two sessions on 1 November and 8 November 2021 (six contact hours per each session) to share their proven design methodology on how to translate architectural and urban experiences in furniture design, allowing an opportunity to follow a proven framework and also a space to better understand the myriad of other design methodologies [7]. Participants were asked to pick a pavilion from Dubai World Expo 2020 then to follow the guided steps: (1) understand/dismantle materials, structure, country history, user relation, and social impact (2) produce a board (3) apply transformation 4) change scale, pierce, multiply, dip in a material (5) draw/sketch (6) introduce a function based on a current need (rethink the chair) (7) develop the design based on the function (8) materials and details (based on local resources (9) draw/model (10) represent your design narrative (11) develop drawings for the prototype (12) develop a model for the prototype experimenting the buildability of the product. Students were initially asked to manually sketch their ideas [8], but it was observed that the predominant preference was using digital tools over manual ones [9].

Consequently, digital three-dimensional (3d) models were prepared using 3ds Max and Rhino with the aim of preparing their files to 3d printing. The latter required a supplementary lecture about the available 3d printers in the college's labs, particularly MakerBot Replicator. The utilized three-dimensional printing method of the digital models is named fused deposition modeling. It consists of melting MakerBot PLA filament and layering it onto a thin surface plate.

2.2 Design Tools

A curated exhibition (CDES Showcase) of the students' outcome took place towards the end of the semester (29 November 2021) where eight projects from the Furniture Design course were exhibited. Each of eight students designed a chair. For each project, two

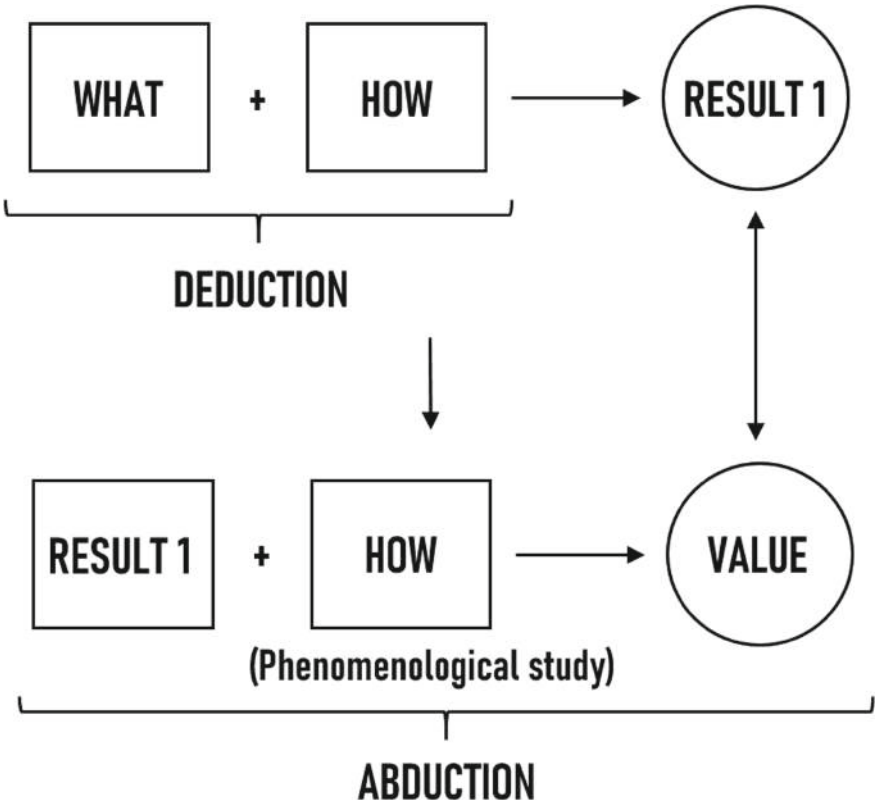

Fig. 3. Combined strategies integrating phenomenological study

A3-format sheets were presented along with the corresponding 3d-printed model. One sheet contained images of the selected pavilion with narrated description by the students, and sketches of the design process. The other sheet showed technical drawings of the designed chair- top and side views with dimensions and annotation- utilized to fabricate the chairs. 3d-printed physical models (scaled one tenth) allowed a tactile examination of the proposed design and a better understanding of the form as it can be easily held by hands and scrutinized from various angles. Indeed, the models assisted the students not only in understanding the technical aspect of their designs, but, also, in communicating with the exhibition's visitors/observers. Participants in the Furniture Design workshop had various cultural and ethnic backgrounds and it was noted that most of them selected, as a reference source, pavilions pertaining to countries different than their own home countries [10]. 3d-printed models, as tools in the design process will be emphasized on, and description of the forms inspired by the pavilion of each country will be elaborated in the subsequent paragraphs.

Luxembourg. One of the participants' objects was inspired by the Luxembourg pavilion that is shaped like a moebius ribbon representing circular economy (see Fig. 4a). The student translated her perception of the architectural form into a piece of furniture, a

chair. As the students already participated in the previously-mentioned workshop, they were able to apply a methodology on how to relate with architecture and space and then transfer these attributes to a more tangible, human scale such as a product scale. The participant who got inspired by the Luxembourg pavilion created an element, not necessarily identified as a chair. Urging the students to explore forms that are thought-provoking and stimulating for the spectator and the user. Like design research, part of the process is identifying relevant questions which highlight common ground to the design process itself.

United Arab Emirates. A project was inspired by the pavilion of the hosting country, United Arab Emirates, inspired by the wings of a desert falcon (see Fig. 4b). I quote from the participant, 'I used the wing shape to connect the rear leg to the seat. I got inspired by the curved lines and then liberated more the shape to become biomorphic. Twists and bends became lines, surfaces and then a chair.' In the same technical sheet, photos of the 3D-printed model were provided that contributed to the comprehension of the form to the manufacturer.

Another project (see Fig. 4c) had the same reference to the UAE pavilion but, expectedly, had a different outcome highlighting the multifaceted approach of design. Categorizing design may seem like an endless process of function, aesthetics, and dimensions. Although this research demonstrates few samples, it certainly highlights the various solutions to the same problem. Objects in this research include not only physical models, but also the manufactured real scale pieces of furniture that will be tackled in the following section. A question may be posed about the reality of the prototypes versus the reality of the produced object. The various outcomes allow comparison, particularly when students are referring to the same inspirational source leading to valid diverging outcomes.

Belgium. Another project was inspired by the Belgium pavilion (see Fig. 4c). I quote from the student: 'I got inspired by the pattern of the vertical louvers that transform into a curved surface. Both repetitive elements and arcs are used to create the furniture design concept.' For the student, digital tools seem to allow more design iterations. Incomplete chairs in the manufacturing process sometimes reveal aesthetics that may not be visible otherwise. A contrast in the perception of the object is manifested where some projects looked lighter than their actual weight, for instance, the chair inspired by the Belgium pavilion which rings seem to be elevated softly from the ground. The reason is that they are made from steel which certainly adds to the total weight. The tangibility of material objects is different than the impression they first give

Spain. One participant used the conical elements dominating the Spanish pavilion, inverted, and used as a floating base of the stool (see Fig. 5a). The geometry of the seating space became the dominant design element and its structure seemed like a fancy accessory. The manufactured result is much more truthful to the technical drawings than the 3D-printed model that missed some precision and refinement. The influence of geometry may be highly visible in the conical chair echoing many authority chairs inspired by geometry throughout the history.

United Kingdom. The design was inspired by the array of lamellae in the pavilion. The student who designed the corresponding object explained that 'from the external

(a) **(b)**

(c) **(d)**

Fig. 4. 3d-printed physical models inspired by pavilions pertaining to the following countries: (a) Luxembourg (b) United Arab Emirates (c) United Arab Emirates (d) Belgium.

side, the lines in the pavilion appear to diverge from a single point. If these lines are set free, they will wander in the space. So I was inspired to create a chair that looks, from afar, as if its seat was floating, but a closer look will reveal that the seat is adhered to structural metallic rods supporting the seat upholstered in leather. In addition to that, at the bottom, the metal sticks intersect with a ring covered by a layer of leather to increase stability on the ground. The same type of leather will also cover the edge of the chair.' (See Fig. 5b).

Canada. The interlocking wooden structures in the pavilion's envelope were translated into the legs and arms of the chair. The pentagon shape of the seat is connected with lower base that also has a pentagon rotated shape. Each vertex of the pentagon is connected three-dimensionally with two opposite vertices of the facing pentagon. The result is interwoven bars serving as the legs of the chair (see Fig. 5c). The physical model necessitated post-processing, highlighting the fact that some models are better represented with alternative model making techniques other than 3d printing.

China. The form represented in the pertaining physical model is inspired by the Chinese pavilion which is, itself, reminiscent of the traditional Chinese lantern. Quoting the student's own words, 'the chair is designed with a hope of a bright future, just like the Chinese pavilion that is embracing the culture mix between the West and the East, modernity and tradition.' The cylindrical overall volume of the pavilion is also maintained in the design (see Fig. 5d). The circular base is extended backward to support two layers of ribs; the first layer is composed of series of cylindrical rods and the second, rectangular ones. These layers specifically got inspired by the façade details in the pavilion incorporating vertical louvers surrounding the core volume of the building.

2.3 Design Outcome: Manufactured Artifacts

Part of the learning process involves understanding the challenges of using specific tools. For example, some 3d-printed models required several hours of post processing, while others were more refined, indicating that the type of 3d printers and the 3d digital model influence the quality, precision, forms, lines, and surfaces of the objects. By using available technologies, 3d-printed models took shape, constituting cultural memory and relationships between the designers' own taste and sentimental encounters towards an urban-scaled place like Dubai World Expo [11]. Working with a real scale prototype allows the identification of functional challenges such as stability, sturdiness, and structural integrity.

Being present at the location of Dubai Expo allowed the students to physically interact with the chosen pavilions and hence influenced their designs further than merely being inspired by images retrieved from a book or internet.

Because of sponsorship support from Bond Interiors, manufacturing the real scale chairs was made possible. At the time of presenting this research in Parma (5 May 2022) at the international conference Design! OPEN, not all chairs were still completed, but images of the process were shown. Currently, all manufactured chairs are exhibited at CDES exhibition space. In this research, the chairs will be referred to using the terms 'material objects.'

(a) **(b)**

(c) **(d)**

Fig. 5. 3d-printed physical models inspired by pavilions pertaining to the following countries: (a) Spain (b) United Kingdom (c) Canada (d) China

The students visited Bond Interiors factory (5 October 2021) located in Dubai Industrial City [12]. As a visual research phase, a report done by the students about their field depicted their observations on the tools and machineries used in the factory such as CNC machines, inloader transporters, sand blasting machine, and others. The students were also exposed to the versatility of materials they can utilize like wood, glass, solid surface, and steel as well as joinery and millwork techniques. Furniture prototypes and mock-ups were amply available during the visit allowing proper documentation through photos. It is worth mentioning that the founder himself of Bond Interiors, member of the advisory board of the College of Design at AUE, guided the students during the visit transferring his skills and expertise to the young designers.

3 Abduction

In the previous sections, we have thoroughly described tools and obtained results of the manufactured artifacts. These results will provide opportunity, in abduction reasoning, to explore an inquiry method, phenomenology that may enable us to acquire the final desired value, memory of the temporary event of the Dubai World Expo 2020. Creswell [4], quoting Moustakas, highlighted a feature of phenomenology which is the intentionality of being conscious of the external forms of objects combined with 'consciousness based on memory, image, and meaning.' In our case, 'objects' are also linked to the built environment of Dubai World Expo. The objective, in this research, is to interpret the essence of the experience from students themselves and designed artifacts inspired by the pavilions rather than interpreting from a literature review tied to the expo event. To develop students' understanding of Dubai World Expo 2020 (1 October 2021- 31 March 2022) and to assist them in picking a pavilion to be considered later in the design process, they were urged to take part in cultural activities that were happening there.

3.1 Phenomenological Inquiry: Dubai World Expo as Object of Interest

The idea of 'bracketing,' wherein researchers put aside any prejudgments and utilize their intuition and imagination to discover the universal or fundamental properties of the phenomenon, is a fundamental premise that underpins phenomenological investigation. Dubai World Expo learned lessons from previous Milan and Shanghai expos and complemented Dubai's well-established infrastructure and tourist attractions [13]; however, a mega-scale temporal event requires making sense of place [14] specifically for design students to conceptualize their ideas on the pavilions as source references. Attending musical concerts, hosting world-class athletes, engaging in culinary activities, visiting science museums, taking part in environmental awareness workshops and exhibitions, perceiving top-notch technologies and inventions, and watching movies and installations are only few of the myriad buzzing cultural activities that took place at the event. For architects, designers, artists, and philosophers, the World Expo seemed like a vast playground, with pavilions being playground climbers. Literally, the Lebanese and German pavilions had swings in their spaces as part of the visitor's interactive experience.

Dubai, in general and the World Expo, in particular, serve as a global platform, as 90% of the population in Dubai are foreigners, acting agents of tolerance and diversity,

the intended communicated image of the city. Expo events, which are international in scope, seek to inform the public, spread innovation, speed up development, and promote collaboration [15]. Global issues were highlighted during the Dubai World Expo 2020 in keeping with past legacies from Shanghai Expo 2010 and Expo 2015 Milan like 'Mobility, Opportunity and Sustainability' with a main motto 'Connecting Minds, Creating the Future.' Having visited the expo several times, during the days and evenings, I found it interesting how the walking experience shifted when the weather changes and when the buildings' lightings were turned on. For example, the Chinese pavilion inspired by a traditional Chinese lantern functioned better in evenings when the building is well-lit with a spectacular light show.

Because the students in AUE are mostly living in Dubai, the city where they are pursuing their education, they have already developed a sense of belonging to the city. To explore more, the following subsection will highlight the idea of place-making along with characteristics that enhance place-making in Dubai World Expo (Fig. 6).

3.2 Place-Making as Object of Memory

One of the strategies to enhance place-making of a city is hosting a major event in it such as World Expo. This cultural event contributes significantly to the branded public image of Dubai. By defining the concept of place-making, there is a distinction between space and place. Space is the physical form, and place is the relational sense of the space involving social practices and human interactions; furthermore, place-making refers to the experiences and collective memory lived during the event. Students' memory of the created objects would not only be associated to Dubai World Expo, but the design exercise becomes a motive to make sense of the ephemeral event. The objects, hence, materializes permanently in their memories. How designers react to spaces that are going to stay there for a limited amount of time then leave us? Through design process, memory of a space becomes that of a place. The material objects become tools we can utilize to enhance our understanding of place-making and memory.

According to Swarbrooke [16], the attraction product is mostly experienced and includes both tangible and intangible components. Following Swarbrooke (1995) classification of attraction, already four types of tangible types in Dubai may be noted: (1) natural beauty of the city experienced by activities such as desert safari, sand boarding, scuba diving and deep sea fishing (2) man-made, but not originally designed to attract visitors such as Bastakiya, Al-Satwa, extension of Dubai Creek around which Business Bay was constructed, and others (3) man-made like Ski Dubai, Burj Al Arab, Atlantis, Palm Jumeirah, Dubai Mall, and Burj Al Arab (4) purpose-built to attract visitors and special events like Dubai World Expo 2020.

Greenways and sustainability vision of the Dubai World Expo ensured the quality of a meaningful public open space. Shaded pathways connecting various districts enhanced the walking experience allowing pedestrians to enjoy slowly the various pavilions and organized events. Al Wasl dome provided a mesmerizing static place where visitors contemplated the geometric structural patterns and enjoyed underneath concerts, talks, events accompanied by lighting shows. The experiences lived by visitors during the mega event in these temporary spaces became permanent places in the collective memory of visitors including students who were involved in the Furniture Design course at AUE.

(a)

(b)

(c)

(d)

Fig. 6. Manufactured artifacts pertaining to Dubai World Expo pavilions of the following countries: (a) United Arab Emirates (b) United Arab Emirates (c) Belgium (d) Spain

The designed objects are products of the real and the imaginary, giving material form to memory [17]. (Fig. 7).

4 Conclusion

This manuscript makes use of combined research methodologies to demonstrate how material objects become markers of memory. Through deductive reasoning, the research narrates a design methodology aiming at translating urban attributes to product scale. This methodology is demonstrated by referring to a Furniture Design course delivered at the American University in the Emirates (AUE). Specifically, this article posits the idea of firstly, how material objects, translate cultural, urban, architectural and social attributes of a mega event such as Dubai World Expo 2020, and, secondly, how they constitute tools of memory, utilizing abduction and a phenomenological mode of inquiry. The created objects are 3d-printed models and real scale prototypes of furniture artifacts. These empirical results are then described and analyzed. While direct learning outcomes in the course are gaining the knowledge and skills through design process, this research further contributes on how design creates an osmosis of cultural exchange wherein memory becomes tangible through material objects. Future research may explore further the relationship between place-making, artifacts, and memory through design.

Fig. 7. Manufactured artifacts pertaining to Dubai World Expo pavilions of the following countries: (a) United Kingdom (b) Canada (c) China (back view) (d) China (front view)

Acknowledgement. This research was made possible because of the contribution of my students in the Furniture Design course at AUE. Special thanks go to my colleagues, Chadi Chamoun, Jill Alexandria, Gaurav Jain, Rahul Malpure, and Farah Mahmoud. Last but not least, I would like to thank Elisa di Stefano, member of the organizing committee of Design! OPEN that constituted an excellent platform to disseminate my research findings.

References

1. Groat, L., Wang, D.: Architectural Research Methods, 2nd edn. Wiley, Hoboken, New Jersey (2013)
2. Dorst, K.: The core of 'design thinking' and its application. Des. Stud. **32**, 521–532 (2011)
3. Schön, D.A.: Educating the Reflective Practitioner. Jossey-Bass Publishers, San Francesco (1987)
4. Creswell, J., Poth, C.N.: Qualitative Inquiry Research Design: Choosing Among Five Approaches, 4th edn. Sage, Thousand Oaks, CA (2018)
5. Smith, J. A., Flowers, P., Larkin, M.: Interpretative phenomenological analysis: Theory, Method and Research. Sage, Thousand Oaks, CA (2009)
6. BorgiBastormagi homepage, https://www.borgibastormagi.com/, Accessed 24 Nov 2022
7. Munari, B.: Da Cosa Nasce Cosa. Laterza, Italy (2010)
8. Kavakli, M., Scrivener, S.A., Ball, L.J.: Structure in idea sketching behavior. Des. Stud. **19**(4), 485–517 (1998)
9. Thomsen, B. D., Chraudin, M.: The Dilemma - the creation of forms via digital or manual models.In: DS 46: Proceedings of E and PDE 2008, the 10th International Conference on Engineering and Product Design Education (2018)
10. Pink, S.: An urban tour. Ethnography **9**(2), 175–196 (2008)
11. Sturken, M.: Tourists of History: Souvenirs, Architecture and the Kitschification of Memory. In: Plate, L., Smelik, A. (eds.) Technologies of Memory in the Arts, pp. 18–35. Palgrave Macmillan UK, London (2009). https://doi.org/10.1057/9780230239562_2
12. Bond Interiors homepage, https://www.bondinteriors.com/, Accessed 24 Nov 2022
13. Haneef, S.K., Ansari, Z., Bhavani, G.: Attractions of Dubai and expo 2020: an exploratory study. Worldwide Hospitality and Tourism Themes **11**(3), 266–278 (2019)
14. Williams, D.R.: Making sense of 'place': reflections on pluralism and positionality in place research. Landsc. Urban Plan. **131**, 74–82 (2014)
15. Bureau International des Expositions (BIE) homepage, www.bieparis.org/site/en/news, Accessed 24 Nov 2022
16. Swarbrooke, J.: The Development and Management of Visitor Attractions, 2nd edn. Butterworth Heinemann, Oxford (2002)
17. Proverbio, P., Riccini, R.: Design e immaginario. oggetti, immagini e visioni fra rappresentazione e progetto. Il Poligrafo, Italy (2016)

Objects Between Material Culture and Visual Culture

Loredana La Fortuna(✉)

Politecnico di Bari, Bari, Italy
loredana.lafortuna@poliba.it

Abstract. What happens to a squeezer, a coffee maker, a corkscrew, when they leave the kitchen and become part of a film set? What happens when material culture is transformed into visual culture? What new roles, meanings and connections to the subject, do objects find themselves constructing in the *content continuum* of virtual media?

This paper attempts to answer, albeit partially, these questions by using a specific case study, namely the analysis of the presence of some of the most famous Italian design objects, the kitchen objects by Alessi, within the American filmography of the last twenty years.

The ultimate aim is to reason in terms of meaning and narrativity according to the methods proposed by sociosemiotics and cultural studies, in order to identify new characteristics and functions that design can perform within an experiential context that is already dominant: the world of images.

Keywords: Visual culture · Material culture · Design · Film · Kitchen Objects

1 Visual culture and objects

In the early 1990s, American scholar W.J.T Mitchell [1], when talking about visual culture, used the term 'interdiscipline' or rather 'indiscipline' to emphasise the hybrid and at the same time provocative character of this type of study. Since then, visual culture studies have dramatically evolved, but their innovative character has remained intact.

The first reflections on the subject actually date back to the 1970s, when in the wake of Anglo-Saxon cultural studies, people began to talk about *Visual studies*. The art historian Svetlana Alpers [2] first used the term *visual culture* with the aim of proposing a new approach to the study of artistic products. According to the scholar, in fact, in order to understand a work of art, it was necessary not only to study its aesthetic features and the culture that had produced it, but also and above all the contemporary culture of those who observed and interpreted that work, the methods and means used for observation. Taking into account these variables, Alpers claimed that the interpretation of the work of art thus became something that was never definitively given, but, on the contrary, it was configured as a dynamic practice, constantly renegotiated according to the observer and his or her reference culture. Thus, applying a method close to neo-historical textual criticism, mediology and cultural studies, the work of art became a textual system, i.e.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 56–64, 2024.
https://doi.org/10.1007/978-3-031-49811-4_6

what semiotics defines as 'discourse', in which the production of meaning occurs through the contamination of different elements.

Although Alpers' theoretical proposal dates back to the 1970s, it is only since the 1990s that visual culture has acquired its own academic status and scientific legitimacy, becoming central to art history courses particularly in America, Great Britain and England, but above all extending its sphere of interest to other fields such as the applied arts, cinema, design and all the visual languages of mass culture. The convergence of practices and methods drawn from cultural studies, art history, but also psychology, sociology, anthropology, and history, nowadays configure visual culture as an interdisciplinary project of analysis and criticism of visual languages, whereby images are studied as 'a set of practices that vary not only their use, but also their meaning' [3].

The application of this theory to the practice of design is undoubtedly one of its most interesting outcomes, even if seemingly oxymoronic. If on the one hand there is visual culture, the images with their virtuality, on the other, almost opposite, hand there would be material culture, the objects with their thickness, weight and materiality. On the one hand the images that are looked at, on the other the objects that are predominantly used. However, we must acknowledge that, starting with the advent of photography and subsequent media such as cinema and television, up to the hybridisation of multimedia languages, the Western world has now structured its knowledge and social dynamics predominantly around images. Reality passes, is experienced and even created through images. The advent of the Metaverse is the clearest example of the priority that the visual component is acquiring over all other ways of experiencing reality. As Andrea Fontana writes, in the *content continuum* in which we live, 'the boundary between real, virtual and *fictional'* [4, 20] has become increasingly thin. In such a visual context, objects become part of syncretic, visual, audiovisual, textual texts that are then declined in a *polysystemic* [5, 40] perspective, i.e. replicated, translated and continuously re-elaborated according to the specific codes of the different social networks or virtual contexts. And in such virtual spaces, objects find themselves playing roles that are neither foreseen nor predictable and weaving new relationships with time, space and subjects.

We owe American scholar Bill Brown [6] an interesting reflection on *Thing Theory*, a branch of critical theory that studies human-object interaction in culture. Echoing the distinction proposed by Heidegger between objects and things, Brown restates that objects turn into things as soon as they cease to fulfil their common function, i.e. when their dynamics of production, distribution, consumption, and display change.

The transition from material culture to visual culture can be configured exactly as a transition from objects to things. When an object is photographed, placed within a film scenography, watched rather than used, it clearly changes its function and establishes new relationships with the subject looking at it. Relations that are no longer defined in terms of use, but in terms of attribution of meaning and narrativity. The object almost completely loses its specific prerogatives of form, function, matter and is transformed into image, narrative element, sign.

However, once this transition has been defined, it is necessary to understand how to analyse and study this conversion of material culture into visual culture, with what modalities and methods.

Sociosemiotics has looked into design in a complex way for a long time. Semiotic studies, in fact, conceive design not simply as an act of creation and production of objects, but as a 'discourse', i.e. as a *'social process of creation and reproduction of meaning* that takes place within social, institutional and historical formations' [7, 269]. Studying design in terms of discourse, therefore, means focusing precisely on its being textuality, on its being a productive process of meaning made of texts, objects in this case, but also of mechanisms of enunciation, reproduction and circulation, and of all those cultural practices that produce and interpret the texts themselves [8].

Pioneering in this sense is the thought of Ronald Barthes who, in his brilliant myth-semiological reflections, wrote: 'We believe we are in a practical world of uses, of functions, of total domestication of the object and in reality we are, even through objects, in a world of meaning, of reasons, of alibis' [9, 48]. He is credited with having first studied fashionable objects not as such, but as images. As, in fact, fashion sociosemiologist Patrizia Calefato reminds us: 'It was Roland Barthes, in *The Fashion System*, who set an exemplary 20th century theory of fashion as social discourse. In this text Barthes does not in fact deal with real fashion, but rather with fashion described in the specialised press where the garment is totally converted into language" [10, 10].

Critical sociosemiotics and cultural studies in particular as Stuart Hall [11] conceived them, i.e. as a critical investigation of the formal conditions of possibility of sociality as such, offer a methodological system suited to the case. Cultural studies, in particular, intended as a field of study rather than as a discipline itself, are specifically appropriate to this type of analysis because they open us up to new categories of thought, to new disciplinary links, force us to observe and recognise complex connections through the application of research methods from different fields, but above all legitimise us in our attempt to study design not as such, but in its becoming through modes of enunciation. In its becoming discourse.

In an attempt to try and define a method of analysis and thus of results, an example of empirical research is proposed on one of the most evident transitions from material culture to visual culture, namely the inclusion of design objects in the cinematographic language. To this end, the presence of some of the most famous Italian design objects, the kitchen objects by Alessi, within the American filmography of the last twenty years will be analysed, trying to interpret their roles and functions.

2 Empirical Attempts of Analysis: Kitchen Objects in the American Filmography of the Last Twenty years

The kitchen objects by Alessi have been chosen as a case study for several theoretical reasons. First of all, kitchen objects, more than furniture objects, have an outstanding vocation for use [12], so their cinematographic transposition makes this transition from material to visual culture particularly interesting. Moreover, of all the various Italian kitchen design objects, it has been preferred to focus on Alessi objects both because many of them are counted among the best contributions of Italian material culture, and because the company in question, by choice, does not make use of product placement [13], so that the presence of an Alessi object in a film is far more interesting and significant from a semiotic and narrative point of view.

As far as films are concerned, we have reasoned in terms of relevance. American filmography was chosen because of its strong impact in terms of global culture [14], while in terms of time limits, the most recent filmography has been preferred, i.e. those films produced and distributed between 2000 and 2020.

Once these parameters have been defined, titles have been selected in terms of relevance and significance, i.e. films that have truly had an impact in the common imaginary have been identified: Oscar-winning films, the highest-grossing films and Critics Award-winning films.

With regard to Oscar-winning films, in particular, the categories of Best Picture and Best Production Design have been taken into account. As far as Box Office grosses are concerned, we have used the noticeboards provided by the Box Office Mojo website [15], considered by industry experts as the most reliable reference. The US site is a complex database that enables different types of research on film box office according to year and geographic area of interest, and is constantly updated as it also takes into consideration the enjoyment of films through different web platforms such as AmazonPrime, Chili, Netflix and the like. The rankings considered for the purposes of this work have been those of North America for the years from 2000 to 2020. Excluding animated films, films with historical and fantasy settings, the top four films in the rankings have been examined.

As far as critics is concerned, the site metacritic.com [16] has been chosen. This US site collects reviews of music albums, films and even video games from the most important American newspapers in the field such as 'Movie', 'Best Movie' and 'By Year'. These reviews are then translated into a score whose average is expressed through a value called Metascore, which thus provides a numerical comparison between the different films. This category is very interesting as almost always films with a higher metascore are not ranked in the top positions of the highest-grossing films and are sometimes nominated for the Academy Awards, but do not win. Considering Critics Award-winning films means intercepting a set of viewers certainly endowed with a more specific and complex encyclopaedia of reference knowledge, to quote Umberto Eco [17], which will allow them to have a deeper interpretation and this also applies to the signs of material culture. Also in this case, the first four titles in the ranking have been analysed.

Once this selection has been made, and ten titles for year had been identified, we have watched every single film, identified the Alessi objects featured in them and then made an initial attempt at interpretation. Clearly, not in all the films selected do the sought-after elements appear, and even when they are present, it is fundamental that they play an effective role in the scene, since the ultimate aim of this research is not so much to identify their mere presence, as to study their narrative and semiotic value.

Three films have been selected as examples: *Minority Report*, *Monster in Law* and *Inferno* containing the *Tua* pitcher, the *Anna G.* corkscrew and the *Juicy Salif* squeezer respectively, all three produced by Alessi.

Minority Report is a 2002 film directed by Steven Spielberg. Based on the homonymous science fiction story by Philip Dick, the story is set in 2054 and stars Captain John Anderton, played by Tom Cruise.

At the very opening of the film, the *Tua* pitcher designed by Mario Botta for Alessi in 2000 appears on the scene [18, 149]. The object in this case still performs the function for which it was designed, even though it is used to pour coffee and not water, yet it is subjected to a temporal decontextualisation. Aesthetic characteristics become a priority in this case. Instead, the form and materials chosen by the Swiss architect for a design free of unnecessary preciosity become futuristic elements so that the object can be easily set in a future time.

We are faced with what in literary theory is called 'estrangement' [19], i.e. the unpredicted and unexpected, while, from a narrative point of view, the object seems to be subjected to an operation similar to that which the rhetorical figure of *hyperbole* performs on words: that is, the extreme exaggeration of an aspect of the object. Hyperbole is among the most frequently used rhetorical figures in advertising exactly because of its ability to alienate the object, in the very sense of making it extraordinary, beyond reality. The integration of the *Tua* pitcher in *Minority Report*, its transition to visual culture, means that the object, in the eyes of the observer, acquires new meanings, that are proper to the narrative plot and that it would not have in the context of mere material culture (Fig. 1).

Fig. 1. The Tua pitcher in Minority Report.

Monster in Law is a 2005 film directed by Robert Luketic, but best known for its two lead actresses: Jane Fonda and Jennifer Lopez. The plot is based on one of the most atavistic rivalries: that between daughter-in-law and mother-in-law. This rivalry is so sharp that the mother-in-law Jane Fonda even decides to sabotage the upcoming marriage between her daughter-in-law and her son by feeding the girl almonds even though she knows she is allergic to them. As we see her in the kitchen, crushing almonds to mix them into a serving sauce, the *Anna G.* corkscrew [18, 53], designed by Alessandro Mendini for Alessi in 1994, appears on the countertop. It is one of the objects that best interprets the process of anthropomorphisation of design that inspired many Alessi products at the

end of the 20th century. Although the corkscrew is placed in the kitchen, it does not perform its specific function, so much so that on the surface where it appears there are no bottles. We are therefore presented with a functional decontextualisation (Fig. 2).

Fig. 2. The *Anna G.* corkscrew *in Monster in Law*.

In the unfolding of the scene, however, it is easy to notice the very obvious resemblance between the figure imprinted on the corkscrew and the protagonist of the scene, in the cut of her hair, in the line of her dress, almost as if it were really a personification of the character herself and her role. Exactly as a corkscrew is able to creep between cork and bottle and forcefully break the perfect joint, so Viola, played by Jane Fonda, vehemently and cunningly intrudes into a love relationship, with the specific intention of breaking it. In textual rhetoric we refer to *personification* when we attribute human traits, thoughts, behaviours to something that is not human. In this case, in the transition from materiality to visuality, the object takes on characteristics proper to the character and actress who interprets it, and becomes capable of a narrative significance, certainly not foreseen at the time of its conception (Fig. 3).

Inferno is a 2016 film directed by Ron Howard and based on the book of the same name by Dan Brown. Tom Hanks plays the protagonist, symbology professor Robert Langdon. In the agitated opening scenes, the scholar oscillates between consciousness and hallucinations and, at one point, he seems to catch a glimpse of his friend Ignazio Busoni, who is suddenly suffocated and bitten by a snake, exactly what happens in the fraud circle, by the law of reciprocity, in cantos XXIV and XXV of Dante's Inferno. Behind Busoni, on a bookcase, the *Juicy Sali* [18 93] appears, a squeezer designed by Philippe Starck for Alessi in 1990. In this case we have a decontextualisation of the object both spatially and functionally, as the object leaves the kitchen, completely loses the function for which it was designed and becomes a sort of sculpture to be displayed on the shelves together with books. At the same time, however, the ‘s vaguely zoomorphic shape, almost endowed with tentacles, seems to refer to the coils of the snake that appears

Fig. 3. The *Juicy Salif* squeezer in *Inferno.*

next to it on the scene in a perfect formal correspondence. In this film, built up to the end on the exchange of roles, whereby positive characters turn out to be negative and vice versa, this object is subjected to a metaphorical operation, becoming itself a symbol of the dystopia that underlies the whole narrative.

Whoever looks at these objects within the respective filmic narratives that have just been described, introjects, more or less consciously, new meanings. The observer looks at the same objects he or she has probably already observed in domestic scenarios, but no longer sees the same things.

3 Conclusion

The transition to visual culture inevitably modifies perceptive modes and transfers the object-subject dynamics into a cultural context made up of meanings, values, utopian projections, and expressive potentialities destined to forever modify the criteria of choice, purchase and use of the objects themselves. It is in the abstractness of the virtual that the new sense of the real is constructed and, for this reason, every sphere of thought is called upon to investigate this transition. Design can be no exception.

In the fictional economy era, we should be aware of the existence of an important relation between visual culture and design. Above all, we should point out a way to study the results of this blending between material culture and visual culture. For this reason, it is needed a comparison and a hybridization of humanities and design methods and approaches.

References

1. Mitchell, W.J.T.: Interdisciplinarity and Visual Culture. Art Bullettin **77**(4), 540–544 (1995)
2. Alpers, S.: The art of Describing. Duch art in the Seventeenth Century. The University of Chicago Press, Chicago (1983)
3. Demaria, C.: Cultura Visuale. In: Cometa, M. (ed.) Dizionario di studi Culturali, pp. 151–158. Meltemi, Roma (2004)
4. Fontana, A.: Storie che incantano. Il lato narrativo dei brand. Roi Edizioni, Macerata, 21 (2018)
5. Dusi, N., Spaziante, L.: Remix-Remake. Pratiche di replicabilità. Meltemi, Roma (2006)
6. Brown, B.: Thing Theory. Crit. Inq. **28**(1), 1–22 (2001)
7. Volli, U.: Manuale di semiotica. Editori Laterza, Roma-Bari (2011)
8. Mangano, D., Matozzi, A.: Il discorso del design. Pratiche di progetto e saper-fare semiotico. E/C **3–4**(3), (2009)
9. Barthes, R.: L'aventure sémiologique, In: Cederna, C.M. (ed.) du Seuil, Parigi. L'avventura semiologica. Einaudi, Torino (1991)
10. Calefato. P.: La moda oltre la moda. Lupetti, Milano (2011)
11. Mellino, M.: Stuart Hall. Il soggetto e la differenza. Per un'archeologia degli studi culturali e postcoloniali. Meltemi, Roma (2006)
12. La Fortuna, L.: La cucina di design. Progedit, Bari (2016)
13. Nelli, P.R., Bensi, P.: Il product placement nelle strategie di convergenza della marca nel settore dell'intrattenimento. Vita e Pensiero, Milano (2007)
14. Bowman, P.: Culture & Media. Palgrave Macmillan, New York (2012)
15. https://www.boxofficemojo.com/
16. https://www.metacritic.com/
17. Eco, U.: Opera aperta. Forma e indeterminazione nelle poetiche contemporanee. Milano, Bompiani (1962)
18. Alessi, A.: La fabbrica dei sogni. Rizzoli, Milano (2016)
19. Ellero, M.P.: Retorica. Carocci, Roma (2017)
20. Appadurai, A.: La vita sociale delle cose. Meltemi, Milano (2021)
21. Auricchio, V.: Design in cucina. Oggetti, riti, luoghi. Giunti, Firenze (2012)
22. Bassi, A.: Design. Il Mulino, Bologna (2013)
23. Ciabarri, L.: Cultura materiale. Raffaello Cortina Editore, Milano (2018)
24. Cometa, M.: Cultura Visuale. Raffaello Cortina Editore, Milano (2020)
25. Costa, A.: La mela di Cézanne e l'accendino di Hitchcok. Il senso delle cose nei film. Einaudi, Torino (2014)
26. Di Marino, B.: Film Oggetto Design. La messa in scena delle cose. Postmedia, Milano (2011)
27. Dusi, N.: Sociosemiotica. In: Cometa, M. (ed.) Dizionario di studi Culturali, p. 380–387. Meltemi, Roma (2004)
28. McDonald, P., Wasko, J.: The Contemporary Hollywood Film Industry. Cuepress, John Wiley & Sons, New York (2008)
29. Pinotti, A., Somaini, A.: Cultura visuale. Immagini, sguardi, media, dispositivi. Einaudi, Torino (2016)
30. Segrave K.: Product Placement in Hollywood Films. McFarland & Company, Jefferson, Nord Carolina (2004)

Puppets' Tales. New Design Perspectives for a Multimedia Archive of a Humanity's Intangible Heritage

Vincenzo Maselli(✉)

Sapienza University of Rome, Rome, Italy
vincenzo.maselli@uniroma1.it

Abstract. In 2008 UNESCO has recognized Puppets as expressions of intangible cultural heritage and, since then, thirteen traditions from around the world have been included in the UNESCO intangible cultural heritage list. In the last decades puppets have been object of study and cultural fascination. This paper aims at suggesting an unprecedented perspective in reading, displaying and narrating this priceless intangible cultural heritage, by both outlining its aesthetic, and symbolic values, and enhancing its processual and material features. These thoughts open a research path that applies the point of view and the tools of multimedia design to tell the narratives, the craft and production traditions of objects that have crossed the history of humanity. The aim is to create a multimedia archive filled with audiovisual artefacts produced by hybridizing documentary media (photographs, videos and interviews) with fictional productions (drawings, scripted dialogues and animated sequences). To test the validity of using hybrid languages and visual codes a didactic experiment will be described. Students of a Multimedia design class were asked to design an archive of audiovisual artefacts that stage under a new perspective the cultural roots, materials and production processes of a tradition worthy of being visually narrated.

Keywords: Puppets · Intangible Heritage · Multimedia Archive · Hybrid Docudrama · Didactic Experiment

1 Puppets in the UNESCO's Intangible Heritages List

From Mali to Czech Republic, from China to Egypt, puppets' tales have crossed several counties and fields of knowledge and have been connected with myths, religion, theater, marketing, entertainment, technology and film studies [1]. Puppets are inanimate and anthropomorphic object that, due to their human-like appearance, over the centuries has been treated as non-organic entities which human beings could 'give life' to, by manipulating them with hand, strings, rods or with complex systems of cogs and gears [2].The heritage of these objects belongs to different cultures, places and eons of human history and have been explored to enhance sometimes their anthropological roots, some other times their philosophical, spiritual, symbolic and, not rarely, material and technological dimensions [1–8]. Puppets' tangled genealogy, their tales, craft traditions and functions

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 65–74, 2024.
https://doi.org/10.1007/978-3-031-49811-4_7

have been recognized by UNESCO as an intangible heritage of humanity starting from 2008 – with the Sicilian Pupi – up to 2018 – with the string puppets used as performers in the Rūkada Nātya shows in Sri Lanka.

The actions for enhancing Puppets' traditions undertaken in the last decades follow the new vision that UNESCO has aimed to achieve since the 70s, traying to promote not just peace, economic and political agreements among States, but also to strengthen the mutual knowledge, understanding, solidarity and dialogue between cultures and their traditions. That's why in 2003 UNESCO launched the Convention for the Safeguarding of the Intangible Cultural Heritage, expanding the meaning of the term 'cultural heritage', and making it not ending at monuments and collections of objects. Cultural heritage today also includes 'traditions or living expressions inherited from our ancestors and passed on to our descendants, such as oral traditions, performing arts, social practices, rituals, festive events, knowledge and practices concerning nature and the universe or the knowledge and skills to produce traditional crafts' [9]. Intangible cultural heritage expressions have a social, cultural, technological and economic value and represent both inherited traditions from the past and contemporary rural and urban practices in which diverse cultural groups take part. Intangible cultural heritage allows to find a sense of shared identity and continuity between different places and cultural manifestations.

In the following sections it will be illustrated an experimental approach to preserve, communicate and narrate puppets' heritage by highlighting the value of these objects, and by engaging new multimedia methods and instruments.

2 New Approaches for Preserving Puppets' Heritage

2.1 Puppets' Museums: An Overview

The pervasive appeal and uncanny ontology of puppets' manufacture practice [6, 10, 11], has been at the core of cultural events, exhibitions and rituals that have paid homage not only to the spiritual meaning of these objects but also to their material features and to the design experimental approach they testify. These symbolic objects, indeed, in the last decades has been protagonists of exhibitions that tried to enhance and preserve their main meanings, features and artistic values as one of the most ancient forms of theater, arguably the origin of drama itself [11]. Puppets' material features and stories have been the main aspects staged and communicated in dedicated museums and exhibitions [12]. Important examples of museums still today actively involved in the attempt to preserve this humanity's heritage are the Richard Teschner Collection at the *Austrian Theatre Museum* in Vienna; the *International Institue of Marionette Art* in Prague; the *Musée de l'Automate* in Souillac (France), one of the few examples of museum not dedicated to puppet theater but on Collection of automatons and mechanical toys from the 19th and 20th centuries; the collection of puppets hosted by the *Museum of the City of Munich*, one of the biggest permanent collection of puppets in the world with over 5,000 objects; the permanent exhibition of traditional puppets hosted by the *Scottish Mask and Puppet Theatre* in Glasgow; several small collection of traditional puppets in UK, such as those hosted in the *Bethnal Green Museum* of childhood, in *The Horniman Museum* in the theatre branch of the *Victoria and Albert Museum* in London. As for the worldwide panorama, a few examples are the Strings, Springs and Finger Puppets Collection at the

Canadian Museum of Civilization; the *National Puppet Museum* in Messico, and a wide list of museums in the USA among which *The Ballard Institute and Museum of Puppetry* at The University of Connecticut and the *Center for Puppetry Arts Museum* in Atlanta, Georgia. In Italy, especially after the important recognition provided by UNESCO in 2008, marionettes and rod puppets traditions have been protagonists of exhibitions aimed at preserving the tales and the knowledge of a multifaced heritage that gets different characteristics and coveys diverse stories from region to region. *The Antonio Pasqualino International Puppet Museum* founded in 1997 in Palermo and the *Museo Opera dei Pupi* in Catania as places for spreading culture and knowledge about Sicilian Pupi; the museum *La casa delle Marionette* in Ravenna and the *Museo del Burattino* in Bergamo, just to mention the most famous. In these places, stories, performances and styles are interwoven and the focus seems to be on three core features:

- The valorization of the puppets' theatrical performance, as most of the museums are dedicated to marionettes and rod puppets;
- The historical and geographical dimension, as exhibitions present puppets from various time periods and countries around the world;
- The educational value of these craftsmen traditions; quite often the exhibitions are accompanied by 'Create-A-Puppet' Workshops for adults and children.

The above-described puppets exhibitions miss a link with a contemporary dimension of museum's experience. In recent years the museums' modality of fruition has evolved embracing the idea of dynamic experience [13–14]. Museums got interactive by using sophisticated digital technologies and many museums today offer the possibility of observing their artworks even remotely, experiencing spaces that are virtually reconstructed. This new model aims at increasing the emotional involvement of visitors, at arousing curiosity, and at facilitating the learning of the narrated history and contents [14]. Dynamism and attractiveness, in this perspective, have become synonymous with *multimediality* and digitalization [15–17].

2.2 Puppets' Multimedia Archive

Since the international recognition of oral and intangible heritage as a fundamental factor for safeguarding cultural identity UNESCO has started collecting, capturing images and sounds and digitally archiving forms of cultural expression in virtual exhibitions with a purely informative objective. On the UNESCO official website also pictures and short documentary video portraying rituals and shows with puppets and mask as protagonists are available and free to be consulted. However, puppets' heritages archive is far from being complete and exhaustive about all aspects, from cultural roots to manufacture process, since these traditions are related to performances and rituals that have never been recorded and today are known only because of ancient orally passed information. Furthermore, taking into consideration the sensitive nature of the oral and intangible heritage, demanded with privacy of even closed to outsider of the community, sometimes the preservation by direct documentation could be complex and even impossible.

Due to the mentioned criticalities a new experience of the puppets' heritage needs to include an alternative approach. To enhance and spread puppets' cultural, anthropological, aesthetic and material features and symbolic values, a different means of

communication can be found by constructing a multimedia archive made accessible over the Internet and filled with audiovisual product that hybridize typical documentary nonfictional media (live footage and photographs) and animated sequences evocatively depicting historically verified information for which there is little archive. The fictional component of these storage provides a new archive model that the scholar Concetta Damiani named as narrating. She formulated the idea of designing an archive capable of telling stories and strengthening a collective identity through narrative mechanisms [18].

2.3 Docudramas on Puppets Traditions

The form of documentary suggested as vehicle for preserving heritages by telling stories belong to the audiovisual genre that Gary Rhodes and John Springer [19] at the beginning of the new millennium named docudrama. They addressed that form of video that hybridizes the traditional model of the ethnographic documentaries – that rely on non-invented situations and actions such as the tradition of materials, manufacturing process and folkloristic rituals –, and fictional narratives.

Docudramas are a form of documentary by nature hybrid, as they make a visual argument by using hybrid visual media such as video, pictures, paintings or drawings and animation, and, at the same time, that builds a narrative based on real historical records by using information that has been passed along, interviews with subjects actually involved, and also dramatic recreations using actors, in live action or animated, to depict actual events [20–21]. A docudrama, therefore, is more than a collection of facts, it conveys a narrative based on true stories to capture the audience's interest and curiosity and to visually experience events, characters and traditions that came to us only in oral form. The use of drawings, illustrations and animated sequences allowed by the hybrid nature of a docudrama, furthermore, has a pedagogic function in reaching a wider target and in making the narrated events visually and culturally closer to the audience. Paraphrasing Andy Glynne, the use of illustration and animation in documentary artefacts has several advantages: it allows to capture a past for which there is no existing or not accessible archive, to represent subjectivity, memories, thoughts and feelings, to add another dimension to a narrative – a metaphoric one –, to protect – when necessary – the identity of the protagonist(s). And to shift the focus onto the experiences rather than the individual, providing a universal message [22].

3 A Didactic Experiment

3.1 Objectives

The opportunity to test the design of a multimedia narrating archive filled with hybrid docudramas about puppets' heritages came from a didactic experience. The new approach based on the hybridization of fiction and non-fiction and the use of different audiovisual techniques in an educational scenario, had the following objectives:

- To provide opportunity to reach knowledge about a specific transcultural and transnational cultural tradition;

- To experiment hybrid audiovisual forms by integrating live footage, photographs, animation and illustration;
- To create a pilot version of a narrating moving images archive about a specific topic and verify if the use of docudrama in Cultural Heritage context makes the fruition experience richer and improves the interest towards the depicted events, places and protagonist;
- To open new perspectives on future possible actions aimed at similar preserving operations. It would be possible, for instance, to expand the puppets' heritage list and trace back other anthropologically valuable traditions that use puppets as form of expression, means of communication, vehicle of technological and craft experimentation. Furthermore, it could be possible to apply the same kinds of narrative approach and multimedia tools to other forms of intangible cultural heritage;
- To tryout different codes of representation and animation techniques among the wide range of possibilities to approach fictional component and to make the theorized valuable hybridization as effective and operative.

In the following sections students' journey will be described and a few case studies analyzed to evaluate the experimental approach to the topic.

3.2 Context and Methodology

The Master of Art in Design, Multimedia and Visual Communication of Sapienza University of Rome in the last years has dedicated a special focus on cultural heritage and students have been encouraged in producing communication campaign, interactive projects, audiovisual and multimedia design artefacts on the topic. During the Multimedia Design class in the a.y. 2021/22 they have been challenged to engage their expertise and skills in designing animated audiovisual artefacts to narrate the kind of intangible cultural heritage under analysis, puppets' traditions recognized by UNESCO. The assignment was expected to be developed by encompassing different phases and tasks:

- Research and exploration: aspects under analysis ranged from manufacturing processes, material qualities, aesthetic features, rituals, and social impact, and the disciplinary approaches to address the topic ranged from technology, art and sociology. The narration and direct involvement – through interviews – of protagonists (e.g., puppet makers, puppeteers, puppetry scholars) added a further opportunity to reach knowledge, narrate and enhance the specific tradition under investigation.
- The second phase consisted in the development of the storytelling, and in the definition of the following parameters: storyline, audio-visual sequences and photographic material to be grasped from digital archives (with mandatory copyright permission request), scripted actors – if needed –, animated sequences and/or still illustrations.
- The third phase consisted in the production of the docudrama, by following the main production phases: pre-production and assets definition, production, montage, editing and post production.

3.3 Final Outputs: Description and Analysis

Students produced thirteen docudramas, each one narrating one of the thirteen puppets' traditions recognized by UNESCO since 2008. In each of them real stories are narrated

in fictional form and photographs and videos taken from official archives are combined with illustrations and animated sequences. Students freely used animation technique they were more comfortable with and that better fitted their narratives and the specific puppets' tradition.

Following three projects will be described. The selection has been made according to the following parameters. The three docudramas:

- stage different animation techniques (traditional hand drawn animation, digital 2D animation and stop motion animation);
- show different thematic approaches to the topic (nostalgia for a glorious but disappearing past, puppets theatre tradition as a means for social engagement, puppets as occasion of technological transformation);
- enhance puppets made of different materials and theatrical approaches (human sized puppets manipulated by sticks, tridimensional material string puppets, shadow puppets made out of flat figures).

'Made To Move'. The docudrama 'made to move' (Fig. 1) narrates the story of an old puppeteer worried about the future of Bunraku, the traditional Japanese puppet theatre characterized by heavy human-size puppets whose manipulation requires the job of three puppeteers. The docudrama narrates the retirement of Tamao Yoshida, a puppeteer who has contributed to Bunraku's current status as the world's most highly developed and refined form of puppet theater. The narrative starts with Yoshida Tamao at home, bringing a box full of personal memories of Bunraku in the attic and feeling pain and nostalgia in abandoning a piece of his life. After reviving some of these memories connected to the manufacturing process and to the shows performed in the past (these two moments are supported with archival materials) he finds the courage to leave his place to the new generations. The narrative about the character carrying the box and reviewing past memories is the trigger that connects past and future, tradition and new generation that are depicted as enthusiast to learn a difficult and charming technique. These sequences are produced in traditional animation using a figurative visual code. Animated characters, objects and background are accurately detailed and the animation is smooth with a framerate of 24 frames per seconds.

'A Puppeteer's Story'. It tells the story of Shadi Al-Hallaq, one of the last shadow puppeteers of the Sirian Shadow Play tradition, a type of theatrical entertainment performed with flat puppets originating from the Indonesian islands of Java and Bali, and manipulated by the puppeteers between a bright light and a translucent screen. This form of cultural expression today has almost completely disappeared, but during the political fighting following the 'Arab Spring', it has been used as part of the protest against the government. The social power of this tradition inspired the story of the docudrama, in which an animated Shadi Al-Hallaq is performing the classic play of Aragoz, but get interrupted by the explosion of the conflict (Fig. 2). War's contradictions and horrors are shown though pictures and video from documentary archives. The last animated sequence show Shadi Al-Hallaq again on the abandoned set saying 'I looked at my puppets, and told them: 'You realize you are going to see the light, the world!'. By denouncing War and occupation as tools to annihilate a nation, students with this

Fig. 1. Still frames from the Docudrama "Made to Move". Authors: M. Bernava, C. Cassetti, A. Lopizzo © V. Maselli

docudrama stated that humans are not so easily silenced, and one of the ways that people fight this kind of oppression is culture. Animated sequences for this video have been produced in stop motion animation. Students manufactured a plasticine tridimensional puppet depicting Shadi Al-Hallaq and a semi destroyed city made of flat paper resembling theatrical wings.

Fig. 2. Still frames from the Docudrama "A puppeteer's story". Authors: R. Claps, F. Elia, A. Tabacco, M. Sun © V. Maselli

'The Legend of Aragoz' This docudrama is an imaginary tale about Aragoz, a typical wood puppet of the Egyptian hand puppetry tradition (Fig. 3). In the very beginning of the story, he is inside a box, forgotten as the theatrical tradition he belongs to. After someone opens the box, Aragoz wakes up and meets a child who does not know the Egyptian hand puppetry tradition. By telling his story, Aragoz realizes that his places don't exist anymore and that puppetry tradition is obsolete. But the child contradicts him as he finds Aragoz's story interesting and entertaining, but suggests the puppet needs a restyling to fit into the new forms of entertainment led by technology. Hence, at the end, Aragoz 'jumps' into a computer and gets virtual. The narrated story kindly deals with the issue of the slow disappearance of this art form in Egypt mostly because of the continuous developing of the technology. But in the end rather than keep defending the tradition as it was, students suggested a way to make this art form reborn by combining tradition and technology. From a technical perspective, the entire tale, apart from a few videos from the archive, is made in 2D digital animation.

Fig. 3. Still frames from the Docudrama "The legend of Aragoz". Authors: M. Baghestani Koozegar, E. Merrone, S. Perna, S. Sabihuddin, A. Tumenbaev © V. Maselli

4 Measuring Impacts: A Democratized Knowledge

Students managed to engage different cinematic tools to narrate ancient transcultural heritages, and to explore technological, anthropological, aesthetic and pedagogical aspects. But how to evaluate the cultural, social and economic impact that this new approach in communicating and preserving cultural heritage can produce? The described experiment does not provide data for a quantitative measurement of the long-term effects of building a digital storage of hybrid docudramas. The admitted evaluation metrics allow

to capture, even if partially, recurrences in dramaturgical choices that bring out a need for criticism or a search for social cohesion. Indeed, thanks to the awareness of the social potentials of the suggested instruments, it is possible to define the innovative strategies for the enhancement of heritage that can be communicated and shared with the public, stakeholders and citizens [23].

The metric of evaluation worth to be considered concerns the power of the narrating archive to reach a wider audience and democratize the knowledge of puppets' traditions. Although the pilot experimentation lacks of data concerning numbers of visualization and virtual fruition, the multimedia archive combining an online easily accessible storage with multimedia artifacts, democratized the heritage experience as increase the access to heritage contents [24]. This possibility was creatively demonstrated by the narrative choices that students freely decided to take in their artefacts. Harriet Purkis suggests that by basing narratives on 'people's life histories is an important part of the democratization of heritage' [25], 434]. Scripted storylines, indeed, mostly focus on puppeteers and engage members from the communities, who, by narrating their stories or expressing their feelings, achieve to universalize personal emotions, social issues and fears towards an uncertain future. Democratization of heritage, therefore, can also be considered through the ability to engage members of the community and present a version of history which is dictated by and reflective of personal stories of community members themselves [26].

References

1. Nelson, V.: The secret life of puppets. Harvard University Press, Cambridge (2003)
2. Maselli, V.: Anatomy of a puppet. design driven categories for animated puppets' skin, Franco Angeli, Milano (2020)
3. Jurkowski, H., Francis, P.: A History of European Puppetry: From Its Origins to the End of the 19th Century. Edwin Mellen Press, Lewiston (1996)
4. Blumenthal, E.: Puppetry and Puppets: An Illustrated World Survey. Thames Hudson, London (2005)
5. Bicat, T.: Puppet and Performing Objects: A practical guide. The Crowood Press Ltd., Marlborough (2007)
6. Gross, K.: Puppet: An Essay on Uncanny Life. University of Chicago Press, Chicago (2012)
7. Gray, J.: The Soul of Marionette. A short Enquiry into Human Freedom. Penguin books, London (2015)
8. Maselli, V.: Performance of puppets' skin material: the metadiegetic narrative level of animated puppets' material surface. Int. J Vis. Des. **13**(2), 17–37 (2019)
9. UNESCO, What is Intangible Cultural Heritage?, https://ich.unesco.org/en/what-is-intangible-heritage-00003, Accessed 26 Sep 2022
10. Rochat, P., Zahavi, D.: The uncanny mirror: A re-framing of mirror self-experience. Consciousness and Cognition. Elsevier, Amsterdam (2011)
11. Posner, D.N., Orenstein, C., Bell, J.: Routledge Companion to Puppetry and Material Performance. Routledge, Florence (2014)
12. Speaight, G.: Puppetry. Encyclopedia Britannica, https://www.britannica.com/art/ puppetry. Accessed 26 Apr 2022
13. Fonti, D., Caruso, R.: Il museo contemporaneo. Storie, esperienze, competenze. Gangemi, Roma (2012)

14. Dal Falco, F.: Lo spazio pubblico del Museo. Design e museum experiences. In: Ricci, L., Battisti, A., Cristallo V., Ravagnan, C. (Eds.). Building the public space between history, culture and nature, pp. 119–122. INU edizioni, Roma (2018)
15. Jenkins, H.: Transmedia Storytelling and Entertainment: An annotated syllabus. J. Media Cul. Stud. **24**(6), 943–958 (2010)
16. Mandelli, E.: Esporre la memoria. Le immagini in movimento nel museo contemporaneo. Forum, Udine (2017)
17. Salvetti, F., Scuderi, A.: Digitalization and Cultural Heritage in Italy. Innovative and Cutting-Edge Practices. Francoangeli, Milan (2019)
18. Damiani, C.: La memoria rappresentata: dalla descrizione inventariale agli archivi narranti. OS-Officina della Storia (2019). https://www.officinadellastoria.eu/it/2019/01 /09/la-memoria-rappresentata-dalla-descrizione-inventariale-agli-archivi-narranti/, Accessed 26 July 2022
19. Rhodes, G., Springer, J.: Docufictions: Essays On The Intersection Of Documentary And Fictional Filmmaking. McFarland Publishing, New York (2006)
20. Hampe, B.: Making Documentary Films and Videos, 2nd edn. Henry Holt and Company, New York (2007)
21. Martin, J.R.: Documentary Directing & Storytelling. Real Deal Press, Orlando (2018)
22. Glynne, A.: Drawn From Life: The Animated Documentary. In: Wilson, B. (ed.) The Documentary film book, pp. 73–75. Bloomsbury Publishing Plc, London (2013)
23. Dimoulas, C.A.: Cultural heritage storytelling, engagement and management in the era of big data and the semantic web. Sustainability **14**, 1–6 (2022)
24. Henninger, M., Scifleet, P.: How are the new documents of social networks shaping our cultural memory. J. Documentation **72**(2), 277–298 (2016)
25. Purkis, H.: Making digital heritage about people's life stories. Int. J. Herit. Stud. **23**(5), 434–444 (2017)
26. Duffy, P.R.J., Popple, S.E.: Pararchive and Island Stories: collaborative codesign and community digital heritage on the Isle of Bute. Internet Archaeology 46 (2017)

Anonima Castelli. Objects, Design and Cultural Heritage

Dario Scodeller(✉)

University of Ferrara, 44121 Ferrara, Italy
dario.scodeller@unife.it

Abstract. Anonima Castelli's historical archive is an interesting resource for studying the industrial production of furniture in Italy between the 1950s and the 1980s.

This article aims to illustrate a preliminary study for a research project dedicated to the archive and the historical production of the Castelli company. The drafting of the research hypotheses was preceded by a few educational experiences carried out as part of the Degree Course in Design at the University of Ferrara, organised in collaboration with the company; these experiences confirmed how worthwhile these archival sources were for inspiring the creative process.

The thesis asserted here is that, as well as historicising the phenomenon of Italian design based on documentary sources, company archives are also able to encourage the revival of production processes with the aim of re-issuing the objects present in historical catalogues.

This way, the original project designs become documents that are useful both for historians and for designers and entrepreneurs interested in making these "memories" operational again.

Keywords: Cultural heritage · furniture design · project archives · archival sources · reenacting · re-issue

1 Design as a Cultural Heritage Asset

The relationship between design and *cultural heritage* can be investigated through two directions of research: one regarding the contribution that design disciplines are able to offer in terms of safeguarding, protecting and promoting architectural, artistic, environmental and many other types of cultural heritage; instead, the other considers design itself, its culture and history, as a public asset to preserve and promote. As the editors of the special issue of "MD Journal" dedicated to *Design as cultural heritage* [1] have emphasised, Italy has a significant cultural deposit made up of a multitude of project archives, design collections and museum study centres, the preservation, study, cataloguing and promotion of which allows us to initiate processes that can pass on knowledge.

The positive effects can occur on several levels.

The first level is cultural: the collection, documentation, study, and circulation through publications, public conferences and exhibitions, of the historical events in

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 75–83, 2024.
https://doi.org/10.1007/978-3-031-49811-4_8

Italian design promotes greater collective awareness of the aesthetic quality and technological innovation that industrial society, with its creative, productive and commercial culture, has been able to generate in a particular historical period. The collective imaginary of Italian design should also be considered as part of this cultural heritage: not only the international circulation of its image, but also what settles in the collective memory and becomes, as claimed by George Kubler, "A visible portrait of the collective identity (…) This self-image reflected in things is a guide and a point of reference to the group for the future, and it eventually becomes the portrait given to posterity." [2].

In this regard, exhibitions have played a special role. As was highlighted by many case studies illustrated over the course of the most recent conference of the Association of Design Historians (*Design displayed: exhibiting history/the history of exhibitions*), [3] institutions and designers' preservation of historical documentation on design exhibitions, their study and (when possible) re-enacting, constitutes a practice that preserves memories useful for documenting the social meaning and importance of certain objects over time [4].

The second level of the effects is industrial. One of the characteristics of historical Italian design companies is the production of "*long-selling"* products: objects designed over half a century ago that are still present in sales catalogues, and are periodically updated with regard to regulations, production (and in part, aesthetics), using the original project documents. In this sense, the initiatives recently promoted by companies such as Cassina or Nemo with the archives of Charlotte Perriand and Le Corbusier should be considered as significant, despite not being without limits or contradictions. In this case, with the goal of motivating certain aesthetic choices in the re-issue of furnishings and lighting fixtures, the companies carried out a philological investigation based on the documents present in the LC Foundation archives [5].

But in the historical archives of Italian companies and designers (many of whom are no longer alive), there are also projects preserved that the companies never produced, and which they would like to put back into production. An interesting example, in this sense, is the re-issue project carried out by a few foundations in Milan (Castiglioni, Albini, Magistretti) to return certain historical pieces to their catalogues, with a comparative study of the original designs preserved in the archives of the same foundations, and those at the companies, or, in some cases, putting into production old designs never produced before.

The third level of interest is educational, and involves the possibility of using design collections and archives to stimulate learning processes in the field of design, in particular in the university context.

2 The Anonima Castelli Company

In order to briefly contextualise the history of Castelli, it is necessary to distinguish three periods. The first involves its founding in Bologna at the end of the 1800s, and its development up until the 1930s as a cabinet-making workshop. The second runs from its re-establishment in 1939, with the name Anonima Castelli, until the mid-1960s. The central figure in the company's rebirth was the founder's son, Cesare, who, in partnership with Gianni Caproni – the brilliant Italian aeronautics entrepreneur – brought to life

a new company for mass-produced furniture: after the Second World War, the brand started to specialise in the office furnishings sector. The company adopted the strategy of competing in large international public contracts that allowed them to produce in large numbers, albeit in limited series (Figs. 1 and 2).

Fig. 1. Comparing an original drawing of the archive with an original object of the collection

In 1965, upon the death of Cesare Castelli, his son-in-law, Giulio Ponzellini (1915–2011) took over control (along with Cesare's children) of an ambitious, innovative industrial project that would lead the company to become a market leader in Italy in the 1970s and 80s (along with Tecno) in the production of office furniture, with a notable presence on the international market as well. Starting in the 1960s, the business strategy focused on direct sales, with the opening of single-brand showrooms.

An important role in guiding Anonima Castelli towards the field of design was played, famously, by Giancarlo Piretti (1940), a designer who is still professionally active today [6].

Trained at the Bologna Academy of Fine Arts, and joining Castelli as a designer at a very young age, his creations in the 1960s and 70s helped the company to establish itself in the field of contemporary industrial products for the office and the home. Piretti was the designer, among many objects and systems, of two masterpieces of Italian design: the DSC 106 chair from 1965, characterised by the use of curved plywood and aluminium die-casting; and the Plia chair, produced starting in 1969 in millions of models, characterised by its aluminium hinge and the use, for the seat and the backrest, of Bayer's Cellidor, which gave the technicians a lot of grief in the development of its production.

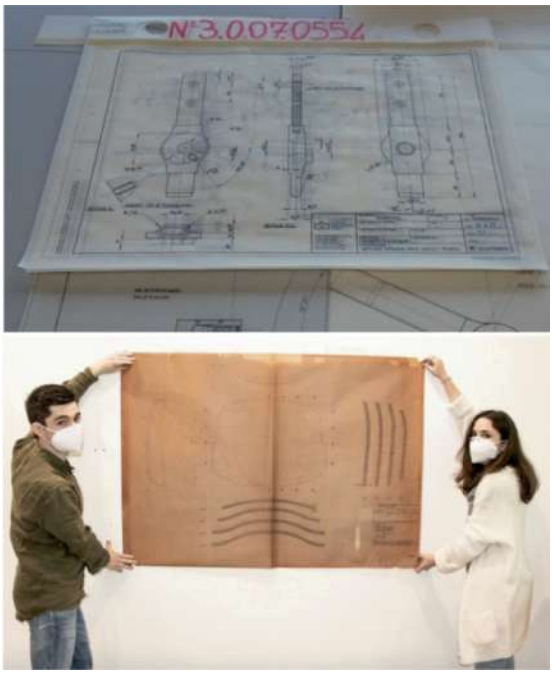

Fig. 2. Students shooting original drawings to study and redesign.

As well as the objects designed by Piretti in his years working for the company, Anonima Castelli has produced pieces designed by many other designers: the Box chair by Enzo Mari; the Superstudio modular systems; the office furnishing systems by Hans Pert and Richard Sapper; the innovative system of Vertebra seats from the partnership of Piretti and Ambasz; the Penelope mesh chair by American Charles Pollock.

As we are now marking the 50th anniversary of the MoMA exhibition, *Italy: the new domestic landscape* (which opened in May 1972), it is worth remembering the contribution provided by Anonima Castelli for the creation of the display towers of the *roof garden*, which housed the exhibit of "domestic design" (in the three categories of "conformist", "reformist" and "contestative"), objects which were less celebrated than the famous eleven environments, but were ultimately what circulated and sold on the international market [7].

Without dwelling here on the fate of *product-oriented* Italian family companies, which is narrated in full by the other Castelli (Giulio, the founder of Kartell), along with Paola Antonelli and Francesca Picchi, in the book *La fabbrica del design*, [8] let's just say that, after complex corporate problems that saw its ownership pass into the hands of American *holding companies* (as also happened to another Bologna-based company, Gavina), Anonima Castelli was bought in 2015 by two young Italian entrepreneurs, Enrico and Edoardo Pavan.

3 From the Archive to the Market: Current Production, Educational Experiences and the Research Project

Compared to the size it reached during the years of its impressive growth, today Anonima Castelli is a small company, and its mission is focused on the re-issue of items from its historical catalogue.

The production and re-issue is supported, in terms of operations and business, by two elements:

- a historical archive of project designs that are actively used, despite not yet being digitalised;
- a historical collection created with pieces collected from their current owners through purchases at auctions, from collectors and on the online market.

The collection covers the time frame of half a century, starting from the 1940s.

We could claim that – since it is based on a comparative study of the vintage designs and the pieces in the collection – from a certain point of view, this operation of production and re-issue is guided by a philological approach: at the same time, it is supported by dialogue with some of the company's historical suppliers and prototypers, who still have a good level of *know-how* with regard to certain processes.

For the entrepreneurs and designers at Castelli one of the main problems involved in the re-issue is the search for technologies suitable for contemporary production systems. They are often forced to adopt solutions that are less "industrial", and in certain ways more artisan, than those used in the 1970s, when the Plia chair was produced in tens of thousands of pieces, using specialised, dedicated machinery. Today, production amounts to a few thousand pieces per year.

The study of the historical collection sometimes requires the dissection and destruction of the sample. This work has allowed them to understand that in the 1968 version, the structural core of the Alky armchair was made from steel plates fixed to the frame with springs, which today are replaced with an elastic material similar to Nastrocord, embedded in polyurethane foam.

Motivated by scientific interest in Castelli's historical archive, as the Design School at the University of Ferrara, we have established a relationship with the company, which has engaged us in a series of educational activities and initiated certain research hypotheses.

In 2021, two teaching workshops (one as part of the bachelor's degree course in Design and one as part of the master's degree in Innovation Design, at the University of Ferrara) focused on the topic "from the archive to the market", using Anonima Castelli as a case study.

The course carried out as part of the master's degree followed the specific theme of the re-issue and updating of certain historical pieces that were no longer in production, according to modern-day needs: the Effe and Elle series of seats in wood and metal, designed in the 1950s by the first technical and artistic director, Antonio Nerozzi; the Platone and Pluff table and seat combination, the Axis system and the 61 system, all designed by Piretti in the 1970s; and the Box chair by Enzo Mari [9]. For each of the historical pieces involved in the proposals for re-issue, Anonima Castelli made the archival documents (primarily executive designs and catalogues from the period) and the pieces from the historical collection available to the students for precise investigations and

surveys. During the integrated course, the students were guided by four teachers with experience of design problems, industrial production processes, marketing and economic evaluation of products: the re-issue project involved all these aspects [10]. In particular, as the master's course was carried out in collaboration with the Unimore Engineering Department, the students were able to make use of the Enzo Ferrari Engineering Department laboratories in Modena, led by professor Francesco Gherardini.

The topic of the course carried out as part of the bachelor's degree was a project for an educational exhibition, dedicated to the historical Anonima Castelli collection, to be displayed at Palazzo Tassoni Estense, the seat of the University of Ferrara Architecture Department. In this case, the design workshop, led by the author of this paper, was accompanied by a course on design theory and criticism held by Professor Elisabetta Trincherini, which, in particular, guided the students in the historical research and the curatorial approach to the exhibition.

To stimulate the students to gain a direct understanding of the objects to be exhibited, a study day was organised at the University of Ferrara where entrepreneurs Enrico and Edoardo Pavan and designer Alessandro Zanella presented numerous pieces from the historical collection to the students in detail, which had been brought to the lecture hall for the occasion.

Various groups of students also went independently to the suppliers to document the production processes.

Indeed, the goal of the exhibition had to be to stimulate understanding of the cultural significance and technical and production quality of Italian design, through the display of pieces from the historical collection and designs from the archive.

As a teacher on both courses, I was able to observe how the students were noticeably stimulated by the study of archive materials and visits to the company and some suppliers; the results of the courses seem to have also been significant for the company, and I hope that this has repaid them for their willingness to allow the students to have direct contact with the items in the collection.

Having direct physical contact with the objects, for example touching with your hand the sad fate of the crumbling foam in the stuffing, understanding the relationship between the project design and executive problems, mouldings etc. was highly educational.

Because, as Pier Paolo Pasolini (who we remember on the centenary of his birth) maintained, you can forget what your teachers, your professors teach you, but not what things teach you [11].

At the same time, some guidelines were prepared for a research project (which we hope to develop starting next year) focusing on rewriting the history of the objects produced by the company between the 1950s and 70s, based on oral and archival documentary sources. Three types of sources have been identified:

_ oral sources
_ archival sources
_ objects

Regarding the oral sources, a preliminary study was launched in 2021, with interviews carried out with former technicians and designers involved in the projects developed by the company in the 1960s and 70s. Despite being aware of the historiographic problems regarding the use of oral sources [12], the purpose of these interviews is to

preserve memories (technical, organisational) that would otherwise be irretrievably lost. The various contributions will be used to create a map of production experiences, which we believe will be useful, in particular, for the reconstruction of the operational context and the production processes that allowed these famous objects to be brought to life.

By way of example, in one of these interviews it emerged that in the pre-production phase for the Plia chair, the moulding tests for the backrest and the seat made from Cellidor – cellulose acetate produced by Bayer, chosen for its crystal clear transparency – reached a deadlock. Once it was made, the backrest would crack close to the point of injection. Neither the designer, nor the production technicians, nor Bayer, who supplied the material, were able to find the solution to a problem that almost led the Castelli company to abandon the project. A solution was found thanks to a plastic materials representative who suggested heating the mould at the point of injection. This story may appear insignificant compared to the chair's commercial success, but it demonstrates how Plia would not have seen the light of day without the collective contribution of skills, typical of the context that has created the best works of Italian design.

Regarding the sources stored in Anonima Castelli's archive, the production files and executive designs, which are the only project documents preserved, are of particular interest.

Until the middle of the 1960s, in the production of furnishing items and systems, the project design generally consisted of an axonometric representation, detailed in intent (for example, the direction of the grain of the wood was indicated), but technically undefined in terms of construction. Under the leadership of the heads of carpentry, the model makers translated these "formal intentions" into "real" scale designs on sheets of white plywood, with thicknesses, joints, veneers and hollow cores all indicated. Unfortunately, these models have now been lost.

In terms of the executive designs created with ink on tracing paper, it is worth noting that they still have significant advantages over the digital representation used today, among which are the immediacy of interpretation and the feeling of a "real" object. Another advantage is that the oldest prototypers still know how to read them, and are able to create a model from them, and then a mould from the model.

Other items of great interest are the technical and commercial catalogues, along with the colour charts, which document the original types of upholstery materials or the shades of paints.

A few catalogues from the 1950s are accompanied by sketches of interiors with various situations at work (probably the work of Nerozzi), and they demonstrate the particular sensibility the Castelli company had in its understanding of the office world and its needs, also in terms of organisation of space.

The catalogues from the 1970s, with their sophisticated illustrations, show Anonima Castelli's ability to interpret the emerging markets for domestic furniture and collective spaces, and their need for space and limited resources. They communicated with a young audience, with products such as Plia, Platone, Pluff, Alky and System 61.

Another resource is architecture and design magazines, whose articles, editorials and advertisements constitute a very interesting source of information. A project to scan numerous advertising editorials in the magazine "Rassegna" is currently being started.

Finally, the objects from the collection. With a forward-looking vision, after acquiring the company, Enrico Pavan began to collect many historical pieces from Anonima Castelli's production dating from the 1940s to the 1980s, from collectors, auctions and online sellers.

The collection, which has grown over time, is now made up of over 60 pieces that constitute study material for the re-issue projects. There are also copies of pieces produced in the *Far East* in violation of copyright laws, which are interesting nonetheless, for comparative analyses with the originals.

The intention of this research is that the collection should be photographically documented and digitally transcribed through processes of reverse modelling.

The research project proposes developing a historical and critical investigation that focuses on two goals:

– cataloguing the documents with the aim of digitalising the archive with Linked Open Data;
– a publication that reconstructs, starting from the history of the projects and their production, the events and the context of collaborative design at one of the most important Italian furniture design companies.

Through the study of this varied collection of sources, we expect that it will be possible to grasp the effort made by an Italian design company in tangibly addressing the themes and problems of mass production, and understand how they built, and continue to build a "value chain" that allows many objects designed half a century ago to keep their iconic power alive in the collective imagination.

References

1. Bulegato, F., Bonini-Lessing, E., Bosco, A., Scodeller, D.: Design come bene culturale (Design as cultural heritage). MD J. **8**(4), 6–15 (2019). More generally, for the relationship between historiography of design, digital humanities and digital archives, see: Burdick, A., Drucker, J., Lunenfeld, P., Presner, T., Schnapp J.: Digital Humanities. MIT Press, Cambridge, Mass (2012); Castelnuovo, E., Gubler, J., Matteoni, D.: L'oggetto misterioso. Note sulla storiografia del design. In: Castelnuovo, E. (ed.) Storia del disegno industriale, pp. 404–413. Electa, Milan (1991). Scodeller, D.: Archivi digitali e fonti documentali del design: nuove prospettive storiche e storiografiche sul design?. AIS/Design. Storia e ricerche **10**(5), 12–32 (2017). Scodeller, D.: Archivio come giacimento attivo e allestimento come interpretazione. MD J. 8(4), 70–89 (2019). Bulegato, F.: Archivi digitali per la storia del design. AIS/Design. Storia e ricerche **16**(9), 49–52 (2022)
2. Kubler, G.: The Shape of Time. Remarks on the history of things, p. 9. Yale University Press, New Haven & London (1962). Kubler offers us an early distinction between tangible and intangible cultural heritage, consolidated by UNESCO Selfguarding of the Intangible Cultural Heritage (2003)
3. The 5th conference of the Italian Association of Design Historians, Design Displayed: exhibiting history/the history of exhibitions was curated by Fiorella Bulegato, Maddalena Dalla Mura and Gabriele Monti. The proceedings are in the process of being published: Bulegato, F., Dalla Mura, M. Monti, G. (a cura di), Design esposto: Mostrare la storia/La storia delle mostre, atti del V convegno nazionale AIS/Design (Università Iuav di Venezia, 26–27 novembre 2021), AIS/Design – Università Iuav di Venezia (2022)

4. The reenactment of historical exhibitions is the revival of a past exhibition that allows visitors to relive the experience of an event, which can only be partially understood from photographs. In recent years, the Achille Castiglioni Foundation has reproduced various small exhibitions created by the Castiglioni brothers between the 1950s and 1980s, in the spaces of Piazza Castello (curated by Beppe Finessi and designed by Marco Manzini)
5. With the name Cassina, we are referring to the colourful re-issue of the Cassina Perriand armchair and sofa, and with Nemo, to the Le Corbusier lamps. In this regard, see: Scodeller, D.: Nemo. Le lampade di Le Corbusier. Luce & Design **2**, 8–9 (2017)
6. Carugati, D.G.R.: Castelli. Mondadori, Milan (2000). Carugati, D.G.R.: Giancarlo Piretti. Silvana Editoriale, Milan (2003)
7. For the New York exhibition, see Scodeller, D.: Exhibition, anti-exhibition: su alcune questioni espositive del pop-radical design italiano 1966-1981. AIS/Design. Storia e ricerche **3**(2), 10–28 (2014)
8. Castelli, G., Antonelli, P., Picchi, F.: La fabbrica del design. Conversazione con i protagonisti del design italiano. Skirà, Milan (2007)
9. Today, the Box chair copyright is held by Italian design company Driade
10. The Design Management for Innovation workshop as part of the master's degree course in Innovation Design at the University of Ferrara was made up of four teachings taught by professors Dario Scodeller (Integrated Design), Francesco Gherardini (Design Validation), Francesco Orlando (Innovation Management) and Marino Cavallo (Design Evaluation)
11. Pasolini, P.P.: Lettere luterane. Garzanti, Milan (1976)
12. Contini, G., Martini, A.: Verba manent. L'uso delle fonti orali per la storia contemporanea. Carocci, Rome (1993)

OBJECTS. Political and Social Value of Objects

Through the Mirror. Concept Maps to not Lose (One's Way Between) Objects

Silvia Berselli(✉)

Department of Engineering and Architecture, University of Parma, Parma, Italy
silvia.berselli@unipr.it

Abstract. This study delves into the relationship between the subject and things by regaining the anthropological and cultural values that have become embedded in objects already theoretically investigated by other disciplines (philosophy, literature, history of art, cinema) but here presented together with the works of designers that from the 19th to the 21st century managed to give a voice to things. This presentation springs from multi-annual research undertaken by the author at the universities of Bologna and Parma. After selecting twenty-four everyday objects (like mirror, ring, chair, table, telephone, suitcase, door), the research carried out for each one an analysis of its symbolic and cultural values and required students to create a graphic concept map to be intertwined with other maps, therefore with other objects, in more complex structures. This essay focuses on one object, the mirror, in order to explain thoroughly the survey method. Delving into the cultural values of objects gives the material landscape that surrounds us a critical perspective, which is essential to the comprehension and the project.

Keywords: Design theory · Design history · Anthropology · Symbol · Mirror · Reflected image

1 "Psychological Reaction" Objects

"The transformation of objects into things (which also includes them becoming symbols, as occurs with an arrow or a cross) also presupposes a developed ability to reawaken memories, re-create contexts, be told stories and practice both «closed nostalgia» that isolates itself in the regret of what has been lost and «open nostalgia» able to positively cope with grief and loss" [1]. The closed nostalgia Remo Bodei writes about arises when objects behave as a Proustian madeleine enabling memories to resurface and the Freudian repressed world to reveal itself. Differently, open nostalgia appears when "things are not subordinated to the implacable desire to go back to an irretrievable past anymore […] but they have become vehicles of a journey to discover a past charged with a possible future." [1]. According to this definition, things become essential tools know the past and imagine, invent, build the future.

The research focuses on the relationship between the subject and things regaining anthropological and cultural values that have become embedded in objects already theoretically investigated by other disciplines (philosophy, literature, history of art, cinema)

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 87–102, 2024.
https://doi.org/10.1007/978-3-031-49811-4_9

but here presented together with the works of designers that from the 19th to the 21st century managed to give a voice to things. The originality of the work lies in recognizing consolidated functional categories, here systematized, which are associated with other values to be able to interpret the objects of the current industrial design everyday reality, too often observed from the perspective of function, shape and attractiveness, in the light of these considerations. The result is a more conscious way to look at objects considering their cultural values, and not just functional or formal values.

This presentation springs from multiannual research conducted by the author at the universities of Bologna and Parma. After selecting twenty-four everyday objects (like mirror, ring, chair, table, telephone, suitcase, door), the research carried out for each one of them an analysis of its symbolic and cultural values collected during a series of seminars. Each student was asked to create a graphic concept map for each object (Fig. 1) and then to design a thematic project that could be intertwined with the other maps, therefore with the other objects, in more complex structures. The second phase was implemented together with Professors Stefano Ascari and Andrea Borsari of the integrated course of Design Aesthetics. In this second phase, students had to collect different objects connected to a common theme and create their own personal collection.

This working method explains the anthropological contents of an object and significantly varies from one student to the other. Some students created the map in chronologic order as a timeline highlighting the mutations of the object through the centuries; others

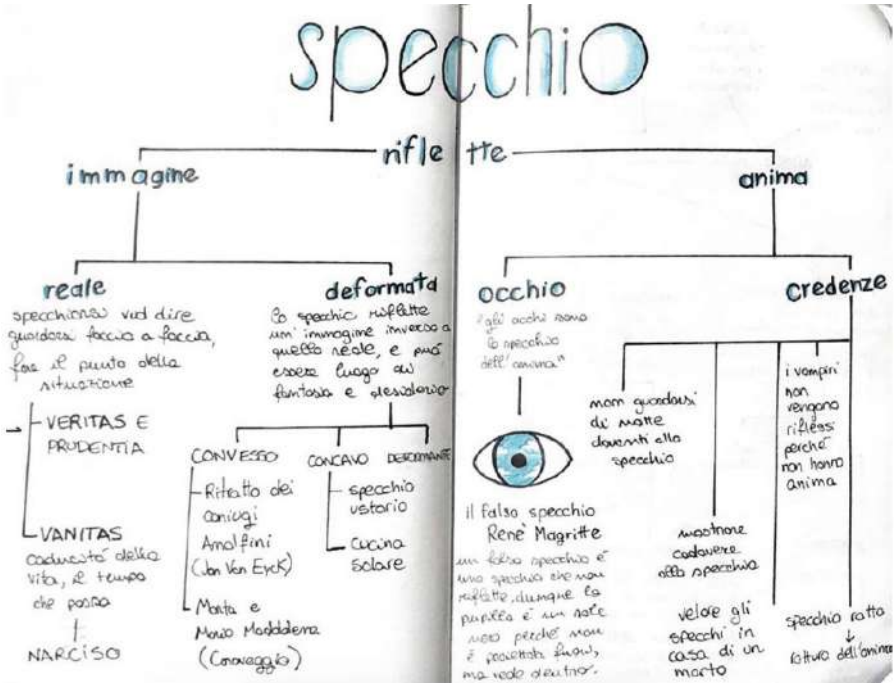

Fig. 1. Concept map of the mirror created by one of the students of the module Design History held by Prof. S. Berselli at the University of Bologna AY 2020-2021.

created the map as a flow chart or with a hierarchical structure assigning different values to different points. This type of research connects theoretical contents with creative activity and is a preliminary method to the creation of the design object.

The nexus of data and anthropological and psychological considerations was achieved on purpose in order to make tangible the complexity of references intrinsic to the object. Systematization is not meant to be exhaustive, but sufficiently representative to be a support to the analysis and the project about everyday objects.

2 Functions and Meanings

In Freud's and Lacan's reflections, the mirror takes on the specific function of amplifying the sensorial potentialities of the viewer and becomes an almost active tool, or maybe the reification of the Delphic oracle "know thyself". In his intense essay *On mirrors* written in 1985, Umberto Eco questions the semiosic nature of reflected images and eventually writes that "The mirror in the world of signs becomes a ghost of itself, caricature, mockery, memory." [2]. According to Umberto Eco, the catoptric universe of the mirror is the threshold of the tangible or semiosic one and the two of them do not have any connection. Therefore, the leap Through the mirror made by Lewis Carrol's Alice holds the symbolic value of a passage to a virtual and oneiric world. And in the dimension of dream, or better of hallucination lies Borges' Library of Babel where he writes: "… I prefer to dream that burnished surfaces are a figuration and promise of the infinite" [3]. These are just a few examples of the numerous mirrors studding literature and the collective imagination: Narcissus, Snow White, the numerous Venuses intent on gazing at their earthly vanities and the Picture of Dorian Gray, reflection of his dissolute owner's black soul.

2.1 Recognise and Discover Oneself

Before the advent of the mirror as an object, sheets of water used to reflect images. Ovid (subject) freezes this ritual in the myth of Narcissus, the handsome and cruel young man who disdains with tenacious arrogance anyone falling in love with him [4]. As divine punishment, he becomes infatuated with his image reflected in a sheet of water and dies of consumption by the lake. Caravaggio portraits Narcissus while looking at his reflection in the spring water with desire. The arching arms generate the composition geometry of the painting and complete, with their double, a circular embrace representing the research of an impossible completion, the physical contact with his own reflection. Ovid refers to a closed and shaded environment, a perfect Caravaggesque backdrop from which the figure and the deceit of his double can emerge.

The mirror is the allegory of the exact vision and is used to know oneself. It is not a coincidence that the verb "reflect" has a double meaning: "to throw back an image" and "meditate, think deeply about something". Playing with words, Jean Cocteau states «Mirrors should reflect a little before throwing back images» [5].

The Mirror Stage is one of the first contributions Jacques Lacan [6] gave to Freudian psychoanalysis in 1936 and then in a conference in 1949. From the age of six months, when the infant is still unable to talk and walk, he produces before the adult's eyes

the "startling spectacle of the infant in front of the mirror" recognizing his own image. The mirror stage is "*an identification* in the full sense that analysis gives to the term: namely, the transformation that takes place in the subject when he assumes an image". The natural fragmentation of the body of the subject (*Je*) in the vision of the infant is put back together for the first time in the mirror which show a unified image (*Moi*). The split between these two images on both sides of the mirror accompanies the subject throughout all his life.

Fig. 2. Norman Rockwell, Girl at Mirror, 1954/Carlo Mollino, Milo, 1937; today produced by Zanotta

In the traumatic transition from childhood to adolescence the mirror becomes a tool to control the continuous changes the body undergoes, especially the female body. The *Girl at mirror* by Norman Rockwell looks at herself disappointed comparing her own image with the image of the movie star in the magazine on her lap. At her feet, there are a comb, a brush and make-up, tools of a woman's transformation that she has maybe stolen from her mother. The mirror as a tool to compare oneself with the aesthetic models imposed by the society of image is an extremely topical issue, especially when one thinks of the endemic use of the digital mirror, the *selfie*, among teenagers. Rockwell's mirror is leaning against a chair and this dressing table feels like improvised in an unused space, maybe an attic or a storage closet, an "other place", a heterotopia where the transition to adulthood can take place away from the world. A doll cast aside in a corner represents the end of childhood (Fig. 2).

The song *Silvia* by Vasco Rossi deals with the same topic. It is a ballad about the discovery of one's body and sexuality (see Lacan) in front of the mirror.

"*Silvia si veste davanti allo specchio*	"Silvia gets dressed in front of the mirror
E sulle labbra un po' di rossetto	And on the lips a bit of lipstick
Andiamoci piano però con il trucco	But take it easy with make-up
Se no la mamma brontolerà	Otherwise, mum will grumble
Silvia, fai presto che sono le otto	Silvia, hurry up it is 8 o'clock
Se non ti muovi, fai tardi lo stesso	If you don't hurry, you'll be late anyway
E poi la smetti con tutto quel trucco	And stop it with all that make-up
Che non sta bene, te l'ho già detto	It does not suit you I already told you that
Silvia non sente oppure fa finta	Silvia cannot hear or pretends not to
Guarda lo specchio poco convinta	She looks at the mirror insecure
Mentre una mano si ferma sul seno	While a hand stops on her breast
È ancora piccolo, ma crescerà	It is still small, but it will grow
Silvia ora corre oltre lo specchio	Silvia now runs beyond the mirror
Dimenticando che sono le otto	Forgetting it is already 8 o'clock
E trova mille fantasie	And finds a thousand fantasies
Che non la lasciano più andar via"	That won't let her go". [7]

There is an object that perfectly depicts this potential of the mirror connected to the discovery of sexuality and changes in one's body and to the comparison with dominant aesthetic models. It is *Milo*, designed by Carlo Mollino in 1937 and today produced by Zanotta. The mirror portrays the silhouette of the renowned Venus de Milo displayed at the Louvre Museum in Paris made in crystal with stainless steel latch for the attachment to the wall. The reflected image in this mirror inevitably compares itself with the silhouette of the goddess of beauty and love, a timeless model that is immutable to trends. The statue is already deprived of arms, yet Mollino adds further mutilations to define the shape of the mirror, reducing it to a torso. What remains is the elegant and sensual movement of the bust, an attitude rather than a shape which is free from the prescriptive restrictions of a comparing image rich in details as the glazed photograph of the movie star in Rockwell's painting (Fig. 2).

An important scientific discovery occurred in the Nineties of the 20th century has further developed the understanding of the functioning of our nervous and motor system: mirror neurons "have revealed the existence of an understanding mechanism through which actions made by others, detected by sensorial systems, are automatically transferred to the motor system by the viewers enabling them to have a motor copy of the observed behaviour as they were the ones to display it". The neurons that carry out such transformation of the action from a sensorial format to a motor one have been called mirror neurons." [8].

Michelangelo Pistoletto's work investigates the cognitive functions of the mirror and our inner mirrors. Among his first works in the Sixties stand out the "mirror paintings" in mirror-polished steel dealing with the core themes of the discourse of art as perspective, therefore space, time, the inclusion of the audience in the work. Referring to these works the artist says: «I am sure there is always a relationship between past and present because the present inevitably reflects the past. With my Mirror paintings I completely opened perspective. Before us we see all the things that exist. Differently, in the mirror we also see the rest, what lies behind us. My discovery was a double perspective. During the Renaissance, there was only frontal perspective, but now with the mirror painting

perspective looks back in space and time. To me, the past meets the present to create the future». [9]. The past is given by the photography of one or more figures that are static in the work whereas the present is composed by the living reflections of people observing and interacting with the mirror.

2.2 Double – Splitting

According to the popular superstition, breaking a mirror and consequently the image results in bad luck: maybe because it tangibly translates the fragmentation of the identity, therefore the crisis. Reflex's mirror *Impact* has a deep crack repaired with gold as in the Japanese tradition of *kintsugi*. This ancient technique is in perfect balance between craftmanship and meditation exercise. In this technique broken pottery is repaired with a golden binder making the flaw precious instead of hiding it. Transferring this technique to a mirror seems to be suggesting that the obsession for physical perfection, therefore conformity, makes one neglect elements of uniqueness that should be enhanced, which is to say the flaws.

In his writings about the Double, Freud investigates the boundaries of the diurnal, familiar, aware context that he defines as *Heimlich* and its opposite *Unheimlich*, the Uncanny, what should remain hidden in a process of repression and yet comes to light. The uncanny manifests itself when before our eyes appears something familiar that has been repressed and the boundary between fantasy and reality becomes blurred, but only rarely degenerates into neurosis.

This happens more often in cinema. *Psycho* is an example of that. Norman Bates (Anthony Perkins) is divided between his own identity and his mother's. He is not the only double character of Alfred Hitchcock's drama: the female protagonist Marion Crane (Janet Leigh) steals from the company she works for in order to run away with her lover. However, while trying to reach him she stops at the Bates Motel to sleep and has a crisis of conscience. The two protagonists meet in a mirror in the reception of the hotel, and this is the first subtle hint of the ambiguous and dual nature of the ordinary, shy guy Norman Bates seems to be. The audience already knows Marion's dark side. Yet, in a moment she inextricably bonds with Bates' guilty and immoral half. Locked in her room, Marion counts money and, even if she is torn, decides to give it back while the mirror is reflecting her double, the two possibilities for her life in that moment: running away towards happiness (maybe) or going back living a modest yet honest existence. Both possibilities, that have become images, crumble with the violent death of the character.

Worried about her sister, Lila Crane (Vera Miles) looks for the elderly mysterious woman roaming in Bates' house. She sees her image reflected in a double mirror and gets scared because she thinks she has seen somebody behind her. *Psycho* is an incessant play of mirrors: eventually Bates' mask wins, his double, and what remains alive in him is his mother's personality.

Hitchcock's mirrors reveal the characters' dark side. As Virginia Woolf writes, maybe: "People should not leave looking-glasses hanging in their rooms any more than they should leave open cheque books or letters confessing some hideous crime.".

2.3 Door to Fantasy

Alice's mirror is the door to an oneiric and imaginary place, Wonderland, that represents our parallel world, the subconscious. Alice passes through the mirror and finds a system of overturned rules and fascinating nonsense as happens in dreams and elaborate memories. Lewis Carroll's texts and its sequel, *Alice through the Looking-Glass*, [10] open up to endless possible interpretations even if the imaginative potential offered by the mirror as door to another world is always connected to the object (Fig. 3).

Fig. 3. Ettore Sottsass Junior, Ultrafragola, Poltronova, 1970/Mirage by Alain Gilles for Buzzi, arch-shaped trompe-l'oeil.

An example of that is the luminous mirror *Ultrafragola* designed by Ettore Sottsass Junior in 1970. The sinuous silhouette resembles long and wavy hair, and the translucent pink colour evokes the female world and a delicate skin. The mirror belongs to the *Mobili Grigi* series of complete bedroom and living room furnishings designed by Sottsass for Poltronova in 1970. In Italy and throughout the world, those were the years of struggles for female emancipation and sexual liberation. This rose-coloured and fairy-tale object does not evoke a "gender" childhood with dolls. On the contrary, the mirror offers its interpretation to the viewer. It is the same size as a door and when the mirror is turned on in the dark it creates the illusion to be able to pass through it and enter another world, make a subversive and radical gesture as the one made by brave and insolent Alice.

Jean Cocteau takes inspiration from this topic of imaginary literature to include in his film *Le sang d'un poète* (1930) [11] a scene where the poet goes through the mirror, maybe metaphor of the artist's inability to adapt to the real world and his tragic and resolute choice to escape from it.

Other freestanding mirrors directly or indirectly evoke the door: this is the case of *Caadre* by Philippe Starck for FIAM framed in curved glass or *Mirage* by Alain Gilles for Buzzi, arch-shaped trompe-l'œil with perspective illusion of depth painted in black.

2.4 Vanitas

"Mirror mirror on the wall, who is the fairest of them all?" For the evil Queen of Snow White, the mirror is a sort of a dark conscience. In the film version *Snow White and the Huntsman* (2012), the mirror personifies and becomes a shape enveloped by a reflecting golden cape as a sort of an alter ego of the Queen. The mirror with build-in light by Philippe Stark allusively called *La Plus Belle* (2019) takes inspiration from the Queen's question. Who is the fairest of them all? The Queen symbolizes criminal vanity able to commit the most atrocious crimes in order to continue being the most beautiful woman despite the limitations of age.

The comedy of vanity (1934) by Elias Canetti depicts a dystopic society with dictatorial regime, sad picture of the Germany of the time. The regime bans mirrors and generates an abnormal proliferation of adulation leading people to admire themselves in the words of others. Any reflecting surface becomes smuggle good, banned yet desired to see and recognize oneself. After losing their image, therefore their identity, the characters of the play wander like shadows looking for the body that has generated them.

In a specific moral popular tradition, the mirror can have diametrically opposed values: on one hand, it is a demoniac object leading to perdition, on the other, it is an instrument to meditate about the caducity of life observed while passing on one's body. The first value includes a detail of *The Garden of Earthly Delights* (1480–1490) by Hieronymus Bosch. In the lower right part of the panel of Hell there is a young, unconscious woman seated with a toad on her chest and grasped by a demon with reptile paws. The lady and her satanic predator are reflected in a black convex mirror, which is the bottom of another demon. Probably this position of the mirror evokes a popular French tradition saying: *Le miroir est le vray cul du Diable* [12]. The mirror is a deceptive and demoniac object: maybe the girl has spent too much time looking at herself in the mirror and this is the punishment.

In the second family of vanitas with mirrors belong the numerous penitent saints like *The penitent Magdalen* (1639–1643) by Georges de La Tour, traditionally portrayed with the features of the meditation about time passing by and beauty vanishing: the skull, the candle and the mirror. A similar and more recent representation is the *Girl at the Mirror* (1921) by Otto Dix, a young woman seeing her own skeleton reflected in the mirror.

An author managed to include in his product the features of the mirror-vanitas and to update its meaning, even if his work is still a cryptic object: Man Ray. In 1938, he makes a large mirror where he writes *Les Grands trans-Parents* by hand. Since 1971, a smaller version has been produced for Cassina and continues representing an enigmatic domestic object leading to reflection (in both senses). Genius of titles, with this object, Man Ray reflects our image reminding us that what is "large" is "transparent", in other words, the most important things are often neglected or taken for granted, paraphrasing the Little Prince's "what is essential is invisible to the eye". Moreover, *grand-parents* in French means grandparents, therefore our past. This is a personal, biographical reference, a reference to time that goes by inexorably. This mirror can be considered as a contemporary vanitas because it forces us to look at tangible things, namely our reflection in front of us to find something more profound and essential.

2.5 Mirror and Soul

The connection between mirror and soul is the origin of the typical features of demoniac creatures. According to a significant popular and literary tradition, some of these creatures (including vampires) do not reflect their image because they have no conscience. In *Dracula* (1897) by Bram Stoker the inhuman nature of the Count is revealed through the mirror, which does not reflect his image. This episode was also portrayed in the numerous screen adaptations of the novel.

The mirror is connected to the eye and sight as instruments to know the outside world and to reflection as a tool to know the inside world. For this reason, it is often connected to the iconographies of Truth and Prudence represented while holding and contemplating this object. A contemporary mirror depicts an eye, evoking a long tradition: this is *Eyeshine Mirrors* (2015) by designer Anki Gneib for Thonet.

A curious object is the Psyche or Psyché, a swinging mirror that becomes popular in the 19th century and that reaches its peak in France during the Second Empire. It is assembled on a structure with two side feet and a pivot to adjust the orientation: in this way it is possible to frame the whole figure including when the distance from the mirror and the height of the person change. This is why it is used in bedrooms and tailor's shops. In Apuleius' tale, Psyche (in Greek: soul) is a beautiful woman in love with Cupid and the myth represents the reconstruction of a unity through sentiment.

Some the most significant models of Psyche are Thonet's ones as 9951 [13], characterized by sinuous floral lines of the Franco-Belgian art nouveau and number 9953 [14], more like the rigorous and geometrically-inspired lines of the Vienna Secession, both included in the 1904 catalogue of the company. The model 9951 appears in the film *Landru* (1962) by Claude Chabrol based on real-world crimes that took place during the First World War. In some frames one can only see the reflection of the ruthless French serial killer as if Psyché could show the duplicity of that fascinating bearded man and to separate the soul, which has become image, from the body.

According to the same metaphor, eyes themselves are popularly referred to as "the mirrors of the soul" because they reflect- or betray – the character, the mood and the intention of a person. If the gaze is pointed towards oneself, self-contemplation leads to narcissism and vanity (in Latin *vanitas*). And we are back to Narcissus.

2.6 Mirror and Sexuality

Katoptronophilia [15] (from the Greek *katoptron,* mirror + *philia,* love) is the sexual attraction towards the observation of one's image in the mirror during sexual activities. This paraphilia frequently coincides with a narcissist profile. To satisfy it, rooms surrounded by mirrors or reflecting surfaces covering the whole house are often designed.

There are numerous stories about fetish in cinema as *The Dreamers* (2003) by Bernardo Bertolucci and *American Psycho* (2000) by Mary Harron. In the latter, there is a scene where the protagonist Patrick Bateman, performed by Christian Bale looks at himself in the mirror while he is having sex with two prostitutes that cannot distract him from his reflected image that has become, as for Narcissus, the real unattainable object of desire.

3 Techniques

3.1 Double Mirror – Multiplication or "Mise en Abyme"

Las Meninas (*The Ladies- in- waiting,* 1656) is a painting oil on canvas by Diego Velázquez. The mirror in the centre of the image shows what is happening outside the image portrayed in the canvas exactly where the viewer is. The vision catoptric machine produces a space-time absurd, projecting the viewer into the canvas in a different time captured by the magnetic look of the painter who is actually looking at a mirror to portray himself. Therefore, it is assumed that in this room there are two mirrors facing each other, at least during the pose. As a result, the viewer is fascinated by this play of multiple reflections.

The same mechanism can be found in a common domestic object that tickles children's imagination: the double wardrobe with mirrors inside the two doors. By opening it, one finds itself catapulted into a long corridor filled with endless copies of oneself perfectly moving in unison as a harmonious corps de ballet. It is a "mise en abyme", a story in the story, or an image in the image reproducing itself potentially infinitely. There are numerous good examples of this literary figure both in photography and cinema. Orson Welles uses it in *Citizen Kane* (1941): in the scene leading to the epilogue the protagonist Kane, performed by Welles himself, stands in between two mirrors and repeated infinitely as a robot or a cog in the wheel, literally sank into the abyss of an eternal reproduction of the same.

3.2 In photography and Cinema

As noted with regard to *Psycho*, among the masters of the use of mirrors in cinema Alfred Hitchcock stands out. In *The Wrong Man*, 1956, Henry Fonda looks at himself in a broken mirror in the moment of truth and pain when he finds out his wife is seriously ill. In the film *Vertigo*, 1958, the director uses the mirror to create a composition able to anticipate the splitting of characters that create fictions, masks and replacements throughout the movie until they disintegrate their identities in a criminal kaleidoscope culminating in tragedy.

In both cases mirrors are real. However, in theatre and cinema there are illusory mirrors too. Actors stand in front of the audience or camera but act and observe themselves as if they were in front of a mirror actively engaging the audience. There are numerous examples of illusory mirrors in Quentin Tarantino's works, especially in *Pulp Fiction* (1994) and in *Fight Club* (1999) by David Fincher.

Whenever directors use real mirrors, they, their camera or any other equipment or stage light could appear in the framing. Despite this, they run the risk because by multiplying images they can convey the sense of an intimate dichotomy, an incurable identity break affecting characters. There are two recent films where protagonists live their existential tragedy in front of the mirror. The first is *Black Swan* (2010) by Darren Aronofski with an Oscar-worthy performance by Natalie Portman as a ballet dancer dancing *Swan Lake*. From the beginning, mirrors fragment her image blending it with the image of the other dancers of the corps de ballet. When she gets to the dressing room of the prima ballerina the split between the white swan and the black swan intensifies.

The two swans represent her split personality until the mirror breaks marking the tragic ending. The second film is *Joker* (2019) by Todd Phillips. The protagonist studies himself in the mirror and through the image finds his real identity and progressively transforms into the ruthless and cynic noir mask as a painter who has chosen to paint his own self-portrait on the skin rather than on canvas.

3.3 Deforming Mirrors

The Hall of Mirrors. The Hall of Mirrors in Versailles marks the culmination of the season when great representative galleries in royal apartments were extremely popular. It was designed by court architect Jules Hardouin-Mansart to celebrate the splendours of the Sun King. It was decorated in a Rococo style and illuminated by three-thousand candles that used to reflect themselves in the mirrors creating the illusion of finding oneself in a golden magical lantern. The technologies of the time made the production of large-sized mirror surfaces difficult and expensive. In the eyes of the visitors of that time, this would make the opulence of the hall and the magnificence of the king even greater.

The success of the Hall of Versailles in the late 17th century generates a large number of emulators like Palazzo Doria Pamphilj in Rome embellished with a Gallery of mirrors coming from Venice. One can imagine how expensive it was in terms of money and means of transport to move such mirrors at the beginning of the 18th century.

The optic effects in these aristocratic galleries are image multiplication, distortion and fragmentation. The result generates the "wonder" that is well suited to the Baroque sensitivity but that has found a new strength also in the current popular tradition of this typology: the gallery of deforming mirrors at the circus or in themed amusement parks. Today, what is even more popular is the system of filters on the phone for selfies to modify one's image as a deforming mirror. Thanks to its nature or to specific weather conditions, glass can also become a deforming mirror and transform the forest of skyscrapers of modern cities into a sort of open-air *Galerie des Glaces*. The most common deforming mirrors are wavy, concave or convex: these two latter types of mirrors are so fascinating that merit more specific detail.

Concave Mirror. The convex mirror tends to deform images with the fish-eye effect. Differently, the concave mirror reverses and compresses them, but above all acts on the luminous radiation and converges the rays that it reflects to one point.

The historically best-known example of functional use of the concave mirror is the one carried out by Archimedes in 212 B.C. when the Romans besieged the city of Syracuse during the Second Punic War. To defend it by sea and by land, Archimedes uses a series of machines he invented, he specifically positions concave mirrors along the shore or more likely a series of flat mirrors arranged in such a way as to behave as a concave burning mirror and concentrates solar rays on the enemies' wooden ships until they catch fire [16]. This episode is not described by the historians of the time, but it appears in late narrations. Combined with other recent scientific simulations, this suggests that it partially is the result of a reconstruction *a posteriori*. Anyway, the fascination of the burning mirror is such as to raise the interest of scholars from different fields and ages, from Leonardo da Vinci to the engineers of the MIT.

Whether it can actually start fire or not, the concentration of solar rays in one point generates large amounts of heat. For this reason, concave mirrors are used to build the solar kitchen, mostly in the warmest third world countries and refugee camps. The solar oven uses solar energy with the same system of the burning mirror but in this case the result one expects is making dinner, not burning it. Moreover, thanks to this device it is possible to sterilize water to make it drinkable. There are two types of solar oven: box cookers, called *kyoto boxes,* which are easy to make at home with cardboard covered in aluminium foil, reach low temperatures, and have a long cooking time and parabolic cookers composed by a parabolic mirror that can cook rice for eight people in 25 min. Numerous websites explain how to make a solar cooker or sell them in different sizes, including portable camping cookers with solar and electrical power source (in the event of bad weather) [17][1].

The restaurant *Solar Kitchen* [18] is an experiment resulting from the genius of the Catalan designer Martí Guixé and the Finnish chef Antto Melasniemi. It is an itinerant project that follows the sun throughout Europe building every time an outdoor solar kitchen surrounded by customers' tables. The menu changes according to the weather: if the sky is cloudy, one shall be content with a salad, but this teaches to rediscover flexibility and rethink one's own rhythms according to nature and respecting it.

Fig. 4. Martí Guixé and Antto Melasniemi's Restaurant Solar Kitchen

Convex Mirror. *The Arnolfini Portrait* (1434) by Jan van Eyck portraits on the back wall a convex mirror that reflects and deforms the scene showing what the cinema would

[1] For example http://www.herbangardener.com/2010/07/15/how-to-build-a-solar-oven/ https://gosun.co/collections/solar-ovens.

define the reverse shot of the scene. In the Fifties, the Italian artist Piero Fornasetti (1913–1988) makes the mirror *Van Eyck* with a black wood moulded frame literally reproducing the frame of the painting [19]. He replaced the miniatures on the frame with small convex mirrors, a recurring motif in his rich production called "*bolla*" (bubble). The prototype used to include a convex reflecting surface at the centre too. Differently, the following re-editions, currently still in production, include a flat mirror: the fascinating object of the flaming painting has become an everyday utensil, but it has maintained a powerful imaginative feeling. On several occasions, Fornasetti re-elaborates the drawing of the mirror *Van Eyck* in his sketches transforming the shape into an oval or a rectangle. Probably, this ongoing re-interpretation feeds the works of those years. He produces numerous round mirrors with brass frames, secured with nails or long ribbons of coloured velvet. The surface is convex or flat but decorated with convex bubbles. His mirrors *Collier,* framed by a golden pearl necklace, and *Raggi di sole* with a golden radial frame, are iconic too. The image reflected by the mirrors with bubbles is fragmented and deformed in a self-mocking mosaic possibly representing the impossibility to limit the individual to a unitary and flat image as Lacanian mirror stage intended and offering as unique dimensions "no one and one hundred thousand" (Figs. 4 and 5).

Now, let's go back in time and let's move to Rome. The inventory drafted for a requisition in 1605 testifies the presence of two mirrors in Caravaggio's atelier: a large flat mirror he used for self-portraits, to check the composition or direct natural light towards the object and a small convex mirror, probably used to converge rays uniformly on the models including when the position of the sun changed [20]. We find this mirror, or a similar one, portrayed in the painting *Martha and Mary Magdalene* (1598).

Fig. 5. Piero Fornasetti, from left to right: mirror Van Eyck; hung round mirror decorated with convex bubbles; mirror Raggi di sole.

To explain his classes about perspective at the Royal Academy, William Turner produces a series of drawings depicting the reflections on a single and double metal sphere. The drawing exercise borders on virtuosity and reflects a diffuse interest in convex reflecting surfaces. It is no coincidence that his friend and architect John Soane positioned numerous circular convex mirrors in his London museum-house specifically in arches and in the lowered ceiling of the Breakfast Room. Deceptive reflections seem

to produce voids and dematerialize the load-bearing elements of the architecture itself resulting in an atmosphere of extreme levity.

3.4 "Functional" Mirrors

There are numerous mirrors that are used in scientific instruments as telescopes, microscopes, laser rays and astronomical observatories or to increase road visibility, send Morse signals or, as Archimedes showed us, start fire.

Traffic Mirror. Differently from the rear-view mirror, which is flat, the traffic mirror is slightly convex so it can improve the visibility even when it is low reflecting a large field of vision in a small space. Yet, it must be positioned at the adequate height and according to an accurate incline in order to be really useful otherwise it is just a deforming mirror.

Rear-view Mirror. Perseus managed to behead Medusa by looking at her reflection in the shield used as a mirror to avoid being turned to stone. He put the head in a bag and used it as a weapon before giving it to his protector Athena that placed it on her shield. In the Harry Potter saga a dreadful serpent, the basilisk, infests Hogwarts castle and kills whoever looks at it directly in the eye and petrifies who sees its reflection. Any reflecting surface can be a rear-view mirror. In this sense, one cannot forget the renowned framing in Kill Bill (2003) by Quentin Tarantino where Uma Thurman looks at the blade of her katama sword to study her enemies behind her and to hit them with confidence, as if she had eyes in the back of her head. If used properly, a mirror surface can expand the operating scope of our visual organs to protect us from dangers that otherwise we could not perceive. The rear-view mirror of our car acts as a shield (reversing Perseus' equation shield-mirror). Many sculptors use mirrors to check their works from different perspectives and, after finishing, the hairdresser gives us a compact mirror to check if our hairstyle is perfect including where we cannot see it: mirrors enhance the action of our eyes.

4 Conclusions

The connection between subject and things can become a bond of identity as the one between ancient gods and their symbol (Zeus-thunderbolt, Neptune-trident, Apollo-lyre…) or between saints and their instruments of martyrdom or prayer (Saint Catherine-wheel, Saint Sebastian-arrows, Saint James-shell). However, at the same time it is also an instrumental or prosthetic relationship like the one between surgeon and scalpel, tennis player and racket, office worker and computer.

Thinking about the profound values of objects entails a critical perspective on the material landscape surrounding us, which is essential to the comprehension and the project. Concept maps can help students to develop an integrated design method enabling them to create new objects knowing their meanings and values: objects that are ready to turn into things.

References

1. Bodei, R.: La vita delle cose, 1st edn. 2009, p. 55. Laterza, Roma-Bari (2019)
2. Eco, U.: Sugli specchi. In: Sugli specchi e altri saggi, pp. 9–37. Bompiani, Milano (1985)
3. Borges, J.L.: La biblioteca de Babel (The Library of Babel), short story included in the collection El jardin de senderos que se bifurcan (The Garden of Forking Paths). Sur, Buenos Aires (1941)
4. Ovid, Metamorphoses, Book III, 8 B.C., vv. 339–510. (8 AD); Editio princeps Baldassarre Azzoguidi, Bologna (1471)
5. Cocteu, J.: Le Sang d'un poète, surrealist movie, 49', Charles de Noailles, Paris (1930)
6. Lacan, J.: The mirror stage as formative of the function of the I, Ecrits, orig. ed. 1966, pp. 1–7, Tavistock Publications, London (1977)
7. Rossi, V.: Silvia, published as a single in 1977 and included in the album...Ma cosa vuoi che sia una canzone... in 1978
8. Entry "Mirror neurons" of the Italian encyclopaedia *Enciclopedia Treccani online* (Consulted on 3 January 2023 and translated by Mariachiara Girelli). https://www.treccani.it/enciclopedia/neuroni-specchio_%28XXI-Secolo%29/
9. Cipriani, C.: Pistoletto: è nell'arte la vera rigenerazione sociale, Il Quotidiano di Puglia, Saturday 26 Oct 2019. https://www.quotidianodipuglia.it/cultura/carmelo_cipriani_la_venere_degli_stracci_non_e_soltanto_una_delle_opere-4822133.html. Consulted on 3 January 2023 and translated by Mariachiara Girelli
10. Carroll, L.: Alice's Adventures in Wonderland. Macmillan, London (1865)
11. Carroll, L.: Through the Looking-glass, and What Alice Found There. Macmillan, London (1871)
12. Baltrušaitis, J.: Lo specchio: rivelazioni, inganni e science-fiction (orig. ed., Le miroir: révélations, science-fiction et fallacies, 1981), pp. 19–56. Adelphi, Milano (2007)
13. Thonet, Thonet bentwood & other furniture: the 1904 illustrated catalogue, p. 77, nr. 9951, Dover Publications, Mineola, NY (1980)
14. Catalogue Thonet 1904, p. 128, no. 3
15. Meredith, G.F.: Worthen, Sexual Deviance and Society: A Sociological Examination. Routledge, New York (2016)
16. Vacca, G.: Sugli specchi ustori di Archimede, Bollettino dell'Unione Matematica. Italia, serie II, a. III, n. 1, Bologna (1940)
17. http://www.herbangardener.com/2010/07/15/how-to-build-a-solar-oven/ https://gosun.co/collections/solar-ovens. Consulted on 3 January 2023
18. http://solarkitchenrestaurant.fi/ http://www.guixe.com/projects/Solar_Kitchen/Lapin_Kulta_Solar_Kitchen.html. Consulted on 3 January 2023
19. Casadio, M., Fornasetti, B. (eds.) Imageries allo specchio, in Id., Fornasetti, 286–305, Electa, Milano (2009)

Missing references in the text:

20. AA.VV. *Specchio*, in *L'uomo e i simboli*, Enciclopedia tematica aperta, pp. 367–371. Jaca Book (2002)
21. Biedermann, H.: Enciclopedia dei simboli (orig. ed., Knaurs Lexicon der Symbole, 1989). Garzanti, Milano (2011)
22. Dolto, F., Nasio, J.D.: L'enfant du miroir. Payot, Paris (2002)
23. Guillerault, G.: Le miroir de la psyché. Gallimard, Paris (2003)

24. Macchi, G.: Lo specchio e il doppio: dallo stagno di Narciso allo schermo televisivo. Fabbri, Milan (1987)
25. Marchis, V.: Lo specchio. In: Id., Storie di cose semplici, pp. 85–108. Springer Verlag, Berlin (2008)
26. Melchior-Bonnet, S.: Storia dello specchio, foreword by Jean Delumeau, Bari, Dedalo (2002) (orig. ed. Histoire du Miroir, Paris, Imago, 1994)
27. Phay, S.: Les vertiges du miroir dans l'art contemporain. Les presses du réel, Paris (2016)
28. Roussillon, R.: Le transitionnel, le sexuel et la réflexivité. Dunod (2009). https://doi.org/10.3917/dunod.rous.2009.01
29. Simeone, E.C., Tateo, A., Guglielmi, M.G.: Lo specchio e il doppio tra pittura e fotografia, Aracne (2009)
30. Thévoz, M.: Le miroir infidèle, Les Editions de Minuit, col. Critique (1996)
31. Vidler, A.: Il perturbante dell'architettura. Saggi sul disagio nell'età contemporanea, Turin, Einaudi (2006) (orig. ed. 1992)
32. Webster, R.: The cult of Lacan: Freud, Lacan and the mirror stage (2002)

For F☆ck's Sake. The Political Narrative of Sex Toys in the Communication of MySecretCase

Silvia Biasetton[1](✉) and Noemi Biasetton[2](✉)

[1] Dipartimento di Sociologia e Ricerca Sociale, Università di Trento, Trento, Italy
silvia.biase4on@unitn.it
[2] Dipartimento di Culture del Progetto, Università Iuav di Venezia, Venezia, Italy
nbiasetton@iuav.it

Abstract. In the last 20 years, the industry of sex toys has grown exponentially within the Western online market, giving life to new forms of communication regarding topics such as sex and sexuality. However, if on one hand the online sale of sex toys and its related communication allow (once again) the spread of political narratives, on the other they seem to reinforce an individual and self-determining conception of sex and sexuality which preclude its broader understanding within societal norms and omit forms of collective and shared practices related to such topics.

To understand the consequences of this paradox, the paper will focus on sex toys as carriers of political narratives related to sex and sexuality, reflecting especially on the role of that online communication might have on their diffusion. To achieve this, the paper will take into consideration the visual communication of MySecretCase as a case study and analyze it through the visual methodology proposed by Gillian Rose [1, 2]. Through the analysis of the communication design strategies adopted by MySecretCase, we aim at interrogating whether—if confined in the virtual space—sex toys can still be considered as carriers of political and collective values, reflecting on the role of communication design in shaping the symbolic narrative around these objects.

Keywords: Sex Toys · Sex Shop · Political Narratives · Visual Communication · Visual Analysis

1 Introduction

In the contemporary context of Western late capitalism, sex and sexuality have grown into a fashionable and profitable matters within cultural and entertaining products [3], which overall have been accustomed to an ever greater freedom in the expression of sexual content—or at least within the limits set by public morality. However, this accomplishment comes with a rather fascinating paradox, which professor Feona Attwood highlights through her work by noticing how sex is "present everywhere as a subject for discussion and representation even while its practices are often hidden away" [3, xiv]. In other words, sex has undergone a process of separation between the "pure" and the "dirt", the

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 103–115, 2024.
https://doi.org/10.1007/978-3-031-49811-4_10

"out of place" [4]. This meaning that while representations of sex and the sexualization of people and things can be easily found on billboards, commercials, TV series and other products of popular culture, the actual acts of masturbation or self-pleasure often remain a form of taboo.

This paradox is even more visible in the specific case of sex toys, which have long been the vehicle for many issues concerning political, juridical and health struggles. In fact, although the market for sex toys has seen an exponential growth in the last twenty years in many Western countries, there often seems to be fundamental deficiencies in participatory and/or collective forms of knowledge-sharing practices about sex- and sexuality-related topics. The same paradox applies to the recent growth of female-headed and female-oriented sex toys suppliers and sales outlets, which by moving their retail online are adopting new and sophisticated marketing and communication strategies to acquire new costumers.

To understand the consequences of this paradox, the paper will focus on sex toys as carriers of political narratives related to sex and sexuality, reflecting especially on the role of that online communication might have on their diffusion. To achieve this, the paper will take into consideration the visual communication of MySecretCase as a case study and analyze it through the visual methodology proposed by British professor Gillian Rose [1, 2]. Through the analysis of the communication design strategies adopted by MySecretCase, we aim at interrogating whether—if confined in the virtual space—sex toys can still be considered as carriers of political and collective values, reflecting on the role of communication design in shaping the symbolic narrative around these objects. At a time when feminism and sex positivism are being used as marketing strategies, we believe that the communicative aspect of sex toys' online retailers becomes particularly interesting as it unveils complex dynamics involving both problematic aspects as well as subversive potential.

2 Research Background

The history of sex shops is as compelling as much as it is poorly documented. However, the works of Lynn Comella [5], Hallie Lieberman [6] and Coulmont and Hubbard [7] provide us with a detailed and precious report regarding the changes in the sex toys market in the U.S., Britain and France. In particular, Lieberman [6] and Comella [5] focus on the rise of feminist and women-run sex shops and how these changed the "business of pleasure". Coulmont and Hubbard [7], instead, trace the changes of British and French regulations for selling pornography and sexual materials since the 1970s, investigating how they affected sex shops' evolution. These contributions have been helpful in demonstrating how—regardless of the country where they are located—sex shops are entangled with the regulations of the public space, as well as with the transformations occurring in the social, political, and cultural discourses about sexuality. Furthermore, sex toys have long been the vehicle for many issues concerning political, juridical and health struggles. Throughout the sexual revolution carried out across the U.S., for example, the so-called "sex war" carried out between the 1970s and 1980s became an important moment for the incorporation and politicization of the topics of sex and sexuality into second wave feminist movements. "Sex war" refers to a heated debate on the issues of porn and sex

toys, which divided feminists into two main oppositions. On one side, sex toys were contested as "phallic signifier[s]" [8, 1001], and thus considered as embodiments of the patriarchal hegemony over women's sexuality. On the other side, other strands of feminists claimed sex toys as "totems of feminist struggle over gendered sexual prohibitions and inequalities" [9, 615].

Eventually, all these debates started to converge in a broader discourse dominated by the dissatisfaction for the existing adult stores, translating these political practices and theoretical positionings into new retailing models. Between the 1970s and the 1990s, the U.S. and Europe saw the emergence of feminist sex shops, which became an alternative to both traditional male-run adult stores. The distinction between traditional adult stores and feminist sex shops was based mainly on the idea that the latter were conceived on a political-aware identity which shaped not only the commercial choices it employed, but also the representations it made of the commodities for sale. Feminist sex shops were born indeed to contrast the blooming of traditional male-driven sex shops or adult stores [5, 6], characterized by blacked out windows and (mainly) pornographic material on the inside [10]. For example, the feminist sex shop *Eve's Garden*, opened in 1974 in New York City, decided not to sell dildos and vibrators since they were considered symbols of phallocentrism and heteronormativity. Others such as *Good Vibrations*, opened in 1977 in San Francisco, opted to display only non-phallic dildos and vibrators in the front and at the center of the store to make a statement that "the store was about women's pleasure, not men's idea of how women should experience pleasure" [6, 167]. Most of these stores were also thought and used as gathering spots, hosting workshops on masturbation, sex education and books' presentations, with the aim of creating alternative ways of representing and narrating women's sexuality. By doing so, they also contributed to a new aesthetic of adult stores both considering the goods for sale and the decoration of the shop. According to Feona Attwood, this "stylish form of auto-erotism", which originated from the second-wave feminists of the '70s, set the basis for the understanding of an "appropriate female sexuality", but also for the integration of the sex toy as a mean of cultural change by becoming "a vital part of the contemporary reordering of sexual practice as [well as] a combination of fantasy and appliance" [11, 395–396].

In the last twenty years, sex toys and sex shops have changed drastically, undergoing a "postfeminist 'makeover'" [12] "through a combination of feminization and gentrification that has 'cleaned up' the industry" [9, 615–616]. In particular, the expansion of internet-based retailing systems helped the sex toys market to turn these objects into empowering, fashionable and "cool" luxury goods—a trend that is placed within a general increase in the consumption of sexual merchandise [13]. In fact, as Fisher and Barak (2000) claim, online retailers have been "facilitated dramatically by the 'three A's' of Internet use: access, affordability, and anonymity, which increasingly characterize the Internet scene across much of the globe" [14, 575]. At the same time, contemporary online sex shops (especially through social networking sites, or SNS) are leveraging the expansion of feminist digital activism [15, 16], developing marketing strategies that see the creation of informational content on their social media platforms and posing themselves as hybrids between shops and sex education pages. This includes, for example, advocating for LGBTQ + rights, stigmatized diseases like endometriosis and AIDS, and non-conforming bodies (and body parts). Although these contents are produced by

retailers, with the ultimate goal of advertising their own products, the perception from a user point of view is often that there is no clear-cut distinction between marketing strategies and digital activism. And indeed, as Paul G. Nixon and Cosimo Marco Scarcelli notice, the question arises of whether the spread of such contents "is a prime example of (largely) female-empowerment or merely neoliberal markets being expanded to increase profits by targeting new markets and attracting new customers" [3, 17]. Or even, whether these shops are adopting a political endeavor precisely to tackle an increasingly larger audience using techniques such as pink or rainbow washing.

3 Methodology

This paper focuses on the Italian case of MySecretCase, which will help us understand the current status of the relationship between sex shops, online communication, and political narratives. Born in 2014, MySecretCase is an online sex shop which gained popularity on the socials for its educative and yet amusing contents. Today, the company has more than half of a million followers (681 thousand on September 21) on Instagram, 97 thousand members on YouTube, 71 thousand followers on Facebook and a turnover of 6.5 millions of euros [18]. With respect to MySecretCase's communication strategy, we will focus only on commercials and Instagram posts. This choice is guided by the fact that these two modes of advertisement propose different narrations of sex toys and sexuality in general as regards to target audience, content, and medium used. Most importantly, they allow us to better underline the different approaches adopted through the passage between a television-oriented mode of communication and an SNS-based one.

The methodology employed for the analysis of the selected case study is that suggested by Gillian Rose in her seminal book *Visual Methodologies: An Introduction to the Interpretation of Visual Materials* [1, 2]. Rose's framework identifies the site of production, the site of the image, the site of audiencing and the site of circulation as spheres where "the meanings of an image are made" [2, 24] and where the social and cultural impact of visual communication can be studied. Each of these sites (production, image, audiencing, and circulation), Rose argues, can also be critically examined by asking questions based on three aspects or "modalities". In particular, the technological modality focuses on how different visual technologies impact on its meaning and effects (i.e. what technologies are used to make and circulate the image); the compositional modality refers to the material qualities of an image (i.e. color, content, genre); the social modality takes into account the range of social, political and economic relations, institutions and practices that surround an image and through which it is seen and used (Fig. 1).

Rose's method is particularly suitable for this research as it helps taking into account many of the affordances offered by these platforms, such as the facility to build a network of supporters [19], the strategic "formal nature" of posts [20], and the "spreadability" of audio-visual contents [21]. With this methodology, the specific sites and their modalities will be used as a taxonomy to position a critical reading of the case study's audio-visual content.

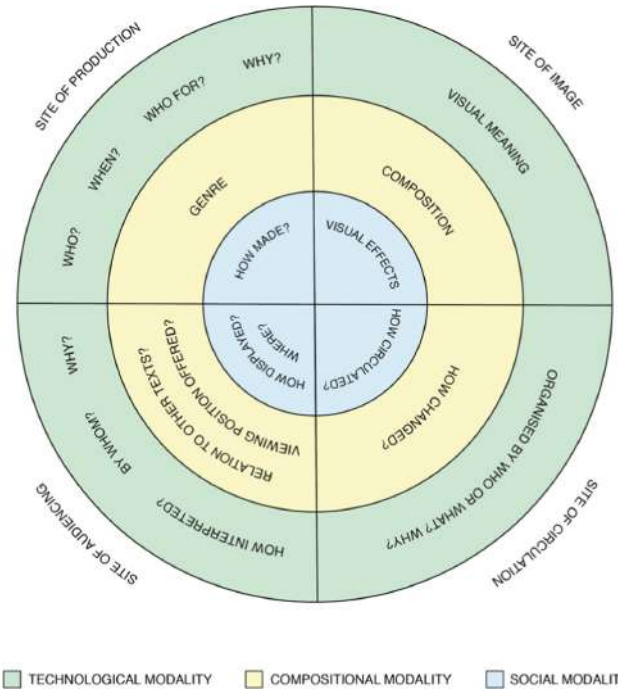

Fig. 1. The sites and modalities for interpreting visual materials by Gillian Rose (2016). Image redesigned by the authors.

4 Analysis

MySecretCase's first commercial was broadcasted on July 24th, 2017, on some of the major Italian private and public TV channels. As for the site of image, the commercial depicts four white women, three alone and one with her male partner, all looking for something in their houses or in their bags. Only towards the end of the commercial the viewer understands that the common desired object is a sex toy—respectively a dildo, a vibrator, a piece of lingerie, and a clitoral stimulator in the shape of a lipstick. The colors of the items used in props and scenery are skewed towards pale yellow and pink shades, whilst there is a predominant presence of white in the clothes worn by the actresses. The background music consists of a 1980s-inspired ballad, *One More Lonely Night (Without Your Love)* by Maurice Hayes, which creates a romantic and dream-like scenario. The camera is always still and allows the viewer to carefully look at the slow-paced actions performed by the four women through the technique of cross cutting—revealing only at the end what the advertised set of products is. Overall, the combination of the soft colors, the slow editing and the mellow music all converge towards the creation of a romance-like tale which, due to the application of the products shown at the end, is safe to assume is only addressed to women. Considering the site of audiencing, many elements and environments in which these women are portrayed—spacious modern houses, a huge walk-in closet, elegant clothing, and refined jewelry—suggest that the ad is targeting

middle to high class women of all ages. Furthermore, the primary colors used throughout the commercial—such as pale pink, often representing femininity and infancy, and white, associated with purity and innocence—appear to be added in the attempt to convince the audience that "ordinary" women make use of sex toys, thus "purifying" the imaginary of these objects from their possibly "dirty" connotations.

On the site of circulation, it is particularly noteworthy that this commercial has been differentiated between nighttime and daytime, with the only difference between is that in the daytime one, women do not show their sex toys but smile instead, winking at the camera, and there are no images of sex toys while scrolling the website on the phone in the end. During the commercial, a (female) narrating voice says

> "We want a world in which women are not sexual objects but can have them all. Find yours on MySecretCase.com, the first online shop dedicated to women's pleasure. MySecretCase.com – Your pleasure".

stressing both the target on a female clientele, and the fact that purchasing these items is a fair and empowering act which gives them pleasure. As the name of the brand itself suggests, the visual meaning this spot is playing with is the unveiling of the secret, of hidden sexual tools.

The second commercial release by MySecretCase was broadcasted on 15th of July 2019, almost two years after the first one. Starting with the site of circulation, MySecretCase has expanded the number of channels, especially public ones (from four to seven) and thus expanding their presence on national television. This commercial is also differentiated by night and daytime, and there are more diverse elements with respect to the first case. In the nighttime version there are three couples—two heterosexuals, one at a restaurant and one within a car, and a lesbian one, in the bathtub—in which the women give to their partner a sex toy, respectively a remote controller for an egg vibrator, a vibrator, and a cock ring. While in the daytime version there is a heterosexual couple more (of which a pregnant woman) who play and get massaged with wax. The only (part of) sex toy shown is the remote controller for the egg vibrator. On the production site, this commercial also follows a cinematic image, but while the first one helped constructing a romantic genre, here the camera moves in a more vibrant, animated way, following also a joyful French song (*Bouge Ta Bouche*, by Ann De Renais & Ben Parry) and some erotic interactions between different couples. If on one hand this commercial also follows a romantic genre, its erotic standpoint seems to stand out as well, dictated by the seductive and alluring elements of the direction such as the use of darker shades and environments with soft lights as opposed to the bright ones used in the first ad. Moving to the site of image, it is possible to notice a highly different composition of the scenes with respect to the first commercial. The narrating voice indeed says

> "For those nights in which playing is our only secret. For those gifts which can open new paths. For those moments in which we think about the future, but time stops. For those loves which are always a blow to the heart. For all those games that free the imagination. MySecretCase.com — Your Pleasure".

Here, the commercial is stressing the idea of the playfulness of sex toys, which are still something secret, but that can unravel new paths, or free the imagination, the

unknown. The main theme here seems to be the one of discovery, yet with secrecy and within the intimacy of the relationship. The *fil rouge* that connects this commercial with the previous one is the representation of middle high-class people, which can be noticed from the environments in which these people are depicted and the various elements surrounding them. The dress of the first woman in the restaurant, for example, the big space in which the bathtub is placed, or the convertible car, are all elements which concur to the development of this imaginary. Also, in this second commercial it is mostly women the ones with give their partner sex toys, thus reinforcing the idea of the empowered woman who seeks her own pleasure—even if always within the shared space of the monogamous relationship.

If the two commercials by MySecretCase share many similarities, the same cannot be said about the company's communication strategy for Instagram. The first post dates to November 24th, 2017, and constitutes the beginning of a new and fresh approach that the company successfully managed to build throughout five years. For this study, two clusters of nine consecutive Instagram posts will be taken into analysis. The first one consists of posts published by MySecretCase's Instagram page between December 10th, 2018, and October 17th, 2019, and is mainly characterized by the presence of colorful, ironic content, mostly oriented at advertising their products. There first post, for example, is a parody of a specific Italian comedy genre for movies which are usually released in cinemas during the Christmas period (called "cinepanettone" after the typical sweet bread eaten in Italy during Christmas time). The second post, instead, is an excerpt of the video clip of a song by the Italian pop singer M¥SS KETA in which she is sponsoring a MySecretCase's vibrator. The third post is more ironic and less direct, but is nonetheless aimed at advertising a sex toy; the text reads indeed "What I do when I'm in the shower", and the answers "I shower", "I think at all the shrewd answers that I could have used in already concluded discussions" and "I use my suction-cup vibrator" are shown through different percentages of a pie chart. The following post are also aiming at selling a product and show a sequence of images depicting a black egg vibrator that quivers in a glass of water. The last five posts, instead, consist of ironic and colorful graphics that do not advertise any sex toy. There is a "Guide to understand if someone is really bisexual", which stresses the importance of self-defining each and diverse sexual orientations, but also a series of illustrations that show how animals masturbate or have sex. The only two similar posts are the ones with the words "Tette" (tits) and "Soffocone" (blowjob), which are part of a series called #SEXDICTIONARY, exploring how body parts or sexual practices are called in different Italian regions and/or dialects (Figs. 2, 3, 4 and 5).

The comedy genre characterizing these posts suggests that, between 2018 and 2019, MySecretCase adopted a non-political communication strategy, based mostly on Italian popular and vernacular cultures, and aimed primarily at selling the company's products. The composition of this group of posts is also inconsistent, both in the visual style and time of publication. In fact, these first nine posts have been published within a very long timeframe (almost a year), and there is no coherence in terms of the choices regarding colors, copywriting and topics treated. Also, if compared to the commercials, these posts do not seem to target any specific gender or sexually oriented people, nor any age-specific group of users.

Fig. 2. Screenshots of MySecretCase's first commercial in nighttime (2017). Source: YouTube.

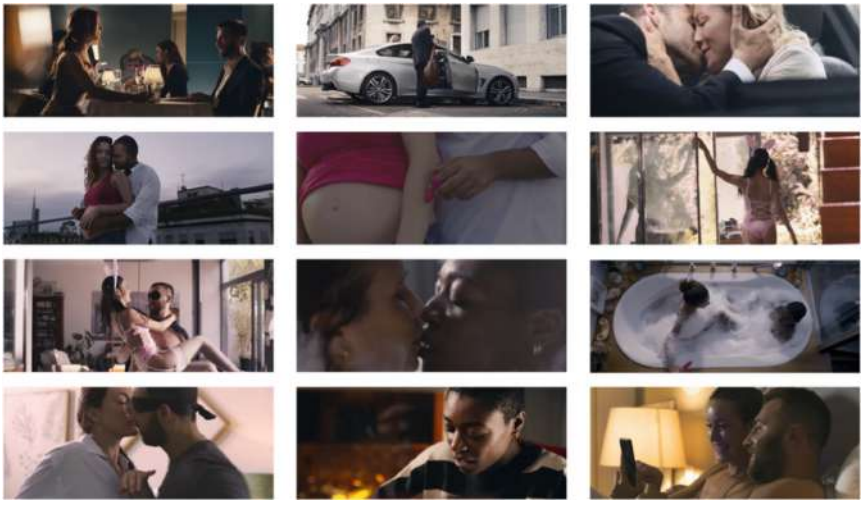

Fig. 3. Screenshots of MySecretCase's second commercial in daytime (2019). Source: YouTube.

From the circulation point of view, these posts received 18.231 thousand likes and 289 comments, with an average of approximately 2000 likes and 30 comments per post.

The second cluster is composed of nine posts going from July 24th, 2020, to August 14th, 2020. From a circulation perspective, this cluster of posts shows a higher frequency of their publication—implying a greater effort in guaranteeing a consistency of posts and a much more active presence on Instagram. Secondly, they received 60220 likes and 512 comments altogether, with an average of 6500 likes and 500 comments per post. Differently from the first cluster, these posts present a coherent composition both in their

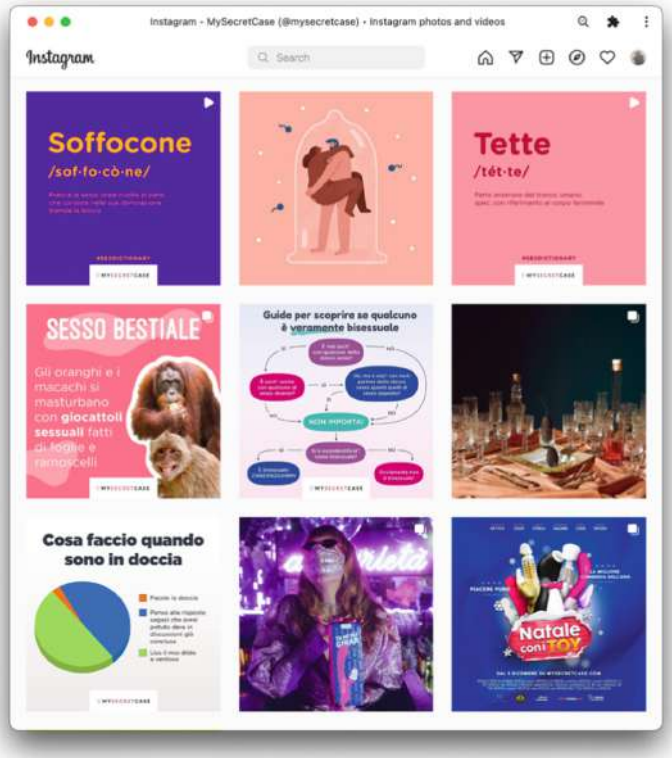

Fig. 4. Post IG @mysecretcase 10/12/2018 – 17/10/2019. Source: Instagram.

aesthetic and content. All the photos and graphics have similar effects and styles, and each one characterized by a colored frame showing MySecretCase's logo—ensuring that, if these posts go viral, the brand can be recognized. The contents are coherent in the sense that there is balance between informative, ironic, and political tones. For example, in the cluster we can see the presence of a campaign called "Disabile Desiderabile" (Desirable Disabled), which gather testimonies and experience of disabled people on their sexuality, and thus suggesting a programmatic agenda. The first post is the only one that advertises sex toys through the word game "I doni della ClitoriDea" (The gifts of the ClitoriGoddes), which represents Botticelli's Venus into a vulva and adversities for different sex toys to stimulate the clitoris. The second post, called "Tutto il Tatto delle Tette" (All the Tactile Sensitivity of Tits), explains instead how the breasts can be stimulated and gives tips on how to use touch to bring pleasure to the partner. Similarly, the following post portrays the changes that occur in the vulva when it is aroused. The fourth, sixth and ninth posts, instead, give tips on how to perform oral sex, have sex in the water, and perform exercises to strengthen the pelvic floor muscles (also known as Kegel exercises) to feel more pleasure.

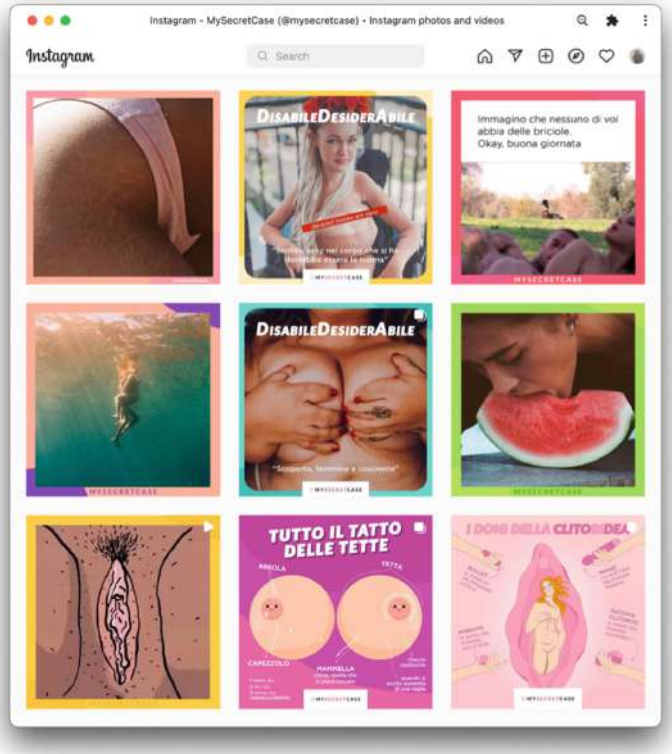

Fig. 5. Post IG @mysecretcase 24/07/2020 – 14/08/2020. Source: Instagram.

In this cluster of posts female bodies are the protagonists, both photographed and illustrated, often represented in a non-normative way. Most importantly, there is a fundamental absence of sex toys which brings the profile of the company to appear more like a sex-education page rather than a sex toy retailer one. All these elements concur in creating both an informative and provocative genre, which challenges Instagram policies prohibiting the publication of nudes by censoring nipples or by publishing illustrations of intimate body parts like breasts and vulvas. Contrarily to the first cluster of posts or the commercials, this selection of posts pushes the limits of the public morality by publishing images with explicit sexual content, but with clear educational and, arguably, political ends.

5 Discussion and Conclusions

Overall, this paper has shown how MySecretCase constructed different meanings around sex toys via TV commercials and Instagram posts, creating different imaginaries that shaped the symbolic and political representation of these objects. In general, this brief analysis has demonstrated that TV commercials depict more high-class women and

couples, while on the Instagram page there is an effort to represent different types of bodies, skin colors and sexualities through a more easy-going language. If on one hand there is a cautious use of the depicted images to not upset the common decency, e.g. the differentiation of the commercials between night and daytime, on the other hand there is a redefined attention to a calculated use of naked bodies, genitals, and sex/masturbation scenes. Also, a common element of both communication styles is the framing of sex toys as tools for female empowerment and further sexual emancipation. However, while the commercials are concerned with the normalization of masturbation and the use of tools to "spice up" the sexual relation with their partner, Instagram posts seems to have overcome this step, and talk about more specific issues regarding sex such as consensus, sexuality, mental and physical health.

If the aim of commercials is clear, i.e. selling the products, while on Instagram we are witnessing the creation of a hybrid format between dissemination and advertising, where the latter is increasingly less present and camouflaged under other guises. In fact, the recurrent social campaigns on body positivity, inclusion, and representation of LGBTQI+ subjectivities, as well as the reflections about consent, sexual experimentation and physical and mental health related to sex are blurring the boundaries between a commercial brand, and an activist, politically oriented, page. In fact, although MySecretCase poses itself more as a women-run business, the contents spread by the company on Instagram seems more and more similar to a feminist digital activist group. Although this might be a marketing strategy, it undoubtedly raises questions on the effect of such spread of sexual and politically aware themes on its followers and more generally about making issues like sex, masturbation, and alternative sexualities such public yet individualized matters.

As it was shown at the beginning of this paper, during the second wave of feminisms, attempts to transform sexuality in the public sphere have been made also through commercial businesses. However, if on one hand the online communication allows these issues to circulate more widely and potentially to inform more and more users on sexual themes, on the other hand it precludes the actual creation of shared debates and public or collective practices and endeavors. In fact, although MySecretCase has an interactive approach on its Instagram page carried out through questions on the captions of the posts and videos, the interaction is limited to the possibilities of the platform itself, thus reinforcing the creation of "public intimac[y]ies" [22, 98].

To conclude, we could say that even if the growth in online erotic consumption helped to (re)politicize sex toys, the purpose of the communication practices related to these objects lies only within the autonomous and individual sexual self-determination. In fact, although the television, the internet and the availability of social media are transforming what once was a source of taboo into an increasingly visible and accessible matter, the political narratives related to sex toys always seem to remain confined within the domestic and private spheres, failing to breach the screens into a more public and shared space. If we think of visibility as a sociological category that "lies at the intersection of the two domains of aesthetics (relations of perception) and politics (relations of power)" [23, 324], when there is a shift in visibility we should always ask ourselves who are the agents of this change, what is really changing in terms of power relations, and which effects does this change produce, what is been "cleaned up" and what still remains "dirt".

References

1. Rose, G.: An Introduction to the Interpretation of Visual Materials. SAGE (2001)
2. Rose, G.: Visual Methodologies: An Introduction to Researching with Visual Materials. SAGE (2016)
3. Attwood, F.: Mainstreaming Sex: The Sexualisation of Western Culture. Bloomsbury Publishing (2014)
4. Douglas, M.: Purity and danger: An analysis of the concepts of pollution and taboo. Routledge (1992)
5. Comella, L.: Vibrator Nation: How Feminist Sex-Toy Stores Changed the Business of Pleasure [Electronic Resource]. Duke University Press (2017)
6. Lieberman, H.: Buzz: The Stimulating History of the Sex Toy, 1st edn. Pegasus Books (2017)
7. Coulmont, B., Hubbard, P.: Consuming sex: socio-legal shifts in the space and place of sex shops. J Law Soc **37**(1), 189–209 (2010)
8. Madraga, M., Nielsen, E.-J., Morrison, T.G.: 'You Do You' feminism: lesbian, bisexual, and queer women's perspectives on the dildo. Sex. Cult. **22**(3), 1000–1018 (2018)
9. Ronen, S.: Gendered morality in the sex toy market: entitlements, reversals, and the irony of heterosexuality. Sexualities **24**(4), 614–635 (2021)
10. Carter, F.: Sex shop stories: shifting disciplines in design research. In: Morris, C., Boyce, P., Cornwall, A., Frith, H., Harvey, L., Huang, Y. (eds.) Researching Sex and Sexualities. Zed Books (2018). https://doi.org/10.5040/9781350222281.ch-004
11. Attwood, F.: Fashion and passion: marketing sex to women. Sexualities **8**(4), 392–406 (2005)
12. Wood. INSERIRE RIF. BIBLIOGRAFICO MANCANTE (2017)
13. Burns, J.: How The 'Niche' Sex Toy Market Grew Into An Unstoppable $15B Industry. Forbes (2016)
14. Fisher, W.A., Barak, A.: Online sex shops: phenomenological, psychological, and ideological perspectives on internet sexuality. Cyberpsychol. Behav. **3**(4), 575–589 (2000)
15. Baer, H.: Redoing feminism: digital activism, body politics, and neoliberalism. Fem. Media Stud. **16**(1), 17–34 (2016)
16. Matich, M., Ashman, R., Parsons, E.: #freethenipple – digital activism and embodiment in the contemporary feminist movement. Consum. Mark. Cult. **22**(4), 337–362 (2019)
17. Nixon, P.G., Scarcelli, C.M.: Coming of age. In: Rees, E. (ed.) The Routledge Companion to Gender, Sexuality, and Culture, pp. 293–303. Routledge, London (2022)
18. Maddalena, R.: L'e-commerce dei sex toys che ha creato la prima community online per abbattere i tabù sul sesso. Forbes Italia (2021)
19. Kreiss, D., Lawrence, R.G., McGregor, S.C.: In their own words: political practitioner accounts of candidates, audiences, affordances, genres, and timing in strategic social media use. Polit. Commun. **35**(1), 8–31 (2018)
20. Ceccobelli, D., Quaranta, M., Valeriani, A.: Citizens' engagement with popularization and with populist actors on Facebook: a study on 52 leaders in 18 Western democracies. Eur. J. Commun. **35**(5), 435–452 (2020)
21. Jenkins, H., Ford, S., Green, J.: Spreadable Media: Creating Value and Meaning in a Networked Culture. NYU Press (2013)
22. McNair, p. 98 (MANCA RIFERIMENTO BIBLIOGRAFICO COMPLETO) (2002)
23. Brighenti, p. 324 MANCA RIF. COMPLETO AL TESTO (2007)

Telephones in Italy, the Italtel Study-Case

Rosa Chiesa(✉)

Iuav, Università di Venezia, Venice, Italy
rchiesa@iuav.it

Abstract. The primary objective of the narrative, which spans the 1960s and 1990s, is to verify the contribution of industrial design – through the objects it uses (telephone sets but also fittings) and in their implications of function, form and production [1] – as a lever both in the private market (which Italtel Telematica used) but also considering how, beyond the object, the investment was part of a broader strategy of expansion of the telecommunications sector in Italy. The telephone, an element of connection par excellence that accompanied the physical and immaterial transition from mechanical to electronic and digital technology, in its parallel evolution with the development of communications technology, turns out to be only a piece, albeit an emblematic one, an instrument of cultural and social representation that satisfies the functional, symbolic and communicative dictates of every era.

The essay therefore proposes a reinterpretation of the encounter between a fundamental player in Italy, Italtel – formerly Sit-Siemens (IRI) – with one of the nascent forces of the 1950s, industrial design, the new discipline that, in the years of the economic boom, promised through 'good industrial product design' the achievement of market success. The role of design as a catalyst for innovation and as one of the main drivers of Italian innovation in the Sit-Siemen and Italtel entrepreneurial venture is thus argued.

Keywords: Italtel · telephone · *Grillo* · *Rialto* · *Notturno* · *Cobra*

1 Methodology and Sources

The intent of the essay and also its innovative angle is to connect existing studies of business history and design history in the light of first-hand information from the analysis of the Italtel Telematica archive and the archives and testimonies of designers involved, in order to support the initial hypothesis.

From a methodological point of view, the historiographical investigation relied mainly on the analysis of primary sources (grey literature, balance sheet reports, correspondence and internal documents, etc.) – deposited in the Italtel historical archive at the Isec Foundation (*from here* IFA, Sesto San Giovanni) – and secondary, bibliographical sources, built on the economic-social analysis of the telecommunications sector and consumption in the period under consideration. The Design Group archives and the testimony of some protagonists then completed the gaps and clarified certain passages.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 116–126, 2024.
https://doi.org/10.1007/978-3-031-49811-4_11

2 From Sit-Siemens to Italtel

The telephone[1], in its evolution from a mechanical to an electronic object, represented «a revolution in terms of its incalculable effects on customs, social relations, culture, and in general on society and politics itself» [2, 78].

The object has changed its form to respond to new «relations of use» dictated by ergonomics or to contain increasingly innovative technologies, thus translating the choices of designers in functional, productive, aesthetic and communicative terms and proposing itself as a reflection «of more complex forms of human socialisation and thus to some kind of civilisation» [3].

As part of an overall strategy of expansion in the telecommunications sector in Italy since the 1960s, Italtel stands out as innovative both for having found in design a strategic lever for the private product market (which was gradually assuming a numerically significant role), but also for having, in later years, taken advanced avenues, such as electronics, and paying attention to training (technical training school) as well as the creation of a company archive.

The presence of an advertising office that was very active from the 1970s onwards and led by Engineer Bandini Buti bears witness to this path as can be seen in the correspondence relating to national and international expansion projects and in the documents that give an account of the organisation of competitions among the best-known designers of the time.

Italtel – Società italiana telecomunicazioni Spa (Italtel Sit) is the name that the company, founded in Milan with German capital under the name Siemens, assumed from the 1980s onwards. Siemens was the name that would appear in the company name on several occasions, from the 1920s to at least the 1960s, when Società italiana telecomunicazioni Siemens Spa (Sit-Siemens Spa) took over the role of sales representative for Italy for telecommunications from the German Siemens group[2] [4, 14–17].

From the 1950s onwards, Italy witnessed a strong acceleration in economic development that, while not levelling out the socio-redditual divide between north and south, became the backdrop against which the new mass needs related to the idea of comfort, mobility, the technical facilitation offered by household appliances, but also a generalised desire for modernity were projected, to which industrial design responded by systematically redesigning the domestic and non-domestic landscape, often resorting to the use of new materials such as plastics. Since 1954, l'*annus mirabilis* [6, 255] for

[1] Crf. [5].

[2] The Società Italiana Siemens per Impianti Elettrici was founded on 5 December 1898 as the representative for Italy of Siemens, an engineering company for the construction of telephone components. Siemens had already been present in Italy for some time: in 1906 it had inaugurated a first automatic telephone exchange on the occasion of the Great Simplon Exhibition, and from then on in 1913 a plant in Rome, Jesi and Genoa. From 1921, Siemens S.A. was also engaged in the production of telephone equipment until 1945 when it was seized by the International Committee for the Liquidation of German Assets, which decided to hand it over to the Italian Treasury. In 1950, when it was released from seizure, it became part of the IRI-STET group, becoming Società Italiana Telecomunicazioni Siemens (often abbreviated SIT-Siemens, known to most as Siemens Auso Telecomunicazioni) in 1960, again the Italian representative for Siemens.

design, with the 10th Triennale, the birth of the magazine "Stile Industria" and the establishment of the Compasso d'Oro award, the construction of the 'design system' as it is still understood today begins in full form. Not only design, but also fashion, tourism and culture then become strongly attractive elements of the Belpaese [7, XXI].

In Italy, thanks to the intervention of the Institute for Industrial Reconstruction (IRI), the telecommunications sector was protected from colonising attempts of American origin[3]. In particular, it was Guglielmo Reiss Romoli, general manager of Stet – a company that had taken control of the Italian section of telephone equipment production since 1949 – who, from the mid-1960s, steered the sector into the promising environment of electronic technologies [7, XI]. The IRI-Stet group was thus configured as an electronics industry cluster that complemented the objectives of Sit Siemens, which was already established in electronics for the production of telecommunications equipment.

The strong interest in the development of electronics applied to telephony1 began to appear as early as 1963, as evidenced by the pages of the company magazine Auso (Corporate periodical of Società Italiana Comunicazioni Siemens) founded in-house in 1961[4]. More generally, it is the focus on telephone consumption data in Europe that is of great interest1[5]: Italy spends very little compared to Belgium and France, reflecting the backwardness of the automatic connection service, which is already very advanced in some countries. These early indications help delineate the path towards which the massive transformation of private telecommunications was heading and the unstoppable progression related to international conversations [8, 171]: an average family in Italy spent 15,600 lire in annual fees, while a Belgian the equivalent of 50,000 and a French 73,000, and despite these disparities, the problem in France and Germany remained the demand, which far exceeded the supply of the service. In Italy, on the other hand, it was not until the following decade, the 1970s, that demand for subscriptions exceeded forecasts [8, 173].

It should be remembered that, until the 1960s, private users could not have secondary lines in the home, so the only telephone in the home was the main one (fixed with a wall-mounted socket) which was rented by the company by contract and returned at the end of the service. By virtue of a national telephone master plan that since 1957 had redesigned the territory into 220 national districts, laying the foundations for Italian teleselection, from 1964 Sip (a single telephone operator by decree D.P.R. no. 1594 of 26 October 1964) decided to replace every main telephone with a unified model – the "bigrigio" or *S62* from the year of its diffusion – that could be assembled indifferently by the

[3] IRI, operating in the economic sector, strongly opposed the establishment of a single high-tech production group controlled by Itt. The IRI -Stet Group was a major player in the sector and in the national electronics industry.

[4] The presentation of the first issue clarified the programme and purpose of the company periodical, on the one hand a purely informative purpose about the company, the city and what was going on abroad, but also an attempt to keep alive or arouse an intellectual interest that could be shared among those same people who devoted most of their time to work. See Auso, Corporate periodical of Società Italiana Comunicazioni Siemens, 1, year I, 1961, IFA, Sesto San Giovanni.

[5] «Inquiry into telephony in Europe» in Auso, Corporate periodical of Società Italiana Comunicazioni Siemens, 1, year III, 1963, p. 20, IFA, Sesto San Giovanni in a column gathering reports from the corporate press of the IRI group.

three manufacturing factories to make maintenance efficient. The actual unification of telephones began in the 1960s (but did not actually take place nationwide until 1974) and the appliance designed by Lino Saltini (1954–1956), in production since 1958, became known as the "unified" replacing the previous *Model 36* (Sit-Siemens 1936)[6].

Compared to its predecessor, the bigrigio handset represents an intervention of formal simplification, showing ergonomic sensitivity in the redesign of the bevelled bodywork and attention to legibility thanks to the design of larger lettering and numerals (covered by patent as well as the telephone itself) on the transparent dial [9, 170–173].

The appearance of the additional telephones comes with the new possibility of accessorizing the home with up to five additional telephone plugs distributed throughout the rooms. The telephones, which differ in shape and colour, thus fulfil a demand for personalisation of the domestic space, and support an emerging desire for privacy.

In the year that saw an improvement in the market for telephones[7], 1965, Sit Siemens presented at the Milan Trade Fair[8] the *Grillo* telephone, a device of «revolutionary conception»[9] designed by Marco Zanuso and Richard Sapper in 1964 and displayed in showcases from 1966 onwards alongside the innovative transceiver equipment for satellite data transmission.

Revolutionary from an ergonomic point of view is in fact its 'clamshell' opening system and the compactness of its shape, which, by integrating the earpiece and number disc – and eliminating the traditional base – makes it possible to grip the device easily with one hand. In the *Grillo*, produced in white, red and green, as in many contemporary technological objects, colour also becomes a distinguishing feature to identify the object's predominant purpose, certainly stated by some articles in the company magazine[10][Fig. 1].

Originally produced in Milan – production was then transferred to the Santa Maria Capua Vetere factory in 1967 – the *Grillo*, which derives its name from the mechanical 'buzzer' ringer, is also the first device to be supplied across the Atlantic, sealing its continued and unstoppable success in 1968 with a supply of 500 items to a Brazilian company[11]. The company's flagship for the private telephone sector, the *Grillo*, which received the ADI Compasso d'Oro in 1967 and the gold medal the following year at the

[6] The *S62* model was to be replaced by the *Pulsar*, designed by Gianni Arduini with Design Group from 1978 and subsequently introduced nationwide.

[7] Relazione e Bilancio al 31 dicembre 1965, p. 16, IFA, Sesto San Giovanni; it is interesting to note that in the decade 1954–1963, italian telephone subscribers rose from 1.5 million to about 4 million [8, 174].

[8] The Report and Financial Statements for the year ended 31 December 1965, p. 16, IFA, Sesto San Giovanni states: «At the last Milan Trade Fair, a new miniaturised telephone *Grillo* was presented, which combines interesting technological features and operational performance with a particularly brilliant industrial design».

[9] Auso, Corporate periodical of Società Italiana Comunicazioni Siemens VI, 2, Juin, 1966, IFA, Sesto San Giovanni.

[10] «The Telephone Reveals You», in Auso, Corporate periodical of Società Italiana Comunicazioni Siemens, Year VIII, No. 2, April 1968, IFA, Sesto San Giovanni.

[11] Auso, Corporate periodical of Società Italiana Comunicazioni Siemens, Year VIII, No. 2, April 1968, p. 1, IFA, Sesto San Giovanni.

Fig. 1. Marco Zanuso, Richard Sapper, *Grillo* telephone, 1964 (ISEC Foundation Archive, Sesto San Giovanni/Carlo Milani)

Biennial of Industrial Design in Ljubljana[12], bears witness, limited to the private market, an unprecedented relationship with the technological object, now playful, colourful, almost domesticated, which visionarily preludes the now symbiotic relationship with smartphones, of which the *Grillo* also anticipates the clamshell opening, in use before the advent of touch technology. The stand design for the presentation of the «smallest telephone in the world»[13] conceived for the trade fair[14] in Genoa in 1967, also contributes, through the use of a contrivance – the deformation of the walls and table tops – to conveying the content related to the informality of the new object.

In the private market, therefore, recourse to the designer's intervention becomes a guarantee of good design, while in the other strategic sectors it is innovation and research (drivers of design in all eras) that drive new initiatives[15].

[12] Auso, Corporate periodical of Società Italiana Comunicazioni Siemens, Year VIII, No. 4, August 1968, p. 1, IFA, Sesto San Giovanni.

[13] Report and Financial Statements as at 31 December 1965, p. 6, IFA, Sesto San Giovanni.

[14] At the 3rd International Telecommunications Trade Fair, Genoa, in 1967, the Stet Group occupied an entire exhibition floor illustrating the activities of several group companies including Sit Siemens.

[15] Although it is beyond the scope of this essay's analysis, it should be mentioned that the contribution of design is also expressed in the work of Marcello Nizzoli and G. Mario Olivieri for Safnat (Società Anonima Fabbrica Nazionale Apparecchi Telefonici) in 1958, in the design of another archetype in office telephony.

At the beginning of the 1970s, the Italian telecommunications system was experiencing a moment of great dynamism due to various factors: in the private market, the introduction of teleselection – the automatic call for long-distance calls – attracted many new subscribers, while on other fronts there was the expansion resulting from the acquisition of control over transoceanic communications (Italcable) and the avant-garde *Telespazio*[16] project for satellite communications which, from the Fucino plain (where the plant was equipped with a parabolic antenna 27 m in diameter), guaranteed the first satellite transmissions and in 1964 also television transmissions, placing Italy at the centre of an important international research network and in an advanced position in the sector.

In the early 1970s, the Stet group launched a campaign of acquisitions in strategic sectors such as radar systems for defence and telecommunications, electronic equipment and automation systems for civil and military use, also opening up to the field of microelectronics and marking a moment of strong innovation in the burgeoning telecommunications industry[17]. At the same time, there was an explosion in the diffusion of the national telephone service, both for private and business users, with an increase in demand for both equipment and infrastructure development, and with Italy catching up with other European countries. It should be remembered that it was only in 1974 that the state-owned company achieved effective telephone unification throughout the country, so much so that the apparatus designed by Lino Saltini in 1954–1956 and in production since 1958, became known as «unified».

Against this backdrop, Sit Siemens, fresh from the huge sales success of the *Grillo* telephone, did not abandon the path of investing in design in an attempt to borrow the previous fortune and appreciation of the national and international market. Investment in design in the round, considering that it was in 1974 that a state-of-the-art factory was inaugurated in Carini (PA), with 27 employees, (whose project was part of the initiatives of the Consortium for the Industrial Development of Palermo), which housed the verticalised production of the unified model (until 1981) and from 1977 the production of the decadic *Grillo's* keyboard, the first application of an electronic technology to a telephone set. From 1981, in Carini, the production of devices was abandoned in favour of the manufacture of relays and then plates for *Proteo* power stations, devices that marked the definitive transition from electromechanics to electronics.

At the same time, however, the mature Seventies were a period of crisis for the world economy and for Italy, as can be seen from the turnover figures contained in Italtel's Reports and Financial Statements. In particular, unrest and events of a trade union nature were blamed for the industrial weakening of the company, which recorded an increase in turnover that was not commensurate with the increase in labour costs. In those same years, the private market, whose turnover remained solid compared to other sectors, recorded orders exceeding supply capacity, somewhat as had happened years before in other

[16] Auso, Corporate periodical of Società Italiana Comunicazioni Siemens, Year VII, No. 4, December 1967, pp. 9–10, IFA, Sesto San Giovanni.

[17] However, the Stet group, which in 1971 was an integrated industrial group with 97,000 employees and a turnover of 838.6 billion lire, continued its growth: during the decade, employees increased by 37%, surpassing the 133,000 mark in 1980, crf. [10, 240].

European countries. And while the *Grillo* continued to be happily exported abroad[18] In 1977, Siemens announced an invitation-only competition for the development of two telephones, one normal, inexpensive model to be produced in 15 million units over a ten-year period, and the other additional. Scrolling through the names of the six invited guests (Achille Castiglioni, Design Group, Franco Albini architectural firm, Franca Helg, Antonio Piva and Marco Albini, studio Meda Montanari Architetti Associati, studio Oscar Cagna-Alberto Ferruzzi, GMP arch. Associati di Gandini, Morgantini e Pirovano), it is clear that once again design is considered a guarantee of quality, process competence and a tool for achieving the best desirable design result. In January 1978[19] only the proposals of Design Group Italia and Studio Castiglioni were retained in the tender, and on 12 April '79 the contract with Design Group was concluded to finalise the chosen unified telephone model[20].

At the same time, while sales on the private market continue to comfort and on the public market the national and international rise of the *Proteo* project continues, another project signed by Design Group is launched, *Rialto*[21] [Fig. 2], entrusted to architect Bandini Buti, who was an in-house collaborator at the time. The handset was initially named the *Bridge* by virtue of its shape that reproduces the miniaturised architectural form of the famous Venetian bridge to scale. The order confirms the desire for continuity with Zanuso's successful experience and reaffirms how industrial design is considered a path to success in the market for products for private use: «the *Rialto* telephone renews the line of aesthetic originality of the 'add-ons' thus continuing those initiatives whose commercial validity is attested to by *Grillo*»[22].

In the meantime, the Castiglioni studio – whose compact device, characterised by the offset position of the handset [11, 304] was not selected in the competition – is engaged, in collaboration with Max Huber, in the design of approximately 1,000 square metres and 36 stands of the Italian Telecom pavilion in Geneva[23] and, commissioned by the Ministry of Posts, Italcable and *Telespazio*, also in the construction of an important planetarium model representing the main connections between Italy and the world's major countries.

In Italy, modulated by the fortunes of the national economy, promising projects linked to the development of electronics suffered a setback, as in the case of Olivetti, which sold its electronics division to General Electric, or projects linked to the strategic sectors of energy and advanced chemistry, which, together with the decline of the state-entrepreneur, paved the way for the current configurations [12, 64].

---

[18] There was also a production of company gadgets such as a *Grillo* key ring, of which no pictures remain, supplied to Paul Roche co. Inc. in New York in 1978.

[19] Following the preliminary examination of the models submitted by the designers invited to tender for the new unified telephone (25 October 1977).

[20] Velina Advertising Service, Unified Telephone Design Contract, 12 April 1979, IFA, Sesto San Giovanni.

[21] Reports and Financial Statements at 31 December 1978, p. 13, IFA, Sesto San Giovanni.

[22] Reports and Financial Statements at 31 December 1979, p. 10, IFA, Sesto San Giovanni.

[23] Already the editions of Telecom'71 in Geneva and Telecom'75 were edited by Achille Castiglioni with graphics by Max Huber.

Fig. 2. Design Group, Bandini Buti, *Rialto* telephone, 1979 (ISEC Foundation Archive, Sesto San Giovanni/Carlo Milani)

3 The Eighties

After the crisis at the end of the decade, the mid-1980s saw the beginning of a real technological revival and a strategic repositioning of the company, which took on the name Italtel from 1981, with a three-lobed brand name, by Marisa Bellisario, the new CEO [10, 255–259]. The corporate identity was completed in 1984 by the group's coordinated image manual designed by Bob Noorda in continuity with the careful strategy of choices drawn up by the advertising office – led by engineer Bandini Buti (brother of the well-known designer) – and with the assignments already commissioned to the well-known Mc Cann Erickson agency such as the Stet/Sip image campaign[24]. After the economic difficulties of the early years and aligning with the international political and economic recovery, the manufacturing conversion process from electromechanics to electronics continued, confirming Carini as the hub of the transformation: since 1986, the complex has been expanded with a series of new buildings covering an area of 10,000 square metres and has established itself as one of the most modern and efficient poles in Europe, mainly due to the investment in employee training: between 1987 and 1990, the software research laboratories in Carini grew to over 250 employees and the highly automated factory centralised the company's largest production and automatic component testing.

[24] Velina Servizio Pubblicità, 1 July 1977 assignment for collaboration on Stet/Sip image campaign, IFA, Sesto San Giovanni.

Italtel Telematica, an Italtel Group company, with headquarters and factory in Santa Maria Capua Vetere (Caserta), dedicated to private and office telecommunications, was created.

The range of products for the private market was enriched in the 1980s by two devices of more or less the same age, the *Pulsar* unified telephone (1985) designed by Design Group and the *Cobra* add-on [Fig. 3], designed by Sandro Pasqui and Gianni Pasini of the Pico Design studio.

Fig. 3. Pico Design, *Cobra* telephone, 1985 (ISEC Foundation Archive, Sesto San Giovanni/Carlo Milani)

The *Cobra* telephone, designed and engineered entirely by the two designers from the very early 1980s, is light and easy to handle, and has the peculiarity of combining both the receiver – the "handset" – and the base in a single monobloc body. It was awarded the Compasso d'Oro in 1987, for the originality of its shape but above all for the study of the correct ergonomics of the object realised with advanced technological solutions: from mixed dialling (decadic or multi-frequency), the redialling of the last number dialled, the setting of the ring tone and access to additional services.

In the ADI jury report, reference is made to a «more current consideration of relationships of use». It is precisely these relationships of use that are central to this object, which the ergonomics of the object considers by proposing an unusual form in the face of advanced technological services.

The mid-1980s saw the (Italian and international) distribution of *Notturno*[25] [Fig. 4], a new telephone commissioned by Italtel from a fashion designer, Giorgio Armani. *Notturno* is a telephone with an essential and rigorous parallelepiped shape, fully electronic with a decadic keypad and made of black Abs.

Notturno (1986), a forerunner of the minimalism typical of the 1990s, is an entirely electronic device with a decadic keypad, which is crossed by a thin line of green light replacing the sound of the call. The designer's intervention in *Notturno* is particularly evident on a formal and symbolic level: the device represents a response to the chromatic and sign chaos of the 1980s and marks a fundamental shift in the definition of the technological object with the abandonment of the playful connotation in favour of the alliance between technology and luxury. The sobriety of non-colour black and the

[25] Press release, *Notturno*, *The new Italtel telephone*, 27 October 1986, Armani Press.

Fig. 4. Giorgio Armani, *Notturno* telephone, 1986 (ISEC Foundation Archive, Sesto San Giovanni/Carlo Milani

inherent discretion of a silent object (which uses a visual code to indicate the call) evokes refined (bordering on meditative) and elitist atmospheres typical of the 1990s. *Notturno* reconfirmed the interest in good Italian design, in the successful combination of technology and design, as already evident in the success of telephone sets such as *Grillo* (1966) and *Cobra* from the early 1980s.

4 Conclusion

The contribution of designers can be seen – over and above the aesthetic/formal, technical achievements of individual interventions – as the "added value, satisfying a design demand that sought, sometimes ambiguously, sometimes explicitly, in the aesthetic form of the industrial product the expedient to conceal serious technological backwardness" [13].

The Italtel affair provides an interesting insight into the Italian success of a number of companies that have realised the power of design as a guide to innovation, not only of products, but as the overall direction of a multifaceted strategy centred on training, investment in research and innovation, and sensitivity towards memory preservation through the creation of a company archive.

References

1. Sottsass, E.: Opinione sul disegno industriale. Domus **308**, 34 (1955)
2. Ciuffoletti, Z., Tabasso, E.: Breve storia della comunicazione. Carocci, Roma (2005)
3. Floridi, L.: La quarta rivoluzione Come l'infosfera sta trasformando il mondo. Raffaello Cortina Editore, Milano (2017)
4. Cammarata, P.: La Chiameremo Italtel. Alpha Centauri, Milano (2001)
5. Balbi, G.: Le origini del telefono in Italia. Politica, economia, tecnologia, società. Bruno Mondadori, Milano (2011)
6. Lees-Maffei, G., Fallan, K.: Made in Italy: Rethinking a Century of Italian Design. Bloomsbury, London (2013)
7. Russolillo, F.: Storia dell'IRI, vol. 5, Laterza, Bari (2015). CONTROLLARE ANNO: 2014 O 2015?

8. Scarpellini, E.: I consumi della vita quotidiana. Il Mulino, Bologna (2013)
9. Bassi, A.: Design anonimo in Italia. Electa, Milano (2007)
10. Mariotti, S.: Le telecomunicazioni: dal monopolio tecnologico ai mutamenti degli anni Ottanta e Novanta, alla privatizzazione. In: Russolillo, F. (a cura di) Storia dell'IRI, vol. 5. Edizioni Laterza, Roma-Bari (2015)
11. Polano, S.: Achille Castiglioni 1918–2002. Mondadori Electa, Milano (2006)
12. Amatori, F., Riccini, R.: Copyright Italia: brevetti, marchi, prodotti, 1948–1970. Archivio di Stato, Roma (2011)
13. Bosoni G.: L'elettronica di consumo. Branzi, A. Il design, Electa, Milano (1996)

Design and Self-reproduction: A Theoretical-Political Perspective

Alessio Fransoni(✉)

Sapienza University of Rome, Rome, Italy
alessio.fransoni@gmail.com

Abstract. Art, in the strictest sense, and industrial design, are associated with many other phenomena, activities, and objects in lists that constitute the field of visual studies. From this subsumption, the traditional hierarchical preeminence of pure or fine art over industrial design, and the corresponding disciplines that deal with them, seems to be reversed.

As the means of recording and disseminating images of everyday life have further developed – and the visual domain of private and social spheres has been able to disproportionately expand its audiences – a self-reproductive function has gained space over the merely utilitarian, aesthetic, or symbolic function, meant in a traditional sense. It is precisely for self-reproductive purposes that the privileged 'prop' is not a work of art but a product intended for use.

On this basis a design theory which takes this function into account can adopt a decisive task: it can offer a contribution to the delineation of a general political theory of visuality, that is completely different from a theory of the social use of images.

Coherently with these aspirations, this essay puts four different objects through an 'extended' analysis: a type of 6th-century Attic kylix, the cradle of Napoleon's son (1811), a cardboard cot of the 60s, and a ring light used for selfies and vlogging.

The perspective unbarred by these broadened analyses is different than that which can be delineated on the basis of traditional classifications and forces a different set of questions the object needs to be asked.

Keywords: Political Theory of Design · Political Theory of Visuality

The history and theory of applied art originated along with the history and theory of fine art in the modern sense, namely, with the studies of Alois Riegl. It should, therefore, come as no surprise that art, in the strictest sense, and also industrial design, can be associated with many other phenomena, activities, and objects in lists that constitute the field of visual studies, at least according to the repertoire found in Walker & Chaplin [14].

For the sake of our argument, we must also take another factor into account: once introduced into the world, all these image-objects, just like any other object, can be subject to forms of social reuse, resemantisation, and detournement by third parties [12]. In short, anyone can appropriate a visible object and, through it, give rise to a form of new production of images.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 127–136, 2024.
https://doi.org/10.1007/978-3-031-49811-4_12

However, in this social reuse and new production of images, not one but a plurality of subjects and relations come into play that break the traditional, intentional chain consisting of creator-object-image-meaning-user. The primary intentionality of the creator is replaced by a plurality of third intentionalities that, as such, are not gathered in a specific subject (the originally conceived recipient). This induced and inextricable 'thirdness' can leave the impression that the object itself produces new images by its own virtue. Namely, that the object-image is self-reproducing.

In speaking of self-reproduction, we borrow the concept from biology, in order to treat it in a theoretical-political sense. In biology, 'self-reproduction' (e.g. of cells) is that 'statistical process of making very similar things'. 'Very similar' but not identical (replicas), because, even if this a process that starts from the 'same', it is 'less precise' [8]; it has a degree of indeterminacy and allows for differentiation and evolution. Since the object obviously does not give rise to new individuals, like in vital processes, self-reproduction is understood here as being the object's capacity to introduce itself with a certain autonomy into a world of relations, while still remaining itself and other than itself. In other words, to represent an actual difference, acting as a physical (plastic) device in a concrete space.

Self-reproduction, even if linked to certain characteristics of the object, is a function activated by an indeterminate someone else. A function that is not properly envisaged by the creator and that does not have a true recipient.

In self-reproduction, the object goes beyond its mere 'being made' and touches the boundaries of the action. Here, 'action' must be understood in the radically political sense that we find in Arendt: action is unconditioned with respect to its origin, undetermined with respect to its objective, unpredictable with respect to its consequences; it is rooted in plurality and falls into an interweaving of conflicting relations, wills and intentions, so that it 'almost never achieves its purpose' [1].

I believe it is precisely on this basis that a design theory which takes this function into account can adopt a decisive task. That is to say, it can offer a contribution to the delineation of a general *political theory of visuality*; the need of which is admitted in the field of visual studies by Bredekamp [2]. A political theory that is completely different from a theory of the social use of images.

In fact, this self-reproductive function of product design naturally involves instances that I have elaborated elsewhere [4] for art:

1) Opening up to the perspective of a multidirectional plural interaction vs a mono- or bi-directional dual interaction;
2) Determining the basic structure of the gaze that is activated each single time;
3) Identifying of a space *between* the object and the subject, and between subjects that, at the same time, unites and separates them; a space of tension, of potential conflict, of difference;
4) Changing the focus of the questions that are posed to the object: from questions concerning essence and process (what? how?) to questions concerning position (where?).

Coherently with these aspirations, I will put four objects – which are very different in terms of age and conditions of realisation and use – through an 'extended' analysis. These objects are: a type of 6th-century Attic kylix, the cradle of Napoleon's son (1811),

a cardboard cot presented by Bruno Munari during a lecture held in 1969, and a ring light used for selfies and vlogging.

Let us begin with the most ancient object, the kylix: a cup used for drinking wine during symposia. The example shown here is the so-called 'large-eyed' kylix. 'Large-eyed' because of the presence of four large eyes painted along its outer surface. These 'large-eyed' kylikes can differ considerably in the richness of their decorations. Some, for example, are very simple, with a stylized nose and ears, to the extent that they unequivocally represent a human face.

Others, instead, might depict a single human figure, a character from a mythological scene, painted between the two eyes that, however, at a certain distance, is perceived as a dark spot which can still resemble a nose. Additional examples, such as the kylix belonging to the collections of the Civic Archaeological Museum in the Italian town of Fiesole (Fig. 1b), or the one signed by Nikosthenes belonging to the MET collection (Fig. 1c), invert the relationship that was just illustrated: a rather large, crowded scene saturates the space between the eye decorations. Any illusion of a human face disappears. In short, in this latter case, it would be more correct to speak of a series of scenes interspersed with decorative 'eye' motifs, rather than the contrary. The painted eyes are elements with which the basic figuration (the mythological scene) has to do, just as it has to do with the other non-figural elements of the vase: its curved surface, shape, handles, and stem. As we know, one artistic factor of Greek vase painting consists in the great ability to coordinate form and figuration, namely, functional elements and elements of the image, in one single rhythm. But to which of these two orders do the painted large eyes belong? They are indeed painted, so we should initially state that they belong to the order of decoration. However, specifically the kylix shown in the figure, with the inverted relationship between its large eyes and the other figures, suggests a different interpretation. One that can only be understood by taking into consideration the particular role the dimension of gazes had in Greek civilization, especially in contexts of encounters and social exchanges, such as in symposia.

From a viewpoint of the Greek conception of the mechanism of vision, the eye was not considered a receptacle for optical waves but rather a source from which rays depart and touch the objects towards which the gaze is directed [5]. This touching has additional meanings, in terms of sociality and also superstition. A certain kind of gaze can potentially be a way to send bad luck at a distance (evil eye). The risk of falling victim to this kind of gaze had to somehow be nullified by some sort of protection. From this perspective, the painted eyes define the practical-utilitarian function of this kylix: a device that – in a moment of distraction, when a person has their face immersed in it while drinking – keeps a 'barrier' engaged and aimed towards the other diners, capable of responding with a protective counter-gaze.

This, therefore, overturns the logic against which good design is the antithesis of superficial decoration. In the 'large-eyed' kylix, one can identify a figurative element that becomes form, performs a practical-utilitarian function, and goes even further, introducing an element of action with which both the object and the user self-reproduce and correspond to a world of relationships.

The Cradle of the King of Rome (1811), namely, that of Napoleon François Charles Joseph, son of Napoleon I Bonaparte and Marie-Louise of Austria, is a piece of furniture

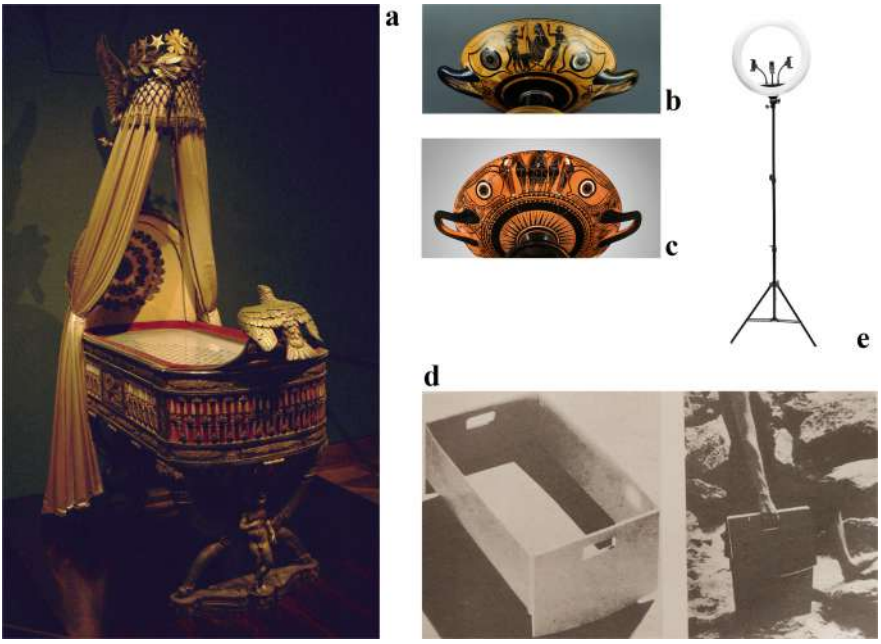

Fig. 1. a) Pierre-Paul Prud'hon, Cradle of the King of Rome, 1811. Wien, Kunsthistorisches Museum, Weltliche Schatzkammer. b) Attic kylix, 6th century BC. Fiesole, Civic Archaeological Museum. Courtesy: Municipality of Fiesole. c) Attic kylix, 6th century BC. New York, The Metropolitan Museum of Art. d) Cardboard cot, from Munari, B.: Artista e designer. Laterza, Bari (1971). e) Makeup & Vlogging Ring Light. Manufacturer: Rio.

in which decorative richness and figurative rhetoric are so pronounced it is commonly used as an example of everything that modern product design is not. The cradle was a gift from the City of Paris to pay homage to the infant and rejoice that the Empire had finally secured its perpetuation in an heir.

Designed by Pierre-Paul Prud'hon, it is the support to a series of symbols and allegories (Fig. 1a). The two most conspicuous figures are a Victory hovering over the world at the head of the cradle and, on the opposite side, an eaglet, *aiglon* in French, as the prince had been nicknamed (son of the imperial eagle), ready to take flight (or just landed?).

What should be immediately emphasized is that this cradle was not the only one belonging to the imperial couple. Other cradles and cots, which were more or less concretely useful or merely representative, have been catalogued and studied, but this is certainly the most famous of all. A 'throne in the form of a cradle' rather than a 'cradle in the form of a throne', as it has been correctly defined [13]. Yet, the cradle itself is so bulky and heavy that it is not even practically suitable for repeated ceremonial uses. Therefore, we have to imagine that, not only were the occasions for using it almost non-existent, but so were those for showing it to people outside the imperial family.

Instead, due to its symbolic excess, it seems to have been purposely designed not to appear in public, but only to give rise to an entire series of self-reproductive phenomena.

Celebrated, mythologised, or even mocked, this exaggerated piece of furniture appears in many prints of the period. Some are extremely accurate depictions of the cradle in detail, others are reconstructions from memory or fanciful recompositions of its main figures: the ever-present winged Victory and the eaglet. Other prints actually fully reinvented it, with strange and incomprehensible changes in positions, modifications, reductions, or multiplications of its elements. Some of these imaginative deviations, with a return movement, end up reconfiguring the very perception of the cradle in its environment of use.

A print engraved by Adrien Godefroy, from a drawing by Adolphe Roehn, depicts the image of what in the title is called *The Hope of Posterity* (*L'espoir de la postérité*) in an intimate, almost family atmosphere (Fig. 2). Napoleon is leaning against the fireplace, Marie-Louise is seated next to and facing him, and behind her is what I would not call a different cradle, or an invented cradle, but an imaginary and synthetic version of the Cradle of the King of Rome. The Victory on this cradle is missing. Moreover, an adult eagle – the fulfilment of the Glory of the Holy Roman Empire and not the eaglet – gently holds in its beak the veil of the cradle above the sleeping infant. Here, the eagle is as naturalistic and alive as ever, and it is perhaps the presence that, more than all, more than the parents themselves, is animated towards the infant with a genuine sense of parental protection, not oblivious to the gravity of the future that will weigh on his shoulders.

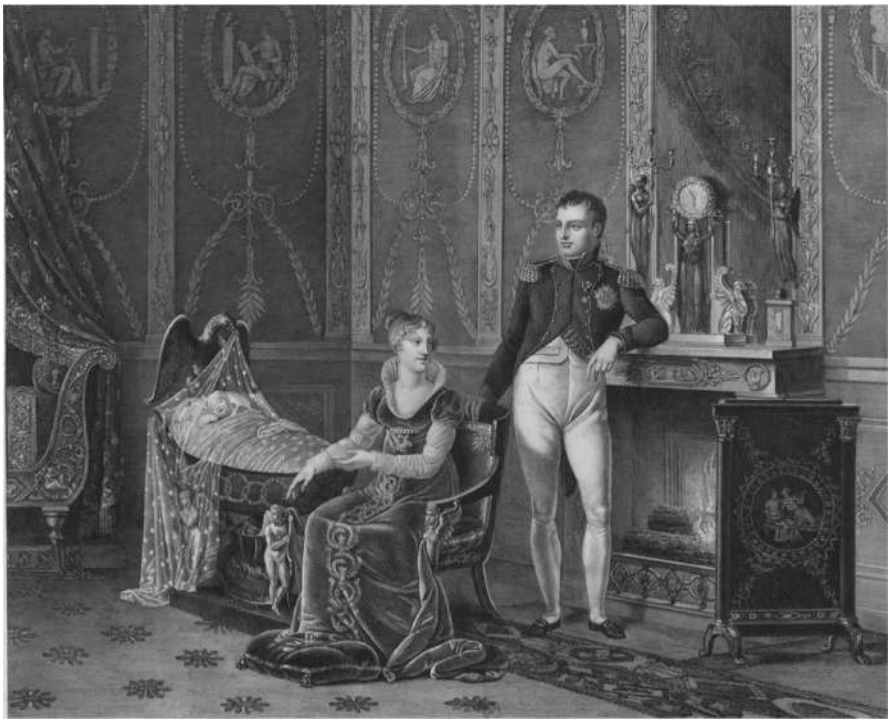

Fig. 2. Adolphe Roehn (design), Adrien Godefroy (engraving). *L'espoir de la postérité*, 1811. Bibliothèque nationale de France, Département estampes et photographie.

Images like this reconfigure the object as a plastic device. A plastic device is what acts in a circumstantial surrounding, in an inhabited room, for example. We are still historically a long way from scientific studies on the sleeping habits and the attention span of babies that today lead us to consider musical mobiles suspended from cots as being useful. Nevertheless, after their self-reproductive and imaginative flight, the figures at the head and foot of the Cradle of the King of Rome, which were designed for society and history, are refunctioned into devices that represent an ongoing parental awareness of what is at stake in that cradle: a co-presence of symbolic strength and fragility, nature and its daily cares, and a responsibility towards the past and future. A series of cross-references given in the space in which the cradle is located and for those who concretely revolve around it, simultaneously in their historical and natural roles: infant, prince, emperors, and parents.

A story of protection and survival, a representation of the relationship between parents and infants, and the social significance of (every) birth, are also at play in the third of the objects we have chosen to analyse. During a lecture at the Carignano Theatre in Turin on 21 March 1969, Bruno Munari showed a slide of a folding cardboard baby cot: sufficiently solid but very light, suitable for outings, and mass-producible at an extremely low cost (Fig. 1d). The same photograph is also reproduced in Munari's book, *Artista e Designer* [11]. The object is indeed very representative of the canonical conception of industrial design: typological invention, coherence between form and function and between material and production process, attention to the entire economic cycle.

However, the idea of putting a baby in a cardboard box, from a certain standpoint, could seem contrary to any conception of adequate care and protection of an infant. Its appropriateness to a vision of society and the self-reproductive extension of this object are rooted elsewhere: in a 'twin' object that emerges in transparency as a sort of functional and visual 'unconscious', but from which the first one does not derive. I do not know if Munari was aware of this, but I believe that the juxtaposition I am proposing, which is not 'genealogical' but imaginative, may open up broader perspectives.

The object I am referring to is the Finnish Maternity Pack (Äitiyspakkaus), which is actually both an object and a programme. The programme began in Finland in 1938 and provided that the state send each new mother a pack (a cardboard box) containing everything she needed for her newborn baby: wool to make clothes, a little mattress, covers, baby bottles, and so on (Fig. 3). The pack was initially created for low-income families. However, this changed in 1949: the right to receive the pack was extended to all mothers, under the condition that they be examined by a doctor, or in a National Health Service clinic, during the last four months of pregnancy. In truth, through this programme-object, the Finnish government intended to reduce many behaviours that could endanger the health of babies and mothers alike.

The object that interests us most among those included in the box is the little mattress: placing the mattress at the bottom of the cardboard box transformed the box into a cot. The use of the box as a cot made it possible for the infant to sleep in proper hygienic conditions that were often better than those in the average home environment of the period and offered an alternative to the habit of co-sleeping with the infant in the parents' bed, which was the cause of accidental suffocation in numerous cases. The programme

has continued to be implemented since the 1930s and, according to scholars, it has contributed in no small measure to a decrease in infant mortality in Finland [6].

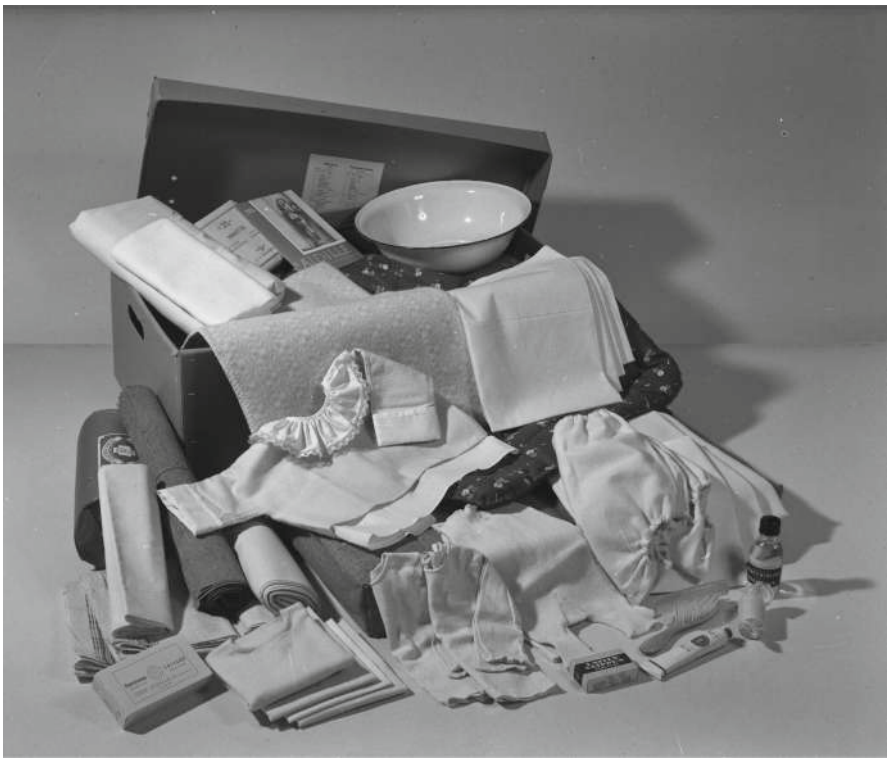

Fig. 3. Finnish Maternity Pack 1953. Photographer: Atte Hyvärinen. Courtesy: The Finnish Labour Museum Werstas, Tampere.

Today, the percentage of families who live below poverty level is enormously lower than in the 1930s. Overall hygienic conditions, along with the propagation of a health culture, are incomparable to those years, so that the practical usefulness of the programme and the economic benefit of the provision of accessories are now truly marginal. Yet, even in recent interviews [7], the Maternity Pack has proven to be of great value to mothers, families, and the Finnish society as a whole. It is a ritual gift from the state which reminds us that we are all equal at birth. Through self-reproductive reuse, even the empty box conveys a precise idea of motherhood and society to our contemporaries and to the generations that will follow.

If the cardboard cot self-reproduces as a constitutively double object, what I will now introduce is more than a double object. It is a plural one. Pure imaginative proliferation. This object is the ring light, currently used for applying make-up or vlogging.

The ring light is a circular light equipped with a stand for support and positioning purposes, and a smartphone holder, which allows the latter to be used as a mirror (e.g., when applying make-up), for selfies, or for video footage to then upload to the web or

on social media channels. The LED light circle allows you to quickly adjust the lighting conditions of your face or body and look your best, in relation to your needs.

I deliberately mention *the* ring light in its generality and not a specific model, since it is one of those objects invented from prefabricated elements, without any claim of being interesting from a traditional design aesthetics perspective. If you will, it is a typical example of an anonymous design, like a clothes peg. Even if we have to consider it as deriving from make-up mirrors found in the dressing rooms of actors, it nevertheless has the dignity of a typological innovation, to the point of constituting a stabilized form, confirmed by its resilience to the proliferation of variants.

Since I have to talk about a specific model, I chose the Makeup & Vlogging Ring Light (manufactured by Rio), because of all its components – the tripod, circular light, and smartphone holder – are easily decipherable (Fig. 1e).

A ring light, as a purely functional and poorly designed object, should make itself invisible in use, and escape any possibility of being read in 'aesthetic' terms. And yet, as far as this object is concerned, aesthetics, ousted from one door, comes back through another, in a threefold sense.

First of all, its intended use is vlogging that, nowadays, is the most widespread practice of visual self-reproduction for all purposes, or for no purpose at all.

Secondly, by allowing a first level of image optimisation, this object puts aesthetics into play, diabolically questioning its tradition.

It is not, in fact, a 'beautiful' object, in the ancient Greek sense, which reverberates in our tradition, what 'most outshines' (*ekphanestaton*), but makes something else shine in a literal and spectacular manner. For some of these ring lights in online advertisements, images can be found that illustrate the classic comparison between 'before' and 'after' (the effect before and after switching on the light), typical of advertisements for slimming products and programmes or cosmetic surgery. As Andrea Mecacci [9] well demonstrated, this is a type of experience with which, after Pop Art, one must also deal from a theoretical perspective: the aesthetics of make-up. An unspecified direction of 'ameliorability' to which all forms can be subjected through some kind of treatment.

Finally, precisely because we are mirrored in it, we cannot but perceive a form in the overall aggregate, which has a chance of asserting itself as such. After all, it is an object destined for a generation that immediately began to speak not *through* smartphones, but *with* smartphones. And this assertion of itself as a form occurs on the basis of the simplest of expedients: anthropomorphism. The circular light at the top is roughly at the height of a human being's head. It is indeed a lamp, but also a motif, a silhouette. Something resembling a facial expression seems able to be readable in the smartphone holder.

Therefore, the selfie ring light in its generality proves to be a complex 'aesthetic' object. It involves the dimensions of what is useful and what is beautiful, only to misrepresent or perhaps reconfigure them in the activation of a multiple spatiality that forces continuous inversions between inside and outside; decentralised gazes and movements that have extremely interesting aspects.

It is evident that the perspective unbarred by these broadened analyses is different than that which can be delineated on the basis of classifications through production (art/craft/industrial design), or even of the more functional four dimensions introduced

by De Fusco [3] in the historical-critical interpretation of design (project, production, sale, consumption).

As mentioned in the beginning, I believe that this different perspective, rather than being guided by various categories, forces a different set of questions the object needs to be asked. The intention is to go beyond the very question of the essence (which answers the direct questions: 'what is it?', 'what does it express?') and of the process (which answers the 'how?'), in order to introduce indirect complements and the relationship between human beings that presupposes circumstances and other presences ('to whom?', 'to what?'). To whom does it speak? To what does it respond? To what world of relations does it (cor)respond? And it is, above all, fundamental to have a shift towards questions that require spatial determination, towards questions that imply 'where?'.

Where is it moving? Where does its movement take us? Where do we position ourselves in relation to it? Where does a space open up between object and user and between users (uniting and separating them at the same time)? Where in the object does the interplay of support and surface of contact give rise to a difference? Where does a difference hinge itself plastically?

The answers to these questions that we can derive from objects allow us to go beyond traditional pairs of concepts, such as 'form/function', and use terms that are more general and, at the same time, more meaningful on a plastic and, therefore, existential level. *Movement*: distinguishing between self-centred centripetal movements (Cradle of the King of Rome), centrifugal + heterocentred centripetal movements (kylix), self-centred centrifugal (cardboard cot), heterocentred centrifugal (ring light). *Direction of gaze*: towards the object itself (Cradle of the King of Rome) or towards the environment (cardboard cot), while the kylix establishes a different and multi-directional game of gazes, and the ring light disappears from *the* gaze the moment it is turned on and diverts gazes towards the subject.

However, the most decisive question is where a difference hinges itself plastically. The hinge point is where the object is introduced into the world and the world becomes visible through the object. In industrial design, this function is often performed by the joint (as we learned from Enzo Mari); in art, by some element of/on the threshold. Nevertheless, it is precisely this element that determines the true character of the object, its uniqueness as a plastic device (of whatever nature). Through the enucleation of this element, a political theory of the object can also offer a perspective on the need for a political theory of the mere image or of the iconic act.

Let us consider the hinge points of our four objects. In the Cradle of the King of Rome, it is clear that the figure of the eaglet is the real hinge: the directrices of all its relationships pass through its body and in the vivid ambiguity of its movement. On the other hand, an environment in which peers converge, exchange glances, and recognize each other emanate from the curved outer surface of the 'large-eyed' kylix. It is here where the world hinges onto. Instead, the hinge elements for the cardboard box are the two holes that allow hands to grip it securely and carry it, the 'windows' that open to the outside and, at the same time, reveal the double character of the object. Finally, in the ring light, the complex interplay of spaces becomes hinged on an inner distance, in the space between the ring of light and the smartphone holder. This interstitial space is the

junction of all the passages between inside and outside, between leaving and entering the scene, of the clashing between the three planes of the aesthetic we examined.

In my 2018 book [4], I attempted to analyse art as a differential unit. In this paper, I tried to put forward the object of applied art, or object produced according to the processes of industrial design, as a methodological tool for an analysis of the hinging of the *difference*. The reason for this choice today is simple: the applied art object or design object is born as a conflictual object from its origins, and the conflict it reproduces is immediately visible to all. As an even more explicit and extreme differential unit, it becomes a way of reflecting on the open problems, not only of its history and theory, but of those of art itself.

But beware. Let us not abandon the leading idea that industrial design and art must always be reinterpreted together. Indeed, if design is not confronted with the system of excess we derive from art in a theoretical-political perspective, we will never, to paraphrase Mitchell [10], have any idea of what objects, even the most seemingly insignificant ones, really want.

References

1. Arendt, H.: The Human Condition. The University of Chicago Press, Chicago (1958)
2. Bredekamp, H.: Theorie des Bildakts. Suhrkamp Verlag, Berlin (2010)
3. De Fusco, R.: Storia del design. Laterza, Bari (1985)
4. Fransoni, A.: Teoria politica dell'arte. Orthotes, Napoli-Salerno (2018)
5. Franzoni, C.: Tirannia dello sguardo. Einaudi, Torino (2006)
6. Koivu, A., et al.: The Baby Box. Kela Research, Helsinki (2020)
7. Lee, H.: Why Finnish babies sleep in cardboard boxes. BBC News, 4 June 2013. https://www.bbc.com/news/magazine-22751415. Last accessed 30 Sep 2022
8. Lisi, P.L.: The Emergence of Life. Cambridge University Press, Cambridge (2006)
9. Mecacci, A.: Dopo Warhol. Donzelli, Roma (2017)
10. Mitchell, W.J.T.: What do Pictures 'Really' Want? October 77 (Summer), 71–82 (1996)
11. Munari, B.: Artista e designer. Laterza, Bari (1971)
12. Pinotti, A., Somaini, A.: Cultura visuale. Einaudi, Torino (2016)
13. Ventura, G.: 'Ceci n'est pas un Berceau': The Majestic Cradle of Napoleon's Son. J. Des. Hist. **32**(4), 323–339 (2019)
14. Walker, J., Chaplin, S.: Visual Culture. Manchester University Press, Manchester (1997)

OBJECTS. Philosophy and Representation

Everyday Design: The Aesthetic Dimension of Alternative Use

Monika Favara-Kurkowski(✉)

Faculty of Philosophy, University of Warsaw, Warszawa, Poland
m.favara@uw.edu.pl

Abstract. The Functional Account of Design Aesthetic Appreciation (FADAA), a recent position on design in analytic aesthetics, attempts to establish a *sui generis* aesthetic theory of design that is somehow distinct from that of the fine arts. This account recognizes that, in evaluating the aesthetic dimension of design, not only form but also function and use are critical variables. However, FAADA has yet to question the status of being a user—usership—as well as the aesthetic strategies we use in our everyday interactions with designed objects.

I will look into the possibility of broadening the FADAA debate on design appreciation by (1) acknowledging the role of the perceiving subject in interacting with design objects and (2) including instances of alternative use as possible critical use practices without diminishing the aesthetic significance of function. To this end, I will introduce the concept of "everyday design," which refers to an interpretative act by the user that generates an excess of function in relation to the context of use and the user itself.

Keywords: Aesthetics of Design · Everyday Design · Everyday Aesthetics · Usership · Overstanding

1 Introduction

There are two main approaches to the aesthetics of design in contemporary philosophy. Within one approach, design objects are studied primarily as "things," affective objects [1–4]. According to this paradigm, artworks are "things" *par excellence* because they can suspend a deterministic view of reality. Therefore, as our knowledge of design objects is promoted by their functional dimension, they usually occupy a subordinate position in these aesthetic theories,[1] and their aesthetic dimension is often reduced to mere appearance. I call this approach "the traditionalist account of the aesthetics of design."

The alternative approach does not discern the functional dimension of design objects from their aesthetics. What we might call the "Functional Account of Design Aesthetic Appreciation" (FADAA), a recent position on design in analytic aesthetics, supports this

[1] The interpretation that Martin Heidegger [5] offered of Van Gogh's "A Pair of Shoes" is a widely known example of this approach.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 139–146, 2024.
https://doi.org/10.1007/978-3-031-49811-4_13

viewpoint for establishing a *sui generis* aesthetic theory of design, somehow independent from that of the fine arts.

The first part of the paper will be devoted to an introduction to this account, which encompasses the views of a number of scholars, including Jane Forsey [6] and Glenn Parsons [7]. I will focus on elucidating the role that the notion of "function" plays within FADAA and presenting what I believe to be the limit of rigidly applying this notion.

In the second part, I will investigate the possibility of broadening the FADAA debate on design appreciation by (1) recognizing the role of the perceiving subject in the interaction with design objects and (2) including instances of alternative use as possible critical use practices, without lessening the aesthetic significance of function. To this end, I shall introduce the concept of "everyday design." In addition, I will answer potential objections FADAA's scholars may have.

2 Functional Accounts of Design Aesthetic Appreciation

2.1 An Alternative Paradigm

I label Functional Accounts of Design Aesthetic Appreciation (FADAA) all those philosophical accounts that focus on proposing an alternative paradigm of design appreciation to the one advocated by the traditionalist and art-centered approaches in aesthetics.

The traditionalist approaches primarily concern the historical genesis and critique of design forms and styles [1–4]. Even though it encompasses a wide range of perspectives, we can identify fundamental ideas that characterize this approach. One is to regard the beauty of design primarily in terms of the formal, surface appearance of things and their symbolic messages, omitting the role of functionality from the equation. This constraint stems from the historical incompatibility of "purpose" with the aesthetic attitude *par excellence*: disinterestedness [8].[2] Another principle that guides the traditionalist approach is to analyze design artifacts by following the progression of art movements and their historical role in shaping cultural imagery. Because of these parallels, design is frequently regarded as less aesthetically profound than the great arts.

On the contrary, FADAA recognizes the importance of active engagement with design objects and highlights their practical function as aesthetically relevant to our assessments of design objects in particular. Therefore, these accounts suggest the inclusion of the notion of "function" as a guiding principle for approaching design in aesthetics rather than interpreting the symbolic meaning of artifacts. This inclusion allows FADAA theorists to assert that design presents new challenges and research areas for philosophical aesthetics, which traditionalist theorists had previously disregarded. For example, the inclusion of the ideas of "function" and "use" implies that FADAA contextualizes the primary aesthetic experience of design in everyday life rather than in the territories of the art world, like, for example, exhibitions in museums and galleries, and that "the theory of design […] provides a model for a rich aesthetics of the everyday" [6, 7].

Several scholars can be mentioned to capture the essence of this account [9–11]; however, I will primarily refer to Jane Forsey [6] and Glenn Parsons [7]. Their proposals

[2] The concept of "aesthetic disinterest," which Immanuel Kant refers to as "The First Moment of Judgment of Taste," corresponds to the appreciation of the object for its own sake [8, 43–52].

are similar in the effort to establish the importance of the functional aspect of design for its aesthetic evaluation.

2.2 The Role that the Notion of "Function" Plays within FADAA

The widely held understanding of aesthetic appreciation of design objects among FADAA scholars presupposes that we first recognize the object of our appreciation *as design*. This recognition corresponds to acknowledging the purpose of an object, which, for example, in the case of a chair, is that of sitting. In other words, to assert that a chair is beautiful, we must first acknowledge that it is a chair by recognizing it is an object for sitting and using it for that purpose, that is, having direct experience of the object through use.

Structuring the understanding of the mode of appreciation of design objects on the acknowledged function grants several things: first, that we do not separate objects from their practical dimension, second that the object is appreciated for what it is, and third, it allows us to make comparative evaluations of objects of the same kind. Therefore, the role that the notion of "acknowledged purpose" assumes in FADAA is that of a criterion for identifying and classifying objects.

Characterizing design objects in this way allows us to speak about a *sui generis* aesthetic theory of design, as opposed to one of the artworks, which are notoriously devoid of practical applications. In this regard, FADAA accounts transcend the limitations of the traditionalist account of design aesthetics.

It should be mentioned, however, that even if FADAA proposals are united on establishing the importance of the functional aspect of design for its aesthetic appraisal, diverse perspectives exist on where the acknowledged purpose originates. The proposals differ in establishing the *locus* of determination of function, which is placed in the designer's intention—intended function [6, 19]—or as belonging to the object itself—proper function [7, 87–88]. However, when we consider the actual variety of viable possibilities, this discrepancy in determining the origin of the object's function is not as pronounced. In a broader context that also considers the user, neither of the two strategies postulates the possibility that the origin of the object's function resides precisely in this subjectivity. We might even claim that FADAA's ontology so far suggests a passive and even absent recipient. To put it differently, appealing to the idea of "acknowledged purpose" opposes identifying an object according to any function for which individual users actually use the object.

2.3 From Acknowledged to Prescribed Function

The criticism I make towards the above approach is related to the fact that, even if the requirement of determining design only through the acknowledged function is in place to ensure that our theory is *sui generis* for design, it nonetheless contradicts the effort to transcend the traditionalist approach.

I claim that the idea of "acknowledged function" implies there is a "correct" function we ought to respond to aesthetically. In this sense, the function that identifies the object also serves as a prescription for the user. In other words, the additional role that the notion of "function" plays within FADAA is to prescribe a correct way of use and opposes

identifying an object according to the function for which individual users actually use the object.

As a consequence, by denying that the function is every-time enacted by the user, the FADAA strategy is incapable of formulating an aesthetic subjectivity of users that is in stark contrast with that of art's spectators postulated by the traditionalists. Therefore, the meta-theoretical remark on FADAA I am proposing is that, in their attempt to establish an aesthetics specific to design, they deploy a traditionalist account of authorship taken from the fine arts and imply a passive recipient (*a la* spectator). Both factors render such theories potentially unsuitable and obsolete for contemporary design research and practice, which are shifting toward a more inclusive and socially oriented practice [12–15].

One way out of this impasse is to refer to the clause proposed by FADAA concerning the context of appreciation of design: the everyday. To take this clause seriously implies considering the fact that in everyday life, we do not always use objects for their prescribed function alone and that we may appreciate them for precisely that reason. For example, we might consider a chair more beautiful than another one precisely because it affords us alternative uses. FADAA accounts, on the other hand, acknowledge only the prescribed function as relevant in the aesthetics of design,[3] renouncing the fact that the quotidian aesthetic appreciation of design objects can also derive from the misuse of objects.

Thus, we can assert that the notion of "prescribed function" in FADAA limits the scope of the aesthetics of design; on the one hand, it neglects salient moments of daily life, and on the other hand, it admits that everyday life is structured around a series of rigid behavioral guidelines. This perspective is consistent with the traditionalist belief that there is a correct manner to appreciate art, as well as a correct interpretation of meaning, etc.

3 Appreciating Everyday Design

There is no denying that a series of shared rules govern everyday life: for example, there are "tacit" social restrictions that shape our behavior, and objects come with institutionalized expectations; for example, the table comes with the expectation that one should not eat from the floor and the spoon with an expectation that one should not sup directly from the bowl [16, 50] [17, 62].

However, compliance with these rules is not mandatory. As for our relationship with everyday objects, we do not constantly interact with them as indicated by their prescribed function. On the contrary, we often use existing products for new purposes without necessarily transfiguring their identity and regressing into kitsch.

Within design research, this phenomenon is called "everyday design," which Ron Wakkary and Leah Maestri define as "a resourceful appropriation of artifacts [...] through design-in-use that allows emergent properties to arise and addresses individual needs" [13]. This phenomenon also captures the post-phenomenological idea that, if we take the user's perspective, "designer intent may be subverted" [18, 53].

[3] For example Forsey claims that "The functional quality of designed objects lies in their being meant *to be used in a given way*, and this use is part of what it means to be that thing in the first place" [6, 31] (italics mine).

As we have seen previously, the concept of "prescribed function" might imply an intentionalist account of design objects' interpretation. Similarly to intentionalist theories of literary interpretation, which hold that the meaning of a text is determined by the author's intentions rather than the reader, appealing to the idea of the prescribed function in FADAA implies that the contribution of the user is merely reproductive as the design object is conceived as a self-sufficient whole. In this situation, we might refer to the "designer fallacy," which Don Ihde defines as.

> the notion that a designer can design into a technology its purposes and uses. In turn, this fallacy implies some degree of material neutrality or plasticity in the object, over which the designer has control. In short, the designer fallacy is 'deistic' in its 18th century sense, that the designer-god, working with plastic material, creates a machine or artifact which seems 'intelligent' by design – and performs in its designed way. [18, 51]

Appealing to the designer fallacy does not negate the idea of the "prescribed function," which now shifted away from the designer and is still detectable on the grounds of established formal conventions and archetypes. However, in the last instance, it depends mainly on the user's decision to acknowledge or see it. Again, I can use a chair as a step stool just because the object lends itself to different usages. Sometimes, I may even intentionally act against the designer's intentions like a Derridian bricoleur. So, appealing to the designer fallacy does not entirely rule out the possibility of referring to something comparable to the designer's plan of use; rather, it serves to show how "designer intent may be subverted, become a minor use, or not result in uses in line with intended ends at all" [18, 53]. In other words, the design object acquires its meaning, so to speak, throughout its relationalities, and it does not univocally prescribe its own function.

To add a final point, we can say that for an aesthetic theory of design integrated into everyday life, the considerations we have just made make employing the notion of an empirical designer's intention unproductive.

3.1 Possible Objections

FADAA accounts may, however, have an objection since they stress that we appreciate design *as design* when our formal assessment concurs with considerations on prescribed functionality, which is the general principle to justify the particular aesthetic dimension of design, such that it is also more complex than judgments based solely on form.

By suggesting to consider also alternative uses, supporters of FADAA might object that, in these cases, we do not appreciate these objects *as* design objects because we are not identifying them correctly.

However, what some FADAA scholars actually object to the examples of everyday design is the secondary role the designer and his or her art assume, not that they break a constitutive rule of aesthetic appreciation. Indeed, appreciating design objects in everyday design mode still retains the notion of "prescribed function," allowing us to identify objects, talk about them, and utter comprehensible judgments. For example, I can say, "This chair is beautiful because I can use it also as a step stool." So, we still appreciate

the object for what it is—a chair—but we also add to the appreciation of this object that they afford more than their prescribed function admits.

By deploying the idea of "everyday design," I, therefore, suggest expanding the philosophical reflection on the aesthetic dimension of design objects to include this phenomenon as one of the modes of interaction with design objects in actual use, but, most importantly, as part of the set of our typical mundane activities.

This addition would expand the range of aesthetically rewarding experiences of design objects, in this case, based on the user's own creativity rather than that of the designer.

This distinction requires elucidation by noting two aspects of the phenomena of everyday design. First, it poses a different philosophical question about the design object's identity than the problem posed by multifunctional objects, like the sofa bed discussed by Rafael De Clercq [9]. Everyday design does not relate to the enjoyment of objects with acknowledged multi-purposes but to a mode of production of functional meaning by the user who ascribes to the object an additional identity.

Second, everyday design is not an artistic reflection on form, function, or even design itself but a pragmatic activity governed by the users' unique circumstances of use.

However, these cases—multifunctional objects and artistic designs—tell us something about the relationship between professional design and everyday design: everyday design is also a tool deployed by expert designers themselves. The *Coat Check Chair,* designed by Joey Zeledón,[4] an example of artistic design, is just one of many design objects which result from the reflection on the possibility of appropriating objects for different uses and challenges the cultural framework with which one attempts to identify the function of a hanger.

I am not claiming that users and expert designers should be put on the same plane. Expert designers have the ability and independence to criticize and assess the inadequacies of established design practices and envision new alternative modes of designing in ways not available to everyday designers.

3.2 A New Framework for the Aesthetics of Design

I have shown that our use relationship—usership—with design objects may exceed the prescribed function, and we cannot deny that we aesthetically appreciate these moments of use that go beyond the acknowledged identity of the object.

By carrying on the parallel started by Ihde between literature and design, I suggest borrowing Wayne C. Booth's term "overstanding"[5] [20, 21] to describe the interpretative act that generates an excess of function in relation to the context of use and the user itself. We can therefore postulate that in everyday life, we "overstand" objects "in terms of the possible range of uses fantasized or actualized" [18, 58].

[4] To view photos of this product, please visit [19].

[5] In contrast to the widely criticized concept of "overinterpretation" of literary text [22], Booth proposes the concept of "overstanding" to describe the reader's act of asking questions to the text in relation to other texts and practices [20, 21].

4 Conclusion

Aesthetic theories that encourage a functional perspective on design to comprehend its aesthetic dimension (FADAA) move away from a traditionalist model of aesthetics. However, by suggesting identifying design *as design* holding to the idea of "an *acknowledged* function" (intended by a designer or essential to the object), they deploy the notion of "function" too rigidly and reveal a type of experiential subject—user—that is still dependent on the authorial identity of the objects, as advocated by the more traditionalist approaches they seek to overcome.

By incorporating instances of alternative use, that is, uses not determined by the design object's acknowledged function, I suggest extending the scope of FADAA's theoretical project. To this end, I introduced the concept of "everyday design," which also raises a question that may be crucial in the philosophical debate on design: what role does the user play in the development of knowledge in material culture?

Including everyday design among typical mundane activities implies that a philosophical reflection on the aesthetic dimension of design significantly shifts the focus on usership, that is, the status of being a user, rather than other aesthetic modes of access, for example, spectatorship or disinterestedness.

Second, because everyday design is a *modus operandi* in which the user and the circumstances determine the use of design objects, in addition to the acknowledged purpose, it challenges the way users are expected to use products by undermining the function they ought to aesthetically respond to. Hence, the idea of "everyday design" becomes a valuable tool for identifying emancipatory traits in the way people interact with design objects.

Consequently, to include a theoretical analysis of the appreciation of user-created alternative functions, the user gains the role of a semantic agent, not merely an interpreter of prescribed functions but a generator of accidental functions which are aesthetically meaningful. This supports the idea, often ignored in the philosophical debate over design's aesthetics, that the user is someone who hacks into knowledge production, highlighting that this is not a privilege pertaining only to professional designers.

The functional account of design aesthetic appreciation has the potential to make apparent all of these issues due to the recognition that not only form but also function and use are critical variables in evaluating the aesthetic dimension of design. However, FAADA has yet to question the status of being a user—usership—and the actual aesthetic strategies that we, as users, deploy in our everyday engagement with designed objects.

Finally, by taking the perspective of the user, which already FADAA's focus on function suggests, and the phenomenon of everyday design emphasizes significantly more, we are encouraged to see professional design as a creative process aiming at creating an engaging experience of use rather than just the production of finished products to be merely appreciated for their formal values.

References

1. Francalanci, E.L.: Estetica degli Oggetti. Il Mulino, Bologna (2006)
2. Sudjic, D.: The Language of Things. W. W. Norton & Company, New York (2009)

3. Vitta, M.: Il Progetto della Bellezza. Einaudi, Torino (2011)
4. Bodei, R., Baca, M.: The Life of Things, the Love of Things. Fordham University Press (2015). https://doi.org/10.5422/fordham/9780823264421.001.0001
5. Heidegger, M., Hofstadter, A.: The origin of the work of Art. In: Poetry, language, thought. Harper Perennial, New York (2001)
6. Forsey, J.: The Aesthetics of Design. Oxford University Press, Oxford (2013)
7. Parsons, G.: The Philosophy of Design. Polity Press, Cambridge (2016)
8. Kant, I., Pluhar, W.S.: Critique of judgment. Indianapolis: Hackett Pub. Co (1987)
9. De Clercq, R.: The aesthetic peculiarity of multifunctional artefacts. Br. J. Aesthetics **45**(4), 412–425 (2005). https://doi.org/10.1093/aesthj/ayi051
10. Parsons, G., Carlson, A.: Functional Beauty. Oxford University Press, New York (2008)
11. Feige, D.M.: Design. Eine philosophische Analyse. Suhrkamp, Berlin (2018)
12. Fry, T.: A new design philosophy: an introduction to defuturing. UNSW Press, Sydney 1997 o 1999? CONTROLLARE DATA (1997)
13. Wakkary, R., Maestri, L.: The resourcefulness of everyday design. In: C&C'07: Proceedings of the 6th ACM SIGCHI conference on Creativity & cognition, June 2007, pp. 163–172 (2007). https://doi.org/10.1145/1254960.1254984
14. Dixon, B.S.: Dewey and Design: A Pragmatist Perspective for Design Research. Springer, Cham (2020)
15. Tassinari, V., et al.: Designing in Dark Times: An Arendtian Lexicon. Bloomsbury Visual Arts, London, New York (2021)
16. Flusser, V.: On the word design: an etymological essay. Des. Issues **11**(3), 50–53 (1995)
17. Ingold, T.: The sighted watchmaker. In: Making. Anthropology, Archeology, Art, and Architecture, pp. 61–74. Routledge, New York (2013)
18. Ihde, D.: The Designer Fallacy and Technological Imagination. In: Dakers, J.R. (ed.) Defining Technological Literacy, pp. 121–131. Palgrave Macmillan US, New York (2006). https://doi.org/10.1057/9781403983053_9
19. Zeledón Design Website. https://www.joeyzeledon.com/coat-check-chair. Last accessed 29 Sep 2022
20. Booth, W.: Literary Understanding: The Power and Limits of Pluralism. University of Chicago Press, Chicago (1979)
21. Culler, J.: In defense of overinterpretation. In: Interpretation and Overinterpretation, pp. 109–123. Cambridge University Press, Cambridge (1992)
22. Eco, U.: Overinterpreting texts. In: Interpretation and Overinterpretation, pp. 45–66. Cambridge University Press, Cambridge (1992)

Digital Objects' Aesthetic Features. Virtuality and Fluid Materiality in the Aesthetic Education

Lorenzo Manera(✉)

University of Modena and Reggio Emilia, Modena, Italy
lorenzo.manera@unimore.it

Abstract. The growing and ubiquitous presence of digital objects raises issues of interest from the points of view of both Aesthetics and interaction design. In fact, such issues concern the perceptual dimension that defines our relationship with digital objects, the reconfiguration of the sensitive experience that their development implies, their hybrid ontological status, and their possible role in developing innovative forms of aesthetic education combined with design thinking.

In the contemporary debate, digital objects are intended – on the one hand – as designed objects that incorporate and employ digital technologies [1–3].

On the other hand, they are interpreted as virtual bodies, interactive digital images that become a phenomenon of the binary representation of an algorithm which interacts with a user [4]. Within the former perspectives, digital objects display a quality that broadly belongs to technical devices, meaning their openness to forms of interactivity, and their sensitivity to contingency. In the latter, the features of intermediacy and virtuality are considered the defining characteristics of digital objects. The growing complexity of digital objects is, in fact, re-defining the relationship between materiality and distance, provenance and pertinence, suggesting an interactive conception of agency that allows forms of aesthetic experience in which imagination, sensibility and intuitions can be displayed within relational structures. By showing the results of a research project focused on digital materials and their transformation, which involved children aged 8 to 11 years old, this contribution aims to discuss the possible role that such objects can play in developing new forms of aesthetic education.

Keyword: Digital technologies · Aesthetic education · Digital objects · Reggio Emilia Approach

1 Digital Objects and Virtual Bodies

1.1 A Wide Variety of Materiality

Digital technology has significantly altered society, media, design and, overall, the perceptive experience during the past decades. Due to the pervasiveness of digital technology and the ongoing digitalization of current cultural products and services, the emergence of digital objects establishes novel and interactive relationships between devices and subjects.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 147–155, 2024.
https://doi.org/10.1007/978-3-031-49811-4_14

The growing and ubiquitous presence of digital objects raised issues of interest from the points of view of aesthetics and design [5]. In fact, such issues concern the perceptual dimension that define our relationship with digital objects and the reconfiguration of the sensitive experience that their development implies. On the one hand, Nygaard Folkmann's perspective [6] aims to inscribe the aesthetic of digital objects within a post-material perspective[1]. With post-materiality, the author does not imply that the digital objects tend to abandon materiality in order to become dematerialized. Instead, such a perspective regards the possibility of considering material objects as points of interaction with the options provided by digital technology within a continuous transgression of their material boundaries (Figs. 1, 2, 3 and 4).

Fig. 1. A figure of the object that the group of children drew an and then realized with the technique of clay.

In this perspective, digital objects can be intended "as designed objects that incorporate and employ digital technologies, the virtual objects and the related concept of digital materiality designed objects that incorporate and employ digital technology, regardless of their origin as either born digital objects or digitized objects" [6, p. 4]. The fact that digital artefacts can take on a wide variety of materialities, such as digitalized analogue media, digital re-production of physical objects, interactive images, and virtual

[1] In "The Aesthetics of Imagination in Design" [7], Folkman focused on the notions of "possible, imagination and aesthetics", and proposed to intend design as a medium capable of triggering imaginative processes that evoke possibly concretize new possibilities.

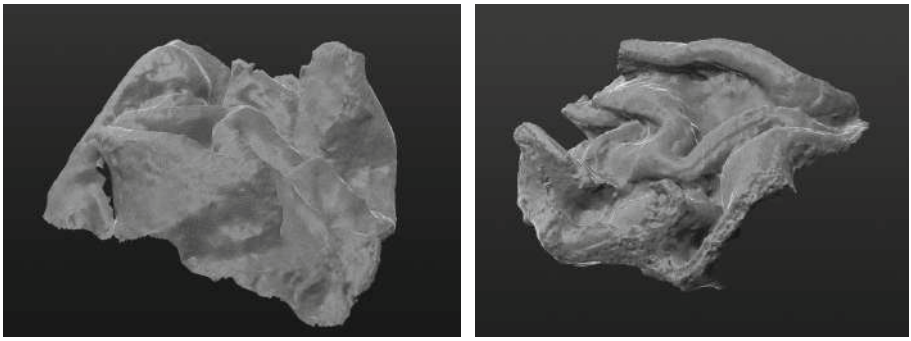

Fig. 2. Metal mesh was used to re-think the same object with another material, then scanned.

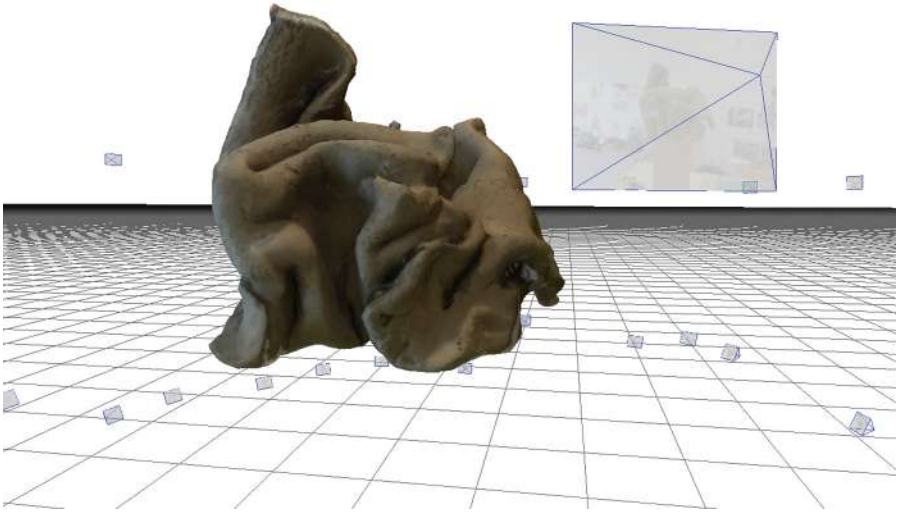

Fig. 3. Result of the scanning and further transformation process realized with the digital modelling software.

environment, defines new forms of "fluid materiality" [8]. The concept refers to the process of translating things into different material states and forms that others can expand [9]. When allowing a significant degree of interactivity, digital technologies can define conditions of aesthetic experience in which imagination, sensibility and intuitions are displayed within relational structures. This aspect has been addressed by the Italian philosopher Roberto Diodato, who recently developed and discussed the notion of the virtual body:

"With the expression 'virtual body,' we can refer to an interactive digital image, which is, therefore, a body–image: an image perceivable as such not only by sight, i.e., the phenomenalisation of an algorithm in binary format in the interaction with a user.

Fig. 4. Result of the 3d printing process and comparison with the original object realized by the children with clay.

Digital images are all those objects–environments with which a user can interact through biorobotic prostheses capable of producing 'immersive' experiences" [10].

According to the author, the expression 'virtual body' can refer to an interactive digital image which is, therefore, a body–image: an image perceivable as such not only by sight, i.e., the phenomenalisation of an algorithm in binary format in the interaction with a user. Digital images are all those objects–environments a user can interact with through "biorobotic prostheses capable of producing 'immersive' experiences" [8, p. 1]. Discussing the concept of virtuality in the paper, the author further argued that, to contextualize the syntagma "virtual reality", it is necessary to avoid attributing the word "real" to an extension that makes it correspond with "entities". In everyday speech and philosophical discourse, we distinguish between what is real and what is apparent or illusory. Real would thus be what people "normally" perceive in the awake state, which is how we can tell reality from "virtual" reality. The author argues that it is possible to consider presence in virtual environments as an illusion of non-mediation (a perceptual illusion of non-mediation), and, in correlation to this, to understand non-mediation as revealing the degree of presence. In fact, when disclosing margins of indeterminability and a significant degree of interactivity, the virtual devices can foster the creative and imaginative features in a relational environment. In this theoretical perspective, the concept of relation characterizes a constitutive category of an epistemological and ontological field. To define the concept of system and relation, Diodato [4] refers to Ludwig von Bertalanffy's "General System Theory", where the latter stated that "A system can be defined as a complex of interacting elements. Interaction means that elements, p, stand

in relations, R, so that the behavior of an element in R is different from its behavior in another relation, R" [11, p. 55].

Commenting on this quote, the Italian philosopher wrote that Bertalanffy's definition accounts for the axiom that the whole is more than the sum of its parts. According to a such axiom, on the one hand, the so-called parts cannot be explained, or, more precisely, their behaviours cannot be explained in terms of their properties, in terms of what they are taken to be in themselves as if they could be isolated from the whole of which they are parts. On the other hand – when juxtaposed to those of the individual pieces – the characteristics, properties, and behaviours of the whole or "complex" appear to be "developing" or "new." Therefore, the Austrian biologist considered a system as the sum of components with its interrelations has to be conceived of as being constructed immediately, meaning without an intermediary. A system is fundamentally complicated in and of itself. Therefore, according to the Italian philosopher, it is necessary to investigate the nature of the "complex" and of its composition, specifically how the latter can be said to be, chronologically and by nature, prior to the "parts" or "elements" of the complex and in what sense the interactions are institutionalizing the parts and the relations constituting the elements.

2 The Issue of Immateriality and New Forms of Aesthetic Education

2.1 From the "Systems Esthetic" to the Aesthetics of Communication

Bertalanffy's systemic perspective was decisive as well in defining Jack Burnham's reflection on the concept of "Systems esthetic". In 1968, the Journal Artforum published an essay written by Burnham, titled "Systems esthetic" [12], where he stated that a polarity was developing between the finite, unique work of high art, such as the painting or sculpture and the conceptions which can loosely be termed "unobjects".

With the term "unobject", he referred to environments or artifacts that resisted prevailing critical analysis, such as outdoor works, gallery kinetic and luminous art, mixed media, presentations and happenings. The "unobjects" should not be mistaken for abstract and non-objective art, as the evolving "Systems aesthetic" was related to a process of transition from an object-oriented culture to a systems-oriented one, where the change did not emerge from things, but from the process of their creation. Against the fetishism for craftmanship, Burnham argued that the systems aesthetics, by striving to reduce the technical distance between the society's productive means and the artistic output, did deal with the issue of boundary concepts in a revolutionary fashion, since it is limited by conceptual focus rather than material ones.

Burnham's view was based on the idea that the artist is a perspectivist who, while assessing systems, considers the system's objectives, constraints, structure, input, output, and associated activities both inside and outside the system. Furthermore, in his view, whereas the structure and limits of an item are often stable, a system's consistency can change across time and place, with its behavior being influenced by internal and external factors: "by the fact that most systems move or are in some way dynamic, kinetic art should be one of the more radical alternatives to the prevailing formalist esthetic" [12,

p. 33]. In 1970, Burnham curated for the New York Jewish Museum the exhibition "Software. Information Technology: Its New Meaning for Art" and attempted to draw comparisons between projects using technology for information transmission and those that employed language as material. In the catalogue introduction, the curator wrote that the exhibition was aimed at providing "the mean by which the public can personally respond to programmatic situations structured by artists" [13, p. 71].

The capacity of artists to conceptually connect the scientific field of cybernetics with the aesthetic discourses was crucial to apply the cybernetic science to artistic problems. In fact, several artists used cybernetics as a model for aesthetic investigation and as a paradigm for redefining the idea of art itself by drawing metaphorical connections between the two fields of study. Such perspective emphasized the artistic process, as opposed to the product, and highlighted the environment or context as opposed to conventional subject matter or style, by putting art into motion, using the concept of feedback, and invoking interaction with the viewer, creating a point of intersection between cybernetics, art, and aesthetics.

For example, the new media artist Fred Forest, co-founder of the Art sociologique and of the "Communication Aesthetic Group", was among the first in France to use video and closed-circuit television in his art[2]. In Forest's poetics, the artist should aim at developing an open system that allows the viewers to become co-authors. In his view, the work itself does not exist as a stable representation of reality that the public may view as an aesthetic object (or anti object). Instead, it is an instance of information in flux that briefly arises through direct "immaterial" contact. The issue of immateriality was addressed as well by Mario Costa, the co-founder of the Group for an Aesthetics of Communication. Costa's concept of immateriality [14] consisted in the negation of the difference between a foreground of material nature and a background of spiritual nature in artworks, and took the distance from Lyotard's perspective and his idea of "representing the unrepresentable" through art works. The issue of the immateriality in the aesthetic of communication was in fact addressed as well in the exhibition "Les Immatériaux", curated in 1985 by Jean-François Lyotard, which linked the post-modern condition with the tendency toward dematerialization. Pierre Moeglin [15] criticized the exhibition by stating that the process of dematerialization, rather than through material artworks, would have been better expressed by presenting works that no longer concerned the final product, but rather the process.

The issue of immateriality was tackled as well by the French philosopher Paul Virilio, who argued that technological developments in the fields of transportation and communication had produced a new world where speed was the guiding principle. In an interview published in 1988, Virilio and Foster addressed their approaches to modern communication and aesthetics, and the former stated that the world can no longer be represented through a sculpture, or the fixed image of a painting, and its right representation consists in the speed of the movement, in the juxtaposition of sources of information, the simultaneous heterogeneity of its physical and electronic supports [16].

[2] Martial Raysse produced the first video display in France two years earlier, in 1967.

2.2 Material Engagement Theory and "Digital Materiality"

The idea that the emergence of new technologies can imply a shift from a structured and causal order to a relational one perspective finds a parallel with Montani's interpretation of Malafouris' perspective known as MET – material engagement theory [17]. In this theoretical view, which focuses on the human predisposition for creativity and technological embodiment [18], the design intent is considered as an aspect emerging within a material engagement process which can be applied as well to symbolic practices related to digital objects [19]. The high degree of plasticity that characterizes digital objects constitutes – not despite but on the basis of their virtuality – a material aspect that strongly influences our technical creative attitude, which fully inscribes them in the dialectic of meta-operativity.

The growing complexity of digital objects is in fact re-defining the relationship between materiality and distance, provenance, and pertinence, suggesting an interactive conception of agency, that allows forms of aesthetic experience in which imagination, sensibility and intuitions can be displayed within relational structures.

2.3 From Virtual to Physical Object: Towards New Forms of Aesthetic Education

By defining agency as an interactive process that uncovers the hidden potentials of the world environment, the Material Engagement Theory discloses new insights on the possibility to foster children's sense agency by developing forms of technical creativity and interactive imagination. The Reggio Emilia Approach, by focusing on visual and expressive languages as a means of inquiry regarding the affordances that various materials and technologies express on different representational and symbolic levels, fosters the development of aesthetic education models which promote children's interactive agency and imagination [20].

The possibility of using technology in collaborative settings that foster forms of active participation, acknowledging the different affordances expressed by hybrid objects within relational structures, offers new possibilities for the development of aesthetic experiences that needs to be further designed and developed. The last part of this contribution focuses on a research experience that aimed at exploring such possibilities. The research experience, promoted by the University of Modena and Reggio Emilia and by the Reggio Children Foundation within the framework of a national research program[3], involved two classes attending the fifth year of the primary school. The experience was aimed at the development of innovative forms of aesthetic education that combine design thinking, aesthetics and digital objects.

The group of children involved in the project explored the possible connections between digital and analogue materials by combining, in the atelier of the State Primary School at the Malaguzzi International Centre in Reggio Emilia, both the technique of sculpting clay and a 3D sculpture application, named Sculptris, that offers a variety of digital materials for sculpting and printing the result of the project1 in 3D.

[3] The research project was titled "Cluster – Educating City, with the goal of investigating how digital technologies can support children's learning and creative processes (https://www.frchildren.org/en/research/projects/cluster-educating-city).

They initially drew an object, and then they worked with the technique of clay, which they were investigating at the time.

Then, a metal mesh was used to re-think the same object with another material, each time exploring the different affordances that materials and media can express, the immediate (salient) and hidden (supervenient) emergences that different objects evoke.

The group then scanned the object and moved to digital modelling software. In "sculpt" mode, users are offered the possibility to shape and re-thing an object. The interface of sculprtix is intuitive for children to navigate and offers a rich variety of different modelling functions. The application provides a variety of virtual materials to sculpt, and at any point, users can also send their work to a 3D printer using STL (Standard Triangulation Language) universal format. The digital realm was a resource and a material that enhanced children's play, and their ideas, allowing them to give shape to their project by broadening their range of action and expressive possibilities.

Finally, a 3D printer has been used, transforming the concept of an artefact. The object has been scanned, converted and re-materialized. In this physical and virtual setting, the experience drew on both the digital and non-digital properties of things. It moved fluidly across boundaries, exploring the potentialities that different forms of materiality suggest.

2.4 Conclusions

The processes of remediation allowed today by digital technology resources cause a profound re-negotiation of the sensory experience. In our view, such a re-negotiation process, if characterized by an instance of active articulation, can open relevant and innovative opportunities in the relationship we establish with the world environment through the emergence of enhanced forms of technical creativity. In fact, the heterogeneity of the virtual materials allows interactive procedures of reuse and re-organization according to new rules. The described aspect relates to the possibility of developing connections that arise from different interweaving forms of materiality that sustain a continuous process of remediation and re-interpretation.

Furthermore, the exploration and realization of forms of expressions that link together different forms of materiality can contribute to configure one of the possible developments of aesthetic education in the digital age.

On the one hand, the unprecedentedly combinatorial processes connecting different forms of materiality could allow new forms of intertwining between different channels of expression.

On the other hand, the interactional nature of contemporary digital devices, configured as authentic environments of experience, allows to imaginatively explore the meta-representations that problematize the distinction between real and virtual, therefore sustaining the development of new forms of aesthetic education.

References

1. Bollmer, G.: Theorizing Digital Cultures. Sage, London (2018)

2. Folkmann, M.N.: Conceptualizing aesthetics in design: a phenomenological framework. In: Vermaas, P.E., Vial, S. (eds.) Advancements in the Philosophy of Design. DRF, pp. 263–283. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-73302-9_13
3. Hui, Y.: On the Existence of Digital Objects. University of Minnesota Press, Minneapolis (2016)
4. Diodato, R.: Image, Art and . Towards an Aesthetics of Relation. Springer, Cham (Switzerland) (2021)
5. Redstrom, J., Wiltse, H.: Changing Things: The Future of Objects in a Digital World. Bloomsbury, London (2019)
6. Folkmann, M.N.: Post-material aesthetics: a conceptualization of digital objects. Des. J. **23**(2), 219–237 (2020)
7. Folkmann, M.N.: The Aesthetics of Imagination in Design. MIT Press, Cambridge, Massachusetts (2013)
8. Jagodzinski, J.: A meditation on the post-digital and post-internet condition: screen culture, digitalization, and networked art. In: Post-Digital, Post-Internet Art and Education. The Future is All-Over, pp. 61–80. Springer, Cham (2021)
9. Pink, S., Ardevol, E., Lanzeni, D. (eds.): Digital Materialities, Design and Anthropology. Bloomsbury, London (2016)
10. Diodato, R.: Virtual reality and aesthetic experience. Philosophies **7**(2), 1–8 (2022)
11. Von Bertalanffy, L.: The history and status of general systems theory. Acad. Manag. J. **15**(4), 407–426 (1972). https://doi.org/10.2307/255139
12. Burnham, J.: Systems esthetics. Artforum, 30–35 (1968)
13. Burnham, J.: Notes on art and information processing. In: Software Information Technology: Its New Meaning for Art, New York, Jewish Museu (1970)
14. Costa, M.: Technology, artistic production, and the aesthetics of communication. Leonardo **24**(2), 123–125 (1991)
15. Moeglin, P.: L'esthétique de la communication et la question de la modernité. Plus Moins Zéro **XIII**(43), 47–52 (1985)
16. Malafouris, L.: How Things Shape the Mind: A Theory of Material Engagement. The MIT Press (2013)
17. Forest, F., Virilio, P.: La fin des certitudes. Artpress **122**, 14–16 (1988)
18. Ihde, D., Malafouris, L.: Homo faber revisited: postphenomenology and material engagement theory. Philos. Technol. **32**(2), 195–214 (2019)
19. Montani, P.: Materialità del "virtuale." Amalgama **40**, 11–19 (2020)
20. Manera, L.: Art and aesthetic education in the Reggio Emilia Approach. Education **3–13**, 1–12 (2022)

The Value System of Objects Through the Interpretation of Photographic Language

Paola Proverbio(✉)

Università Cattolica del Sacro, Cuore di Milano, Milan, Italy
paola.proverbio@unicatt.it

Abstract. The design object finds in photographic representation a way - parallel to that of graphics - to the indispensable process of design reading. Photographic research has long been intertwined with the process of cultural qualification of the design object. The project that photography brings to bear on design is a visual narrative which, through an immediately comprehensible language, stands as a true parallel narrative, interrelated, yet not necessarily coinciding altogether with that of the written word. The object begins to circulate through the different channels of communication - from corporate catalogs to advertising pages and magazines - reaching distant people and places, sometimes even before the physical object enters the channels of distribution. This symbiotic relationship means that the object is very often accompanied by a valuable wealth of images, documenting and communicating its value system and its design, production and commercial processes, enriched over time by the shots taken by several 'hands', that is, by different authors who offer the opportunity for a multifaceted reading of the product. This text intends to give an example of the added value that photography represents for design through a series of paradigmatic cases (such as Gio Ponti's Superleggera or Ettore Sottsass's Valentine), which traverse the history of Italian industrial design from its early stage.

Keywords: design photography · designer photographer · cultural values · photographer's creativity · design furniture

"Photography is an act of design. It's a fundamental step in the process of creation in both architecture and design"

Michele De Lucchi

"Italian design has found with photography [...] an alternative way to communicate the results of its research"

Antonio Arcari

The value system by which objects are characterized finds in the representation given by photography an indispensable tool.

In this sense, the analysis of a great master of photography for design (or design photography) such as Aldo Ballo (1928–1994) - the most famous of the Italian photographers who devoted themselves expressly to the photographic interpretation of the object -, takes on paradigmatic value. He argued that photography should be able to

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 156–164, 2024.
https://doi.org/10.1007/978-3-031-49811-4_15

Fig. 1. Mauro Masera, Superleggera by Gio Ponti, Positano, 1961. Iuav University of Venice, Project Archive - Mauro Masera Fund

"go inside objects",[1] in terms of capturing their essence and sublimating their different values.

And it is well known how Aldo Ballo, together with his wife Marirosa Toscani (1931), had an extraordinary ability to use photographs of products to synthesize and convey strictly technical-functional and aesthetic-formal information as well as symbolic and socio-cultural meanings.

As Giuliana Gramigna (1995, pp.65–80) has written, Aldo Ballo's was "a cultural approach to the object […] evident from the earliest experiences of his still-lifes" because "the object was his great passion from the very beginning".

In order to highlight the formal and functional innovation represented by Olivetti's *Lettera 22*, in the early years of their career, Aldo and Marirosa literally invented a "luminous table" on which to place the product so that the light, coming from below, would pass through it, making the detail of the keyboard embedded in the body legible. From then on, the table would have a crucial role in their studio equipment. Light and easy to carry, Lettera 22 fully complied with the main requirements, that is, compactness and size reduced to a minimum: the roller was integrated, with only the knob protruding, and the room taken by the spacing lever was minimal. Lightness and ease of transport were interpreted by the zenith shot which, by deceiving the eye, turned the typewriter into a (nearly) two-dimensional object.

Photographic research, on the other hand, has always been intertwined with the process of cultural qualification of objects, and the same is true for design processes: "photography introduces the thing, showcases it, emphasizes it, glorifies it" (Seelig and Stahel, 2004, p. 6).

Among the qualities of objects restored by photography there is, first of all, the 'formal' one. Here the values of the object are united with those of the photograph

[1] From the conversation with the author, Milan, June 8, 2017.

since photography is a project in itself and therefore in search of an expression, a formal/linguistic value (as the photographer's stylistic signature) that goes with that of the object represented.

Photography is a *distinct* tool from writing, "it becomes the body of writing" (F. Lambert, cited in Fiorani, 2006, p. 162) to narrate the object, that is, the product. In fact, photography is a congenial way both to the process of indispensable design reading of the object (i.e., the product) and to the indispensable corollary of the work done by the designer, as Michele De Lucchi has stated on several occasions[2] "Photography is an act of design. It's a fundamental step in the creation process in both architecture and design" (Balena, 2016, p. 5).

Before him, Antonio Arcari, photography historian and critic, had expressed himself in the same terms: "another moment in the relationship between photography and design should be sought in the contribution that the designer asks of photography in the phase of formal research and throughout general and professional training" (1975, p.6–7).

The relationship between object and photography, then, is the search for a balance between what the object represents and what the photograph, by mirroring it, adds to its status: on the one hand, the photograph is the representation of what the object is. But, on the other hand, the photo constructs the object, designs its image, gives it an identity and becomes an integral part of the making of its history.

1 Functional Values (But Not Only)

In the same 1975 article, Arcari also points out that this kind of photography is distinctly "descriptive, informative, becoming a critical reading of the object". Moreover, Arcari underlines that the photographer ought to have "a particular sensitivity and good knowledge of the historical and cultural course that industrial design has followed from the origins of the industrial revolution to the present day" (pp. 6–7). In the take-off phase of industrial design, the design object needed to be *described* and the public had to be *informed, educated* about the meaning and task of industrial design. In this process, in order to respond to such requirements, photography was "a *docile* [adaptable, AN] working material", still according to Arcari (1975, p. 7).

In the pioneering phase of Italian design in the 1950s, photographs of objects were, in the hands of the most gifted authors, a fascinating narrative of insightful, smart problem solving; they were - precisely as Arcari said - descriptive and informative, at a time in history when it was necessary to make the modernity of products understandable.

In the famous image of the Arco lamp by Giorgio Casali (1913–1995) - another masterful interpreter and leading figure of design photography in Italy, along with the Ballos - the author makes an eloquent synthesis of function and behavior. The set is given by a logical sequence of elements: the lamp that illuminates the table at which a man is seated; behind him, a lady standing under the arch, which clearly suggests the possibility of moving around the table, behind the diners, without the lamp base standing in the way. It is all there! Nothing could be added or taken away from this composition. Perhaps it is no coincidence that this is the most recurring image of the Arco lamp; it somehow represents its "identity card", which has always accompanied it.

[2] Cf. Calvenzi, Gregorietti, 2009, p.214.

The same clarity of intent had already characterized Casali's arrangement of both set and framing for the Superleggera chair: the focus is on the gesture, made by the model, to lift the chair with a single finger by means of a pull scale (which becomes the fulcrum of the composition), a gesture that instantly attracts the viewer's attention and clarifies the main functional requirement of the chair - 'informs', as Arcari says.

Also, a common feature of the two images by Casali is the human presence of models, who are, however, at the 'service' of the object, not stealing the scene from the real protagonist. Gillo Dorfles (1982, p. 536) defined this as "a kind of shooting of the object that makes it a protagonist, in the same way as a human character". And it is to accommodate this need that the photograph of the models is taken from behind: to bring viewers 'into' the scene, to make them participate and direct their attention toward the real protagonist of the shooting.[3]

At the same time, among the objects of Italian design, the Superleggera is the one that best embodies its craft tradition. And if Casali's photograph aimed specifically at describing the chair, a few years later Mauro Masera (1934–1992) drew attention to its cultural value as a refined descendant of the *Chiavarina*, the archetypal chair from the Ligurian farming tradition.

However, the set chosen by Masera (in collaboration with Michele Provinciali) is the evocative landscape of Positano (Fig. 1), not too far from the Sorrento coast, where Ponti himself was about to build the hotel "Parco dei Principi", in which the Superleggera would find a coherent context to fit in.

Returning to the chair's main prerogative, material and visual lightness, graphic designers Giulio Confalonieri and Ilio Negri, acting as photographers in this case, offer a different perspective for the pages of Cassina's catalog in 1959.

Their interest does not lie in the formal description of the object. Their interpretation focuses instead on sublimating the rigor and sobriety of the configuration of the chair. By adopting a graphic play of multiple overlapping horizontal lines and organized light and shadow, as in a symphonic score, they also bring back to memory Ponti's half-black half-white version of the chair.

In this regard, Mario Piazza writes (2013, p. 50):

The cut is widescreen, as in certain Hollywood films. In the vast, unadorned space, shaped by a grazing light, the skeletal lines of the chair stand out in a play of positives and negatives. The atmosphere is theatrical. The point of view, refined and beautifully achieved, draws a line, a horizon, with the different seats. The lightness of the chairs becomes a noble presence. The image communicates an achievement: the subtle stroke of a drawing has been transformed into a mass-produced object. The framing choice is meant to express an idea of change in designing and manufacturing.

The Ballos will later add a final chapter to the tale by employing grazing light to enhance the attention to formal details and material texture of ash and straw.

[3] A solution already adopted for some time in photography of furniture design. One should think of the photos taken at the Bauhaus, or that of Charlotte Perriand, who presented the tilting chaise longue while lying down on it with her face purposely facing the wall (1928).

2 The Photographer's Creativity as Added Value

A further contribution of photography can also come from the creativity of the photographer alone (the added value mentioned at the beginning), making the one taking the photograph the actual inventor of the image of an object in some cases.

When Klaus Zaugg (1937–1994) is entrusted with a photo shoot for Gaetano Pesce's newly born UP series of seats in 1969, the Swiss photographer gives considerable importance to the figure of the woman - as well as in the symbolic intention of Pesce's project - which is always present in the numerous shots he takes. He also decides to project the sessions in an unusual and evocative setting (that of the Verzasca Valley). The result is a true *photo-reportage*, with a series of striking images; the shots do not have a different hierarchical value, but they all express the same disruptive communicative force. Zaugg thus lends a futuristic image to the armchair, in line with the space-age mood of the moment, thanks to the dresses and fluffy white wigs of the numerous models, adding connotations to the project not anticipated by Pesce.

An unexpected result, arising from the creativity of the photographer alone, is the work of Sergio Libis (1930) for the Tizio lamp, designed by Richard Sapper for Artemide.

Sapper always relied on Libis - he considered him his "personal" photographer - to create the photographic image of his designs. Believing that Libis had a particular sensitivity in understanding his objects, Sapper did not give precise directions but left him maximum freedom of interpretation.[4] In the case of the Tizio, it was a matter of describing with a single still life the movement made by the lamp arm. In order to achieve such a result, Libis uses the classic stroboscopic technique in which the background must necessarily be black and the object portrayed (the lamp) white (a color, however, not envisaged by the production up to that time).

The company agreed to make a white prototype, and once a poster with this image was published, it was so successful that Artemide, from then on, also put a white version of the luminaire into production.

3 Narrative, Symbolic and Experiential-Relational Values

It is evident that the project which photography brings to bear on design is an immediately comprehensible visual narrative, standing as a true narrative, parallel yet not always completely coinciding with that of the written word. Photography then becomes an alternative form of "writing" - literally, "body of writing" according to Arcari (1975) - to narrate the object.

As previously underlined (Sapper and Libis), the relationship between designer and photographer can become one of elective affinity, leading in the most harmonious cases to a true co-authorship of the image project. The 30-year intellectual and operational cooperation between Ponti and Casali is a case in point: what was not directly expressed in words by Ponti in his texts became explicit through Casali's eloquent images: Casali was, for Domus, "not so much 'the magazine's photographer' […] but an essential figure in a cultural project where human attributes have as much value as technical skill" (Zancan and Grima, 2013, p. 9).

[4] From the conversation with the author, May 10, 2017, Agazzano (Piacenza).

The 'job' of photography is also to bring to light all the symbolic and emotional content of the object, beyond the narrative that writing entails. In the history of design, it is not unusual that the designer feels the need to narrate and communicate through photography, using this medium as a working tool (Arcari, 1975, p. 7), as an immediate and effective form of expression.

In this respect, too, Ettore Sottsass led the way. For Ettore, as Michele De Lucchi has learned and recalls, being able to photograph was "an indispensable skill," necessary first and foremost to "investigate, deepen, and communicate"; "the object and the photograph he had taken of the object were for him one and the same" (Balena, 2016, pp. 5–6).

This was the case with the *Gray Furniture* of the early 1960s, photographs of which were taken in collaboration with photographer Alberto Fioravanti[5]: "In the photographs I took at Poltronova the idea is that furniture isn't a catalogue of quaint objects placed in the home, but instead the design of a place, of an existential state…" (Balena Arista, 2016, p. 7).

At the same time, Sottsass also worked with Fioravanti at Olivetti. Among various photo shoots, the promotional campaign for Valentine was unique and still presented itself as an opportunity to reiterate the importance of photography in conveying the values and meanings of a product.

In the text published in Notizie Olivetti (June 1969),[6] the strengths of the machine are emphasized:

"A line decidedly different from the traditional line of our other portable typewriters was chosen by the designers. [...] The keyboard stands out clearly from the rest, and this is made even more evident by the juxtaposition of colors - red and black - making the writing instrument an 'object' capable of being noticed, of being used even by a public less professionally motivated towards mechanical writing".

To achieve his goal, Sottsass, who coordinated the promotional campaign in collaboration with graphic designer Roberto Pieraccini, involved other photographers in addition to Fioravanti (including Cesare Colombo) and gave them all two samples of the machine so that they could film them in the most diverse everyday situations in which people might have used it.

"We went and put the Valentine everywhere, in as many places as possible, to see how it behaved and what was going on around it. We then took a lot of pictures. After a little while, we had gathered extensive documentation, a kind of reportage of the journey made among people by an object and not by a person" (Sottsass).[7]

After all, it is known that Sottsass's objects "have never been merely functional in the sense of use or ergonomics, nor even merely decorative. They have always had a strong symbolic charge, dense with meaning: "objects as catalysts of cultural perception" (B. Radice, 1993, pp. 48–50). In the case of Valentine, one can speak of true experiential values, of interaction with a decidedly wide and varied target of users.

---

[5] See G. Castagnola, C. Colombo, A. Fioravanti, (eds.). Encyclopedia of Photography, Milan: Peruzzo, 1969; https://archividigitaliolivetti.archiviostoricolivetti.it/collections/entity/detail/82147/ [27/09/2022].

[6] https://www.storiaolivetti.it/articolo/93-valentine-design-E-grafica-per-un-prodotto-cult/ [25/09/2022].

[7] *Bid.*

Years later, Sottsass would find with Santi Caleca (around 1950) a new syntonic collaboration for the images of his projects, mainly ceramics and glass. Sottsass also transferred his vision of photography to Caleca, suggesting how to shoot objects. Recounts Caleca, "Even before he was a designer and an architect, Ettore was an artist and a photographer. He often asked me for photographs with long shadows. He would advise me, for example, to shoot foreshortening rather than framing objects frontally, both to manage the light better and to have more depth of field. He has greatly influenced my work.t"[8]

4 The Designer Photographer

The importance of photography for design has grown exponentially over time. If as early as 1959 G. Carlo Argan, on the occasion of the fourth edition of the Compasso d'Oro award, had polemically observed how the object was then "consumed" as an image even before being used as a product, in 1975 Antonio Arcari still argued, "today we know most of the objects produced by industry thanks to the diffusion of the image that photography gives us of them […] with such intensity and overbearingness that it conditions our choices" (p.7).

From the 1980s onward, we have also witnessed the emergence of the figure of the designer photographer, as Tom Vack (1948) - a new master of authorial photography who has lived in Italy since 1989 - has defined himself (Ceriani, 2017, p. 109). Vack's philosophy is based upon his will to "represent an object in a photo rather than take a photo of an object" (Bergamini, 2014) and he does so through a mode that is veined with dramatic lyricism, with almost theatrical atmospheres.

The images of De Lucchi's Tolomeo lamp for Artemide and Ron Arad's Double Soft Big Easy sofa for Moroso bear witness to this. They clearly show how this Chicago-born photographer prefers to tell the intrinsic motivation of objects through dense atmospheres. In his images, the object is the absolute protagonist, described only by color and light.

5 Conclusion

The language of photography is, therefore, a powerful medium that allows objects to show their full meaning and the wealth of values they carry. In this symbiotic relationship between photography and design the role played by the author of the images by means of his or her work is an added value. In fact, the articulated narrative that results can arise as a result of the creativity of the photographer alone and his or her expressive language, or as the result of a choral, symbiotic work with the designer. In any case, this is a process that, in most cases, leads to a conscious, incisive document, deeply linked, and somehow inseparable, from the object itself.

[8] From the conversation with the author, Milan, April 28, 2017.

References

Arcari, A.: Fotografia e industria/Il design. Rivista IBM **3**(XI), 6–13 (1975)

Archivio Storico Olivetti, (a cura di). Valentine: design e grafica per un prodotto cult. https://www.storiaolivetti.it/articolo/93-valentine-design-e-grafica-per-un-prodotto-cult/. Accessed 28 Sept 2022

Balena Arista, F.: Poltronova backstage. Archizoom, Sottsass and Superstudio. The Radical Era 1962–1972, Miami: Fortino Editions (2016)

Ballo Toscani, M.: Comunicazione personale (8 giugno 2017, Milano) (2017)

Bergamini, A.: Tom Vack. Ritratti di bellezza, in "Design context", dicembre (2014). http://www.designcontext.net/tom-vack-ritratti-di-bellezza/. 16 giugno 2017

Caleca, S.: Comunicazione personale (28 aprile 2017, Milano)

Calvenzi, G., Gregorietti, S. (a cura di) Ballo+Ballo. Il linguaggio dell'oggetto attraverso le fotografie di Aldo Ballo e Marirosa Toscani Ballo, catalogo mostra (Milano, PAC, 21 aprile - 7 giugno 2009), Cinisello Balsamo, Silvana Editoriale. (2009)

Cavadini, N., Bianda, A. (a cura di), Serge Libiszewski. Fotografo a Milano /Fotograf in Mailand 1956–1995, pp. 13–19. Gabriele CapelliEditore (2015)

Ceriani, N., Costruttore di set, amante della luce, designer: Tom Vack, in CERIANI, N. La fotografia di design a Milano dagli anni cinquanta a oggi. Una lettura attraverso le esperienze dei suoi autori [Tesi di laurea non pubblicata] Università Cattolica del Sacro Cuore, Milano (2017)

Dorfles, G.: Nascita di un'immagine coordinata, in Un'industria per il design. La ricerca, i designer, l'immagine B&B Italia, a cura di M. Mastropietro, R. Gorla, Edizioni Lybra Immagine, Milano, pp. 534–537 (1982)

Fiorani, E.: Grammatica della comunicazione, Milano: Lupetti (2006)

Gramigna, G.: Obiettivo sull'oggetto, Ottagono, pp. 65–80 (n. 114, marzo 1995)

Libiszewski, S., Libiszewski, N.: Comunicazione personale (10 maggio 2017, Agazzano, Piacenza)

Masera, C.: Comunicazione personale (23 maggio 2017, Milano)

Piazza, M.: La grafica per il Made in Italy. Ais/Design. Storia e Ricerche J. **1**(1), 48–64 (2013)

Proverbio, P.: Aldo Ballo fotografo di design, in Marirosa Toscani Ballo - Ballo+Ballo AFIP International (2013). https://www.youtube.com/watch?v=vu-xOLo98q4k&t=12s&ab_channel=AFI-PInternational

Proverbio, P., Ceriani, N.: La fotografia di design autoriale italiana tra gli anni settanta e ottanta. Dai maestri alle nuove generazioni. In: Proverbio, P., Riccini, R. (a cura di) (eds.) Fotografia e design. La costruzione dell'immagine del prodotto industriale, Aisdesign. Storia e Ricerche, vol.7/n.14, disponibile in Radice B., Ettore Sottsass, Milano: Electa, 1993 (2021)

Seelig, T., Stahel, U., (a cura di): The ecstasy of things: from the functional object to the fetish in 20th century photographs. Fotomuseum Winterthur. Göttingen (2004)

Zancan, R., Grima, J.: Un ricordo di Giorgio Casali da Domus. In: Maggi, A., Zannier, I.G.C. (eds.) Photographer. Domus 1951-1983. Architecture, design and art in Italy. Silvana Editoriale, (p. 9) (2013)

Objects, Things, Hyperobjects. A Philosophical Gaze on Contemporary Design

Chiara Scarpitti(✉)

Department of Architecture and Industrial Design, University of Campania "Luigi Vanvitelli", Aversa, Caserta, Italy
chiara.scarpitti@unicampania.it

Abstract. Through an applied research project in the field of contemporary design, the essay identifies and illustrates the passage of three philosophical transitions: the idea of the object as a design project (Flusser, Sottsass, Mendini) – first transition -, crosses over to the realm of the thing (Heidegger, Bodei, Rigotti) – second transition – until it reaches the notion of the hyperobject (Harman, Morton), – third transition – involving human and non-human entities.

Through reclaiming for design the possibility of becoming a trigger for divergent thinking, the object acquires new human and dialogic qualities. The transition from the object-function to the *object-thought* [1] transforms the meaning of the product to the extent that it is no longer a passive element of dialogical discourse but rather the triggering actor of that same process of confrontation. In this perspective, the object transforms from an exclusive commodity with normal function into a thing full of meaning and expressive possibility. Such objects are connected to the individual and the intellectual relationship they establish. From a posthuman perspective (Braidotti), they are narrative subjects of a reflection increasingly striving for a pluriverse coexistence beyond humankind itself. (Haraway, Caffo).

The last transition, to the hyperobject, is illustrated through a design experience at the boundary between these three value transitions. The final hyperobjects designed have their primary meaning to interrogate and raise awareness around diverse relationships – with ecosystems, beyond the human – unhinging an outdated idea that sees the object forcibly relegated to the world of practical and tangible consumer commodity.

Keywords: speculative design · practice-based research · marble design · hyperobjects · coexistence

1 Transition 1: From Object to Thing

Since their changes can affect human behavior and relationships, contemporary and speculative design objects are connoted by a solid evocative and symbolic power and, in this sense, can be considered powerful devices of meaning with a discursive nature of their own. "In the civilization of objects, the word loses its primacy: material products are texts, they are discourses. They tell us about men's social and cultural history, the history of ideas, behavior, spiritual sense, and ethical and aesthetic values. […] Objects represent in synthesis the spirit of the time" [2, 10–11].

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 165–174, 2024.
https://doi.org/10.1007/978-3-031-49811-4_16

The shift from the object-function to the *object-thought* transforms the meaning of the product to the extent that it is no longer a passive element of the dialogical discourse but rather the triggering actor of that same process of confrontation. In this perspective, the design object is transformed from an exclusive commodity with a standard function into a "thing" full of meaning and expressive possibility.

The *thought-object* is linked to the individual and the mental relationship it establishes. If it works in an introspective dimension, it is at the same time also the narrating subject of a cultural and human reflection, definitively changing its ontological status [1]. When it is speculative, it aims to destabilize through a reflection, an awareness and the subversion of a presumed conception. The result of this interaction can be measured in inspirational, experiential even behavioral terms. In this perspective, the *thought-object*, vehicle for an existential reflection, approaches the meaning of things – as understood by the philosophers Bodei, Flusser, and Rigotti – and it goes on to unhinge ancient literature that sees the design object perforce relegated to the world of immediate and tangible consumer goods.

The subject of the object understood as a thing, long debated by philosophers, needs to be investigated further in the field of design culture. The interconnection between the sense of responsibility that the concept of thing carries with it, along with the fact that it can generate affection, leads to a new possibility for design: a design that generates not only objects to sell but things adequately understood in the philosophical sense of *res.*

From an etymological point of view, the term thing is very different from the word object, since it derives from the contraction of the Latin word *causa*, which indicates something that interests us deeply and for which we are willing to fight [3, 12]. For the thing, we feel a feeling, an emotional transport; the thing takes on a predominantly nonutilitarian functionality. The object, on the contrary, is treated with greater indifference, as if it were a lifeless element, distant from man.

Furthermore, the etymology clarifies its deeper meaning: object derives from the medieval Latin *objectum*, which from Greek means problem and indicates something that stands before us as an obstacle, a hindrance to the path – that objects to the subject.

In the essay entitled *Design: an obstacle removal?* Flusser advocates a return to things, arguing precisely how design should not produce more objects [4, 55]. The things, rich in interpersonal relationships and "ancient affection", are more prone to free interpretation by the subjects who use them. Regarding this degree of expressive freedom and inter-subjective relationship, Remo Bodei also incited design to transform objects into things, insofar as these, full of meaning, can naturally enrich human life [3]. The being dense of humanity, as Heidegger reminds us in the essay *The Question of Technique*, brings them closer to the world. Heidegger visualizes things first and foremost through common physical objects such as the pitcher, "the book and the picture, the crown, and the cross", and it is with these in mind that he writes, "let us leave behind us all pretensions to unconditionality […] let us take care of the essence of the thing by bringing it into the region in which it unfolds. To care is to approach the world" [5, 121]. This, reconciling with the world, implying a greater understanding, is the aim of many contemporary design projects that try to investigate this mutual relationship. It is with the intention of re-establishing this atavistic relationship that contemporaneity is increasingly asking us to build things and not objects.

The word thing, moreover, has a double translation in German: *Ding* (akin to the English thing) and *Sache*. In philosophical language, *Ding* predominantly means the tangible thing, the physical object; on the other hand, *Sache* (from suchen to seek) stands for something that is to be sought, the essence of the object, its substance.

The dual valence of the thing thus brings us before a complex ontology that merges theory and praxis, invisible and visible. What is interesting is that the term has retained both meanings over time, and it is in this inseparable ambivalence that its profound value originates. It does not matter whether the things we refer to are closer to the German concept of *Ding* or *Sache*, to an idealist and theoretical dimension, or a concrete and tangible one. What matters is their irreducible reconnection to a human dimension. "What is important is the relationship, the contact, the tension with the thing […] It is men and women among them who talk about things: the thing dictates the conditions because it can only be taken for what it is, an instrument or a thing in itself, but it is the man who talks about the thing and attributes human qualities to the objects […] You cannot get out of man, you cannot get out of language" [6, X]. Further evidence of the link between these two aspects, theory, and praxis, is provided by the interrelation between the English words think and thing: both far from the materiality of the object.

The term "thing" however has had multiple meanings over the centuries. It is emblematic to recall, for example, that, used in the Latin sense of res publica, it indicated a precise attitude to dialogue and interaction among humankind in dealing with an issue concerning all. The public thing pertained to the human activity of coming together around issues that a community care about. It follows that things acquire value first and foremost concerning the dialogue that they are be able to arise.

In *The Thought of Things*, Francesca Rigotti shows how "in a single connective tissue, subject and object, mind, and world, consciousness and thing" can be joined. "The fusion is not and does not want to be confusion, but neither does it want to accept for the date the usual juxtaposition that is made of them, as if subject and object, consciousness and thing, were two opposite sides that observe each other without touching" [6, X].

Similarly, the philosopher Pannikar places them in a physical dimension and argues that there is no higher principle of objectivity that cannot be verified in immanent reality. "If, in fact, from what we observe in our experience, we realize that everything is connected to everything, that being is characterized by radical relativity (or radical relationality). There is nothing transcendent; it is impossible to sever one thing's ties with the rest of reality without altering both reality and the thing itself. The bonds that relate each thing to every other also constitute the things themselves" [7, 105–106]. As we can see later, this philosophical thought, which works on a relational level, is also present in the third object's transition, that of the hyperobjects of Morton, and it will be used as a theoretical guide for the practice-based design experience illustrated at the end of the paper. From this perspective, designing things means being responsible in front of an object and making it a relational tool for humans. This way of approaching the thing is one of the most interesting approaches to contemporary design and is a strategic element for change.

Over the course of time, many designers have likened design objects to things in a philosophical view similar to the one described so far. Sottsass, for example, expresses

himself several times on design using the word thing, without any fear of making generalizations. On the contrary, he uses this term on several occasions precisely because of its ability to reveal a complex human dimension. "My opinion is that, instead, the problem is not to approach 'good design' but to make design to come as close as possible to an anthropological state of things, which, in turn, must be as close as possible to society's need for an image of itself" [8, 20].

Alessandro Mendini's famous statement, "we are things among things", gave the title to the exhibition *Quali cose siamo?*, which, at the Milan Triennale in 2010, addressed precisely the world of objects as a systemic, relational, living whole. In the many preparatory drawings for the exhibition, Mendini, through an analysis of groups of objects placed together in random and non-random ways, tried to define the relationships of function and aesthetics, matter and technique, and the resulting human behaviors. The unstructured set of objects that diffusely surrounds us stands before us as a geography of our minds, an "animated constellation" that invites us to new levels of relationship. This anthropological gaze reveals the systemic world of things as an organism made up of "breathing and telling objects. They breathe for their designer and their industrialist. They say to the one who employs them; indeed, they coincide with the one who employs them. We are our things. We are things among things" [9, 12].

Following this interconnection, objects constitute active devices for a reflection where the intrinsic human dimension reinforces their existential value. It is in this dimension that *objects-thought*, looking at man, are assimilated to the realm of the thing.

2 Transition 2 – From Thing to Organism

Among things, Heidegger makes space for the stone, the piece of wood, the tong, the clock, the apple, and a piece of bread, but also for living things, a rose, a shrub, a beech tree, a fir tree, a lizard, a wasp, but not, he adds, the number five, which we hesitate to call "a thing" [5, 121].

Following this selection, a thing concerns the universality of being, denoting its complexity in a non-transcendent sense. It always refers back to something physical that can be imagined and touched. "Thing" is all there is, of concrete and abstract, of material and ideal, in its broadest sense, concerning the human language. In a narrower sense, what is perceptible to the senses: what is tangible, visible, what is within reach and which refers back to the materiality of the real. Indicating Heidegger between things also the living species, he evolves their realm.

Returning to design issues, for some decades, design has also been invading the world of the natural sciences, moving closer to an idea of object as a living organism. The question arises from the development of bio-design with the exponential interest of designers [10] in anything called organic and living. In many avant-garde studies, it is possible to discern this continuous reference to the living matter in an attempt to analyze it, transform it, and reprocess it in some way. Since antiquity, humankind has looked to nature and its extraordinary ability to grow and self-regenerate as something to take as an example. However, the nature explored in contemporary design goes beyond a simple criterion of bio mimesis. These studies present a profound change in the relationship

between humans and the natural environment, reinforcing an old and intrinsic link with life which unites human and non-human forms of life.

Objects, materials for production, ways of living: in bio-design, everything is permeated by a widespread sensibility that overcomes an outdated vision of sustainability, going deeper through a symbiotic and necessary relationship. Through this nature, where there belongs awareness, design can now look at resources, materials, industrial processes, and all living organisms in a different way. From this renovated gaze, design studies on nature evolve in multiple ways. Living nature is understood as an aesthetic, sensory amplifier and is often narrated through sophisticated interactive technologies that allow for a different fruition or recomposed through science to a universe of images subservient to a visual, almost cathartic contemplation.

Nature is also examined as living substances, an animates, processable through advanced crafting and laboratory protocols. In all these exploratory possibilities, the most innovative experiments have been implemented in independent design laboratories, far from the mass industry logic. Representative case-studies include research by designers such as Neri Oxman, Officina Corpuscoli, Gionata Gatto and Giovanni Innella, Eric Klarenbeek, Mathieu Lehanneur and Arabeschi di Latte [11].

In this operative scenario, the designer is a conscious alchemist working in nature through generative sequences and procedures: his research leads to constructing new manufacturing logic, tools, and visions. These experiments are not always aimed at a positive reunion of mankind with his surroundings. Nevertheless, they aim to trigger a reflection that destabilizes, since they are no longer understood as anthropocentric. In an allocentric perspective – concerning the entire living ecosystem – the product's conception is not a passive object but evolves toward a horizon of living manufacture where humanity and nature coexist at the same level. With the acceleration of technological progress and the spread of bio practices within creative processes, many previously unrealizable projects are now being realized, shaking up the traditional industry from below. It is from these premises that, with new balances, the most avant-garde contemporary research is entering directly into laboratories and collaborating with varied scientific figures, putting different knowledge and perspectives into circulation. Returning to independent design practices, the relationship between technology-nature-object reaches a fundamental turning point toward a process of re-signifying matter and its manufacturing processes for a new kind of intellectual experience. In this sense, the old sustainability paradigm is being replaced by a new living paradigm, even more, radical and akin to the very ways in which nature operates [12].

From the encounter between techno-scientific and humanistic-artistic knowledges, there are new studies on the relationships between organism and machine, man and nature, human body, animal, and plant. The result of such hybridizations leads to the elaboration of new consumer relations, symbiotic systems, and synesthetic artifacts, in the philosophical sense, understood in turn as *thought-objects* [1].

In this perspective, the assimilation of the object to the living thing is one of the most interesting approaches of design and, for all intents and purposes, a strategic element for active change in the contemporaneity. Approaching things to the realm of organisms fundamentally changes its purpose, as it grafts a divergent helpful approach for human understanding and coexisting in a pluriverse world.

3 Transition 3 – From Organism to Hyperobject

As previously described, since 2000, with the rise of several bio-design projects and exhibitions [13], the design paradigm has shifted profoundly toward a new horizon of living and circular manufacture. The current research scenario, on the border between biology, technology and design, imagines and experiments new interactions with the concept of life, in its multiple genesis processes, and according to a disruptive post-anthropocentric perspective [14].

Triggered by emerging phenomena such as the Great Acceleration, Climate Change and the Sixth Extinction, the design value system has shifted the focus from humans to the entire planet. From a co-evolutionary perspective, the post-anthropocentric orientation expresses an anti-hierarchical and holistic conception through the fusion of man with nature and his coexistence with all kingdoms, living and non-living.

Regarding the relationship with the object, taking up in a personal way the reflections of Heidegger and Husserl, Harman proposes a theory of objects in a context of a flat ontology where the human occupies no privileged vantage point. Harman develops the idea that every object that is, every existent in its irreducible singularity – appears to every other, giving rise to a multiplicity of representations that all equally legitimate, imposing an entirely different perspective. It concerns caring for the non-human understood as that which, while not belonging to human history, has entered into phase with it [15].

If postmodern thought had found its own "vision" in the notion of "liquidity", breaking down the boundaries of separate interpretive forms, the definitions of O.O.O. and hyperobjects, take the next step. Absorbing the peculiarities of "liquidity", this theoretical framework metaphorically evolves by sublimating towards a gaseous state: a kind of universal space-time where everything is involved in a viscous and beyond life relationship. Returning to humans, the object-oriented ontology paradigm argues that the traditional, anthropocentric primacy of us (humans) must be replaced by a plurality of objective perspectives, primarily because we too are "objects".

From the object to the hyperobject, Timothy Morton defines this new step as any element "relating to things massively distributed in space and time and related to human factors". "We must turn to an ethics of otherness based on the proximity of the stranger" [16, 161]. Hyperobjects are viscous and real even if we cannot always directly touch them. They are identified by five characteristics: viscosity, non-locality, undulating temporality, a zone-dimension of their own, inter objectivity. It is impossible to distance ourselves from them, thinking that we can drive them back in an elsewhere that does not exist.

Starting from this complexity, constituted both by a plurality of sensual objects [15] and hyperobjects together, what can design do to investigate this universal and interconnected realm?

The essay starts by recognizing an inter-objectivity relation between all things, living and non-living and by the existence of hyperobjects, setting a design path in motion following new ethical and aesthetic forms of coexistence. The consequence is that the design object, passing through the realm of the thing, moves to the hyperobject, working in a particular spatial/temporal dimension, also geographical, not immediately related to humankind. The awareness of the existence of hyperobjects serves as a basis for reconstructing human habitation and behaviors, also "recognizing in what is perturbing

(uncanny) the characteristics of the real after the end of the classical categories" [16, 161].

4 Hyperobjects: A Philosophical-Based Design Research

To be an object means to be in relation with other objects. (…) The universe of OOO is a paradoxical place (like that of quantum physics) in which everything is connected, but in which, at the same time, each object hides within itself an abyss of hidden properties. [16, 161]

Hyperobjects is an applied-research project that mixes product design, contemporary philosophy and jewellery, CAD/CAM manufacturing technologies. Designed to be produced in limited series according to a numbered editorial approach, *Hyperobjects* intends to investigate the philosophical theory, described above, called O.O.O. (Object Oriented Ontology), and to the hyperobjects's coexistence perspective stated by Morton, by practice. The project is inspired by the idea where everything exists inside an inter-subjective relationship, hiding within itself a dark side, not comprehensible in its entirety. Through this ambiguity and mystery, the project tries to instill a new awareness.

The project was commissioned by *AlfaternaMarmi* in 2020, a brand created by the company from Campania of the same name that has been working in stone processing sector for the past fifty years, with it being part of the project curated by Roberto Monte *called Paesaggi di pietra.*

The project consists of five monolithic cubes made of different precious marbles and different oxidized metals, which are divided into three parts: container box, lid, and surface – tilting and wearable like a pendant that emerged from the landscape (see Fig. 1).

The five chosen locations are the Okjokull Glacier, the Yellowstone Volcano, the Atacama Desert, the Amazon Rainforest, and the Mariana Trench. They are all geographic landscapes of fundamental importance to humans, despite their apparent distance, with each, for different reasons, being related to the ecosystem balance of the planet. The correspondence between artifact and landscape is determined by the type of marble and surface shapes evoked by the location through the cardinal points and geographic coordinates marked on the artifacts. Regarding the manufacturing processes, they are unique blocks extracted and 3D modeled by single pieces of marble. The same uniqueness derives from the metal chains whose oxidations cannot be replicated (see Fig. 2).

As a metaphysic element extracted from the subsoil, each Hyperobject can be positioned in a domestic space, recalling a geographic area spatially located in a remote part of the world, albeit one of vital interdependence for humans. As Aldo Trione argues, thinking about the cosmic energy of stones, "Regions populated by minerals, by fragments, by ruins where those original images are imprinted that, with their own ambivalences, explain the universe and human beings, and reserve continuous surprises and instill wonder and astonishment" [17, 29].

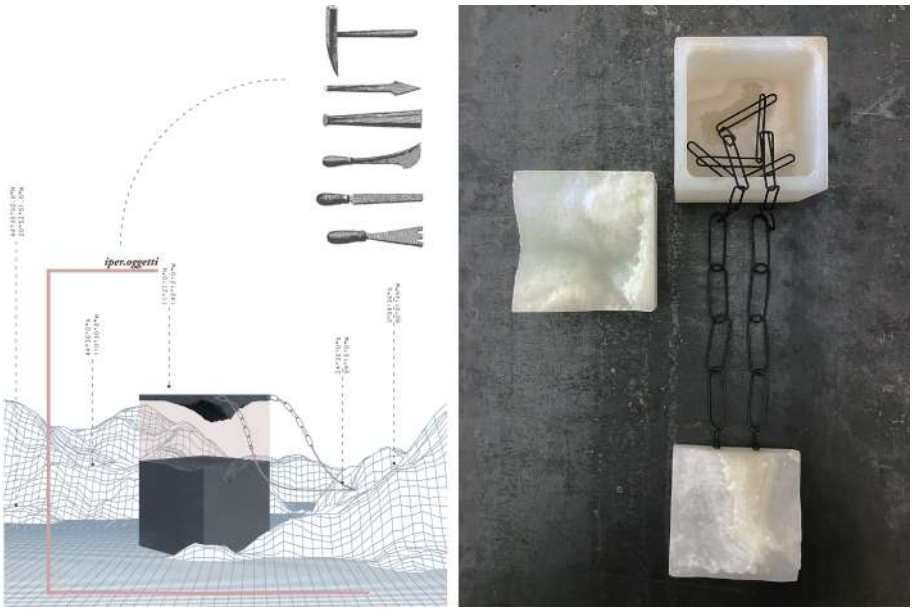

Fig. 1. Okjokull Glacier. 64° 35′ 52.8″ N, 20° 52′ 51.6″ W. Materials: white onyx and oxidized silver. Hyperobjects is a project of 5 cubes, representing 5 remote landscapes, which can be split into boxes and necklaces. Manufacturing techniques: 3D cad/cam marble modeling, handcrafted microsculpture, goldsmithing, oxidized metals.

In their being solid and evocative presences, *Hyperobjects* are design objects that testify the bond that runs through all living and non-living beings, offering, from time to time in different ways, the possibility of being unmasked as things functional to beauty and thought.

Their primary function is to be a vehicle for existential reflection concerning the universal relationship between, the owner – humans – and the corresponding landscapes – not humans. Through the color, the close shape, ambiguity in the appearance and functionality, they evoke the entirety of all despite their fragmentations in pieces. Moreover, approaching the idea of thing – as described in the second transition above – they unhinge the obsolete idea that sees the object forcibly relegated to the world of practical and consumer goods.

Fig. 2. Okjokull Glacier. 64° 35′ 52.8″ N, 20° 52′ 51.6″ W. Materials: white onyx and oxidized silver. Hyperobjects is a project of 5 cubes, representing 5 remote landscapes, which can be split into boxes and necklaces. Manufacturing techniques: 3D cad/cam marble modeling, handcrafted microsculpture, goldsmithing, oxidized metals.

5 Conclusions

Through a practice-based design approach, the essay has tried to explore some well-known philosophic theories by manufacturing new contemporary objects intended as full of meaningful *objects-things.*

Starting by analyzing three philosophical transitions concerning the object realm, design can be the agent for a radical change of perspective toward new forms of awareness. By design-oriented crafting activity connected to theoretical frameworks, the designer is an intermediary of new ways to think about the real and production, opening up divergent behaviors and perceptions.

In this operative scenario, the *Hyperobjects* project represents a conceptual tool for understanding the world's complexity differently. In the awareness of a plural universe, the five remote landscapes exist in space-time dimensions, even if they are too large to be seen or perceived directly by humans. However, by their design representation, they are not seen as passive entities but active daily objects that remember the vital coexistence between all living and non-living forms. They represent something that escapes us and in which we are dramatically immersed.

References

1. Scarpitti, C.: Oggetti Pensiero. Storie di design, organismi e nature postdigitali. LetteraVentidue, Siracusa (2020)

2. Penati, A.: Il design vive di oggetti-discorso. Mimesis, Milan (2014)
3. Bodei, R.: La vita delle cose. Laterza, Bari (2009)
4. Flusser, V.: Filosofia del design. Mondadori, Milan (2003)
5. Heidegger, M.: Saggi e Discorsi. Mursia, Milan (1991)
6. Rigotti, F.: Il pensiero delle cose. Apogeo, Milan (2007)
7. Pannikar, R.: La cosa in sé non esiste. in Calabrò, P. Critica di Raimon Panikkar a due concetti filosofici applicati alla scienza moderna. Centro Interculturale Raimon Pannikar / CIRPIT n.1, Marzo 2010. Mimesis/Cirpit Press, Milan. Retrieved from http:// www.raimon panikkar.it/ riviste.asp?M=11&H=23
8. Sottsass, E.: In: Girau, L.: Viaggio nella memoria. Arte Architettura Ambiente n.4 Cagliari (2002)
9. Mendini, A.: Quali cose siamo? Triennale di Milano. Electa, Milan (2010)
10. Antonelli, P., Tannir, A.: Broken Nature: Design Takes on Human Survival. Electa, Milan (2018)
11. Scarpitti, C.: From the product to the object. The speculative design practice as instance. Design Culture(s) Cumulus Conference Proceedings Roma 2021 Vol. #2. Cumulus Publisher, Aalto
12. La Rocca, F.: Design on trial. Critique and metamorphosis of the contemporary object. Franco Angeli, Rome (2017)
13. Myers, W.: Bio Design. Thames & Hudson Ltd, London (2012)
14. Haraway, D.J.: Sopravvivere su un pianeta infetto. Nero Edizioni, Rome (2019)
15. Harman, G.: Object-Oriented Ontology: A New Theory of Everything. Pelican Books, London (2018)
16. Morton, T.: Iperoggetti. Filosofia ed ecologia dopo la fine del mondo. Nero Edizioni, Rome (2018)
17. Trione, A.: L'anima e le pietre. Sellerio Editore, Palermo (2020)

L'autore aggiunge anche i seguenti volumi non presenti nel testo:

18. Braidotti, R.: Il postumano. La vita oltre l'individuo, oltre la specie, oltre la morte. DeriveApprodi, Roma (2014)
19. Coccia, E.: Metamorfosi. Siamo un'unica, sola vita. Einaudi, Milan (2022)
20. Dunne, D., Raby, F.: Speculation Everything. MIT Press, Cambridge (2013)
21. Ferraris, M.: La saggezza degli oggetti. Ontologia del quotidiano. Il Sole 24ore, Milan. 5luglio2009
22. Morton, T.: Ecologia Oscura. Logica della coesistenza futura. Luiss University Press, Rome (2021)

OBJECTS. Symbolic Value and Use Value

The Evolution of Yacht: From Status-Symbol to Values' Source

Giuditta Margherita Maria Ansaloni[1], Arianna Bionda[2(✉)], and Andrea Ratti[2]

[1] Department of Management, Economics, and Industrial Engineering, Politecnico di Milano, Milan, Italy
[2] Department of Design, Politecnico di Milano, Milan, Italy
arianna.bionda@polimi.it

Abstract. In addition to fulfilling their primary function, the so-called "status-symbol" objects also vehicles of deeper meaning. Among them, yacht have been often seen as a tool to convey messages of different content throughout the years. The aim of this study is twofold: to show the evolution of yacht design meaning during the last decades, and to outline the future one, according to the redefinition of the concept of luxury goods, category of which yacht belong. The study results confirm that the yachting sector is starting to adopt new perspectives toward sustainability and that, to succeeded in this, the multidisciplinary of design is an essential aid, if not the only possible way to tackle the challenge to convey new messages.

Keywords: Yacht evolution · Yacht design · Luxury Concept · Luxury Goods

1 Research Context

1.1 Yacht Design Discipline

Yacht design is a cross-disciplinary sector dealing with the panning of pleasure boat involving knowledge of the scientific fields of engineering, design, and architecture [1]. The output of yacht designers' effort is an object with different levels of complexity, because of its dual nature: pleasure craft embodies both the internal symbolic and functional values of the house as a refuge (stability, safety, privacy, comfort) and the external ones of the vehicles (lightness, dynamicity, manoeuvrability). To combine these two aspects the yacht designer must deal not only with aesthetic features, but also with technological ones: it is a matter of dealing with an articulated system of historically represented morphological and spatial relations, in which the multiplicity of human activities, the spatial areas, and the equipment present on the craft continue, on the one hand, to relate to a strong tradition of nautical practice but, on the other hand, is called on to deal with the evolution of roles and tasks on board.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 177–186, 2024.
https://doi.org/10.1007/978-3-031-49811-4_17

1.2 Raising Market Trends

Today more than ever designers and shipbuilders are facing the challenge to keep up with the growing market trends. The market is rapidly evolving since 2016 and is recovering from a hard downturn that began in 2008. Furthermore, the lack of freedom experienced during the Covid-19 pandemic also contributed to increase the global yacht orderbook [2]. These two recent economic global crises highlighted a needing of significant changes both manufacturing system and design process: the yachting market, as well as the broader luxury landscape, is under transformation by the shifting wealth demographic [3]. The main raising trends are affecting the yachting sector at different levels: for this reason, they have been analysed and divided according to the different impact they have on each of these three market aspects: object, target, and values.

Object: Size Growing. The demand for small and medium crafts is shrinking and shifting, and the yacht market is growing both in sales volume and on boat size [4].

Target: Owners' Awareness. Environmental issues have made consumers more selective: the upcoming consumer force wants to see actionable plans and measurable progress regarding sustainability, and actively chooses brand that work to make the world a better place [5]. Shipyards also forecast that the yacht owners will get 10–15 years younger in the next 20 years [6].

Values: New Luxury. The luxury sector is slowly recognizing its responsibilities and opportunities to encourage sustainability in sourcing, manufacturing, and marketing [7].

2 Problem Framing

2.1 Status-Symbol Object Objects: The Yachts

Weber (1946) defined status as the degree of social honour, prestige, and respect attributed to an individual by others: the status value beliefs develop from perceptions of one's material resources, which include possessions and the symbolic meaning they represent [8]. However, not all products may be relevant to one's self-concept, because others may not view him/her using particular products, or simply because some products are not as rich in symbolic content or meaning. Prown (1982) distinguished between the inherent and attached values of possession: the inherent value is intrinsic, established by the rarity of the materials that compose the product. The attached value is more symbolic, having been attached by the people who originally made or use the object, and these values can have a significant impact on the monetary worth of the object [9]. Gottiener (1985) referred to the symbolic meaning of products as a second-order function: he used automobiles as an example. The primary function of automobiles is transportation; although, depending on the make, they often have a powerful second-order function as a symbol of social status [10]. The same can be told of yachts: among the examples provided by Enciclopedia Treccani to describe what status-symbol objects are, the first is about "owning a yacht" [11]. These products an individual purchases reflect his/her taste and consumption behaviour is a key component of lifestyle: since the lifestyle of many is changing, also the concept of status symbol is slowing becoming different [12].

2.2 Luxury and Sustainability: Conflict or Synergy?

Luxury, compared with non-luxury, is synonymous with superior quality, uniqueness and going beyond need. Given the association of luxury consumption with ostentation, overconsumption, and overproduction, the conflicts between luxury and sustainability are still evident [7]. Despite this identify mismatch, the necessity of managing sustainability has already been institutionalized. The first mention of sustainable luxury appears in Bendell and Kleanthous's World Wildlife Fund (WWF) report [13] in 2007. The report envisions moving towards authentic luxury brands that position sustainability at their core, but it offers few pathways to this resolution. Moreover, recent years' climate challenges led luxury producers to face pressure to make their business processes more sustainable supply [14]. Furthermore, a profound understanding of the mechanisms behind the successful combination of luxury and sustainability can provide insights for both enhancing individual firm success and achieving a shift towards more sustainable products, which is also desirable from a societal perspective [15]. A higher level of sustainability is also more and more required by the target: consumer behaviour which is geared towards sustainability-oriented products is often correlated with the awareness about the impact of one's own purchasing decision on the environment [16]. Moreover, according to the Global Web Index survey (2020), 64% of Gen Z and 6% of Gen Y are willing to pay more for an "environmentally friendly" product 172].

2.3 Research Questions

Yachting market trends highlight on one hand a growing demand for increasing yacht size [4], and on the other yacht owners getting younger and younger, with different needs from the previous generation [6]. According to these figures, the yachting sector risks being linked with luxury ostentation, no more considered a positive value for new generations of potential owners. However, few studies are available on sustainable luxury increasing trend in relation to yachting sector: the central goal of this research is to present the evolution of yachting products, and the practices put in place by also shipbuilders and yacht designer to convey sustainable values to their audience. This goal is addressed through the following research questions:

RQ 1: How have been yachts evolved in the last decades, in accordance with the new sustainable luxury perspective?

RQ 2: What are the new values embodied and communicated both by yachts and companies/designers?

3 Applied Methodology

According to the scope of the research questions, a two-steps methodology was adopted, consisting of (i) an initial qualitative literature review, and (ii) a subsequent case studies collection. The literature review was focused on both yacht design stylistics and technologic evolution, including academic journal paper, articles, and doctoral thesis. Three main data gathering methods were performed: desk research, yacht designers' interviews, and infield observation. The selection criterion was the same for both steps only yachts of length ranging between 30 and 100 m, built between 1990 up to date were collected and analysed.

According to the set criterion, the study first conducted a literature review based on historiographical research that considers the main theories and trends about yacht design aesthetic evolutions. This activity encompassed a review of approached from both sociologists and architectures and yacht design disciplines' historians such as Daverio (2009), Di Bucchianico (2011), Vallicelli (2011), Campolongo (2019). Then, a timeline that highlights the steps of naval design put in order the findings. The results of these first studies framed the state of the art and research inquiries. Second, case studies were selected and divided into two categories, according to the messages they convey: the purpose of the first category, which includes only real yachts, is to highlights the formal evolution of this kind of products. Then, the second category refers to a series of events, marketing and communications' operation put in place by yachting community to convey the messages that not only the objects themselves are changing, but also the values they embodied.

4 Findings and Research Evidence: The Yachting Evolution

4.1 Formal Evolution

In this paragraph are presented the case studies gathered following to the methodology applied. Aim of this section is to highlight the formal and technical evolution towards a new concept of luxury which embrace also sustainable features. In general, both interiors and exteriors are nowadays extremely different from the ones of the early 90's. For most of the twentieth century, the most representative statement to describe the nature of yachts' interior is by Barthes (1956): "an inclination for ships always means the joy of perfectly enclosing oneself, of having at hand the greatest possible number of objects and having at one's disposal a finite space" [18]. Yacht interiors have then slowing shifted from heavy over decorated space with opulent pieces of furniture and texture to a more linear, modern, and clean languages. For more than a century yacht interior had been characterized by custom made pieces of furniture, mainly built with the most exotics and darkest wood essences. Fabrics' textures and finishing materials were, in general, baroque, and heavy to see, with the effect of making spaces narrower (Fig. 1). Furthermore, especially during the last decades of the twentieth century, there was not correspondence between the land-based architecture styles and trends, and the one of yachting, which remained linked to an outdated taste. Nabilia (Fig. 1a), an 86 m superyacht built in 1979 by the Italian shipyard Benetti, was built on commission by the Saudi businessman Adnan Khashoggi, who wanted to build the world's most luxurious and modern motor yacht. She was one of the world's largest yachts at the time and soon became known the world over for her sumptuous interiors and ostentatious luxury: the 11 suites were panelled with chamois leather and bird's-eye maple; bathrooms were decked out in gold and onyx. The interior design was managed by Luigi Sturchio. Another example of the design trend of the past century is represented by Sokar, a 63 m motor yacht built in 1990 by Codecasa shipyard: the most striking aspect of the interior was the sumptuous use of lacquered briar wood veneer for most of bulkheads and elements of furniture (Fig. 1b). Then Alejandra, a 41,33 m yacht built by the Spanish shipyard Mefasa in 1993, shows how the same interior design trend was widespread also onboard sailing yacht. Her interiors, styled by design house Bruce King, which

accommodate eight in four cabins, are classically styled and features a blend of Cuban mahogany (Fig. 1c): despite the custom skylights that allow the fresh sea breeze to flood the interior spaces, there is no correspondence between the interior and the exterior; and only the scale model of the yacht displayed in a niche could help guests under-standing that are inside a sailing yacht.

Fig. 1. 1990s' interior yacht design: case studies.

During the last decade of the twentieth century, there was not correspondence between the land-based architecture styles and trends, and the one of yachting, which remained linked to an outdated taste. Only few yachts can be considered exception, ambassadors of the new raising features that today are widespread onboard (Fig. 2): Blue Velvet, built by Codecasa shipyard with Porfiristudio and launched in 1994 is one of the first motor yacht that introduced onboard "free standing" pieces of furniture directly coming from the home furnishing (Fig. 2a). Moreover, almost all the bulk-heads were covered with the same leather materials, which was a real revolution for

that time. Onboard the motor yacht Sai Ram II (Benetti shipyard, 2003) the firm Lazzarini&Pickering adopted a new perspective to design a yacht: the arrangement onboard was, in fact, completely unusual for the time. Furthermore, there were also large informal lounge areas both indoors and outdoors, with furniture made up of a few macro elements, and oversized sofas (Fig. 2b). Nowadays the hybridization trend between houses and boats, and the lower level of formalities onboard are no more a prerogative of only fully custom yacht producers: the Italian shipyard Sanlorenzo, in collaboration with Lissoni&Partners architecture firm, has been the first shipyard to open, with the SX line, to serial production the cross-over yacht designed as an open space (Fig. 2c).

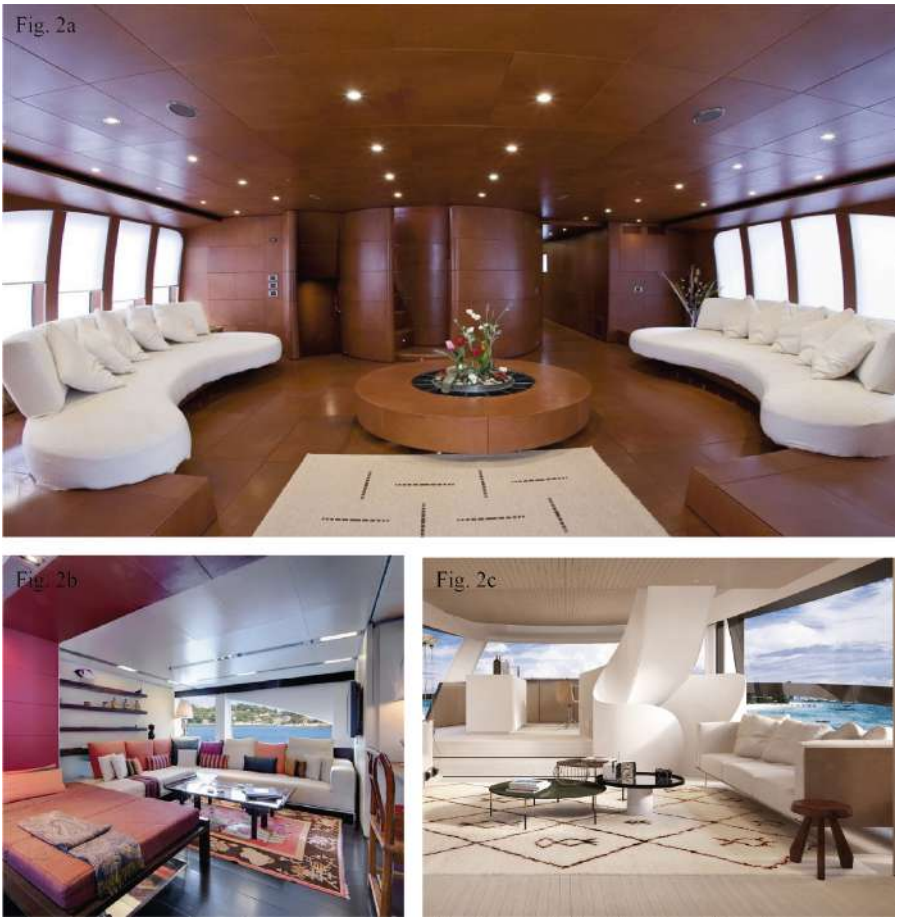

Fig. 2. New trends of the yacht design interior: case studies

4.2 New Values for Sustainable Luxury in Yachting

It is important that sustainability efforts avoid being perceived as self-serving: luxury 'green-washing' is a risk if organizations engage in the proliferation of unsubstantiated ethical and sustainability claims, leading to increased consumer cynicism and mistrust [19]. Furthermore, today more than ever consumers are influenced by the perceived status of the product, as well as the perceive status of the retailer [12].

Beside design choice that allow yachts to perform in a more sustainable way, many shipyards and designers start taking part or promoting events addressed to raise awareness about sustainability needs in the yachting market. For many, sailing is not only a free-time activity but a sport that beside the competition is committed to spread positive messages to its audience, also thanks to the worldwide visibility some sporting events can boast. America's Cup is for instance going far beyond just being a responsible sport event organization: the protocol for the 37th Edition of the oldest trophy in international sport obliges all teams to build and operate two hydrogen-powered foiling chase boats for their campaign [20]. The showcasing proven hydrogen technology in the marine sector will help create a game-changing pathway for the wider industry and lead to a significant reduction in its carbon footprint.

Also The Ocean Race, thanks to its worldwide visibility and audience, is bringing attention to ocean health throughout a series of plastic clean-up events and global platform [21]: the objective is to create awareness, activate discussion, highlight local relevancy and put out a call to action to businesses, governments and individuals to play their part in turning the tide on plastic. In the online platform "Racing with purpose" of The Ocean Race website [21] are displayed all the objects and initiatives currently underway, with also a Sustainability Report (2019, 2020 and 2021) that tracks the progress in meeting their sustainability ambitions.

Then, if few years ago yachts and superyachts' brands were often associated only to the ones of supercars and watches, nowadays also marketing operations reflect the importance of being linked with organizations and events focused on environmental issues. An emblematic example of this strategy is represented by the Italian shipyard Rossinavi, which recently started a partnership with Parley for the Ocean [22], a non-profit organization that enables creators, thinkers, and leaders to collaborate and raise awareness on the rampant ocean pollution problem: the context is the one of a call to action for the yachting industry to embrace eco-innovation and development of new technologies with low environmental impact. "As yacht builders we have a natural responsibility to respect and protect the oceans" states Federico Rossi, COO of Rossinavi [22].

Also the British boatbuilder Sunseeker started a partnership with BLUE (Blue Marine Foundation), a UK-based charity dedicated to restoring the world's ocean to health by establishing marine protected areas and tackling overfishing: Project Menorca will see Sunseeker and Blue team up with a number of local organisations help tackle the numerous pressures facing the island's marine environment.

At The Superyacht Forum 2019, Water Revolution Foundation launched its Yacht Assessment Tool, created through collaboration with shipyards to minimize the marine industry's ecological footprint and preserve the ocean throughout a software tool based on computational sustainability for sustainable development within the superyacht industry.

5 Conclusion

This research aims to study how the yachting sector and shipbuilders are evolving according to the raising market demand of sustainable luxury objects. This evolution is affecting not only brand values' communications, but also the yachts themselves: within three decades yacht interiors have been completely redesigned, this thanks to a new sensibility both of yacht owners' and designers and their attention to the shift in lifestyle behavior and status symbol changes. From the market perspective, luxury brand cannot ignore that they act like industry model, and they have the duty to leave by example: a shift towards sustainable luxury can pave the way for more sustainable mass products on a broad scope as well. Shipbuilders are now called on to deal with the evolution of roles, aesthetics features and new attitudes and values such as partnerships with sustainability ambassadors' organizations, reduction of prediction footprints and attention to climate change.

To understand the complex relation between sustainability and yachting it is fundamental to consider the potential of this industry, a playground where almost unlimited budgets meet the most advanced technologies, and that's way yacht industry must start to be considered and to act as a sector can drive the change in term of sustainability.

6 Further Research

Yachts formal revolution also affected the exterior design: the lines become more straight and simple year after year, and also the volume distribution changes: the better management of the onboard spaces, also thank to several technological innovations, allowed to reduce even the number of decks: for this reason, further studies will focus on the evolution of also exterior yacht design. Moreover, the research teams will continue to foster didactic activities like workshops that both involves Master in Yacht Design students and industry stakeholders, to support shipyards and yacht designers transition toward more sustainable yacht design communication and production. Then, participation in EU funded projects and PhD scholarships are other great opportunities to also investigate another aspect of sustainability: the reduction of greenhouses gas emitted by ships and yachts during they lifetime. All these research activities will contribute to provide further assessment of how yachting sector can become a less polluting and more sustainable industry in the next years.

References

1. Di Bucchianico, G., Vallicelli, A. User-centered approach for sailing yacht design. In: Human Factors and Ergonomics in Consumer Product Design. CRC Press, (2011)
2. The impact of coronavirus on superyacht industry https://www.boatinternational.com/yachts/news/impact-of-coronavirus-superyacht-industry, Accessed 26 June 2022
3. The World Ultra Wealth Report 2017, https://www.wealthx.com/report/exclusive-uhnwi-analysis-world-ultra-wealth-report-2017/, Accessed 10 Aug 2022
4. Global Powers of Luxury Goods 2021, https://www2.deloitte.com/global/en/pages/consumer-business/articles/gx-cb-global-powers-of-luxury-goods.html, Accessed 17 May 2022

5. Bonera, M., Codini, A.P., Miniero, G.: The great Millennials' trouble: leading or confused green generation? An Italian insight. In Ital. J. Mark. **2020**, 289–308 (2020)
6. Jefferies, C., SDS 2018: Millennial superyacht owners explain what they want from the industry, https://www.boatinternational.com/luxury-yacht-life/owners-experiences/millennial-superyacht-owners-explain-what-they-want-from-the-industry--36087, Accessed 29 June 2022
7. Athwal, N., Wells, V.K., Carrigan, M., Henninger, C.E.: Sustainable luxury marketing: a synthesis and research agenda. In Int. J. Manage. Rev. **21**, 405–426 (2019)
8. Weber, M., From Max Weber: Essays in sociology. In H. H. Gerth C. Wright Mills (Eds.), Oxford University Press, New York, (1946)
9. Prown, J.D.: Mind in matter: An introduction to the material culture theory and method. In Winterthur Portfolio **17**, 1–19 (1982)
10. Gottdiener, M.: Hegemony and mass culture: a semiotic approach. In Am. J. of Sociol. **90**, 979–1001 (1985)
11. Treccani Enciclopedia Online, https://www.treccani.it/vocabolario/status-symbol/#:~:text=%C2%ABsimbolo%20di%20condizione%C2%BB%3B%20pl,oggetto%2C%20comportamento%2C%20ecc.), Accessed 30 June 2022
12. Turner, J. H., A Behavioural theory of social structure. In: J. of the Theory of Social Behaviour, Vol. **18**, (1988)
13. Bendell, J., Kleanthous, A., Deeper luxury https://assets.wwf.org.uk/downloads/luxury_report. PDF, Accessed 20 May 2022
14. Li, J., Leonas, K. K. Trends of Sustainable Development Among Luxury Industry. In: Sustainable Luxury, Environmental Footprints Ad Eco-Design of Products and Processes, pp. 107–126 (2019)
15. Kunz, J., May, S., Schmidt, H.J.: Sustainable luxury: current status and perspectives for future research. In Bus. Res. **13**, 541–601 (2020)
16. Mazzocchi, C.; Orsi, L.; Sali, G. Consumers' Attitudes for Sustainable Mountain Cheese. In Sustainability, Vol **13**, (2021)
17. Nikoli´c, T.M., Paunovi´c, I., Milovanovi´c, M., Lozovi´c, N., Đurovi´c, M. Examining GenerationZ's Attitudes, Behavior and Awareness Regarding Eco-Products: A Bayesian Approach to Confirmatory Factor Analysis. In Sustainability, Vol.**14**, (2022)
18. Barthes, R., Miti d'Oggi, Einaudi, (1956)
19. Jahdi, K.S., Acikdilli, G.: Marketing communications and corporate social responsibility (CSR): marriage of convenience or shotgun wedding? In J. of Bus. Ethics **88**, 103–113 (2009)
20. The protocol of the 37th America's Cup, https://www.americascup.com/en/home, Accessed 1 July 2022
21. Racing with purpose, https://www.theoceanrace.com/en/sustainability/racing-with-purpose.html, Accessed 1 July 2022
22. A collaboration between Rossinavi and Parley, https://www.superyachtstories.com/brands/art-for-seas-sake-a-collaboration-between-rossinavi-and-parley/, Accessed 1 July 2022

Liberating the Imprisoned Soul of Dorian Gray: Cultural Affordance as Design Tool to Rediscover Cultural Values

Andreas Sicklinger[1] and Alireza Ajdari[2(✉)]

[1] Alma Mater Studiorum, University of Bologna, Bologna, Italy
andreas.sicklinger@unibo.it
[2] Department of Industrial Design, University of Tehran, Tehran, Iran
alireza.ajdari@ut.ac.ir

Abstract. Design needs to recognize cultural content as embedded values to trigger meanings beyond functionality; these values can be discovered and reinterpreted for the contemporary society. In this context affordance will be declined into cultural affordance as a concept and framework within which meanings could be better detected, resonated and understood. Some examples from Iran and Egypt are given to explain the theoretical framwork, while in the continuum some tools for detecting those meanings are introduced as well: interactivism, storytelling and reflective translation as intrinsic memory keepers of tradition and culture of a given context. The article aims to conclude with some manifestations which could shape the direction and scope such a concept. The scope of discussion is to go beyond a naming of mere heritage and assigning artistic value to them.

Keywords: Design · Affordance · Culture · Heritage · Value · Art · Artifact

1 Introduction

1.1 The Picture of Dorian Gray as Reflection of Semantic Crisis

This paper has its metaphorical reference to the famous story of Picture of Dorian Gray [1]. The image of the hero Dorian is suffering from his own sins and mistakes and becomes older, while his body is still young and handsome. One day Dorian wounds the picture with a knife, and the day after people see an old man in front of the painting of the young Dorian. He liberated his soul while accepted to be punished by death.

With this story we propose to make an analogy between the Picture of Dorian Gray and Cultural Artifacts in the museums and cultural centers. The problem we face appears to be the same: the souls, the semantics, are imprisoned in artifacts being and mummified within museums. While there are kitsch versions of such objects in the society which are not useful or understood, they are evaluated as mere decorative item which do have only romantic-historical value and deprived from having any value for today. Based on this argumentation we would like to see how the semantics of such objects could be detected, resonated and distributed in our modern world.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 187–196, 2024.
https://doi.org/10.1007/978-3-031-49811-4_18

1.2 Problem Statement and its Interpretation

Many historically inspired objects are beautiful and well-shaped, but the reasons that led such objects to come to live are hidden and therefore there is missing a deeper understanding in the interaction by their users. That apparently could lead to the phenomena that the users cannot reveal the aims in what they possess, ending up with competing to want more, to own more, to consume more, but with discontent, and not happiness. This is also based on the following facts:

a. through ease of travel and online communication channels, we are much nearer to each other, while culturally we are far more distanced from each other because of a missing appropriation period of time;
b. We are (always more) disconnected from our past, a source from where we have to offer to each other cultural content and deeper semantics of forms and materials;
c. Regarding the mentioned above, art is destinated to museum objects, and design is relegated to contemporary Gestalt aesthetics, while deeper meaning would be buried in memories as unrevealed intangible heritage.
d. In a globalized context, we cannot perceive the hidden complexity within which imported objects from other cultures have been shaped with, nor we can perceive our hidden complexity within which our own objects are engaged in (complexity as nesting of a network of affordances, in terms of Gibson) [2]
e. In some geographical areas with low developed industries this phenomenon is expressed by the refusal of people to use and appreciate local items (handmade to industrially produced) as they are seen of minor quality and less status symbol as imported items.
f. This lack of meaningful understanding has come to reach results such as over-consumption, un-sustainability and even cultural conflicts.

There has been already some research in this area, entitled as social interaction in cultural context [3]. However, this field in social studies, but moreover from a design point of view is requires more cross-cultural research.

1.3 Research Hypothesis and Structure of the Paper

As natural affordances are shaped and perceived within their related environment, we propose cultural affordances are shaped in cultural context and perceived as such.

Culturally inspired objects (by tradition, by function with geographical relation, by local specific semantics) are considered as tools within which such cultural context could be detected, resonated and perceived.

In this paper we propose to use the concept of cultural affordance [4] in order to evaluate how this can support detecting the possible and potential values of artifacts of cultural heritage. The proposed argumentation is as following:

a. Art in form of objects contains manifestation of values, which are embeded in human evolution as experience and has been defined through (intangible) cultural heritage (undiscovered meaning) or art works (discovered and acknowledged meaning as art). This argument is mentioned partly by Monticelli [5, 6]

b. There exist strong resemblances between expressiveness of artists, designers and craftsmen in the process of human evolution. Acknowledging disparities and dissimilarities, however their making process cannot be without any similarity or commonality, whether in aim or in objectification of results.
c. The affordance theory and its extension to the proposed cultural affordance can be a good concept in order to show a way to detect values (semantics, meaning) and their reflection on artifacts and systems, while detecting those values do need knowledge, methods and theoretical frameworks.
d. In this paper, narration (storytelling) as reflective translation and making of positive metaphor are considered as good tools in order to detect those hidden values within culture and cultural artifacts.

Related to the last point, we can affirm that storytelling is certainly the oldest form of oral transmission of knowledge and tradition, from generation to generation, long before the advent of written evidence. It represents the treasure of a community, on a larger scale the culture of a society. The narrative paradigm formulated by Walter Fisher states that all meaningful communication takes place through the narration or reporting of events. Humans participate as storytellers and observers of narratives. Fisher addresses five elements:

> "First, humans are homo narrans: they are storytellers by nature. Second, the paradigmatic mode of communication is not reasoning, but providing "good reasons". These reasons imply important values and vary according to the nature of communication practices, objects and situations. Third, the production and evaluation of good reasons is influenced by human history, experience, and culture. Fourth, human rationality is determined by our nature as narrative beings. This means that people have an "intrinsic awareness of narrative probability, what constitutes a coherent story, and their constant habit of testing narrative fidelity, whether or not the stories they experience are true, with the stories of which." they know that in their stories they are true to life." Fifth, the world is not a collection of mysteries to be solved. Instead, the world is known as history, and there are always a number of potential stories to choose from to explain the world and our place in it." [15]

As intrinsic result, objects inside communities are part of these capacity of narration, as by the second argument of Fisher. That leads to the assumption that values related to objects can be understood as cultural affordance. In the following review, the paper will exam the affordance theory and the role it can have in detecting cultural messages within the context. Afterwards it will present some manifestations about Art, Design, Culture and Cultural Affordance theory, and finally, based on these there will be presented a review of some case studies from Iran and Egypt helpful in detecting those values and concluding about the aims of such research approach.

2 Review on Concepts and Their Intrinsic Problematic

2.1 A Review About Affordance Theory and Cultural Contribution to Such Concept

The affordance theory was shaped by James Gibson during his work as a psychologist for US Army [7]. Gibson was employed by U.S. Army during the Second World War in order to improve the flying behavior of US Pilots. He faced the problem that amateur pilots would not fly the plane in the same way a professional pilot would do, and this resulted in accidents. By finding out that professional pilots just leaded the plane intuitively, this phenomenon leaded to the difficulty to be scientifically proved, that intuition can be a decision driver, and for which there was no answer at all at that time. Through his work the theory of affordance was elaborated. After years Gerda Smets defended affordance principle as scientific basis for Industrial Design Engineering in TU Delft [8] and that was how Studio-lab was shaped. But in this field of application the theory became very problematic to be assimilated, since not all scientists are interactivists in their nature.

> "The interactive model has a number of levels, ranging from the metaphysical to particular theoretical models for particular phenomena. (…) such as learning, emotions, consciousness, language, perception, memory, motivation, neural realizations of mental phenomena, the nature and emergence of social reality, the nature and emergence of human sociality and the social ontology of the person, development, personality and psychopathology, rationality, and so on." [18]

The discussions and dilemma do refer to a fight between interactivism, which supports the added elements to metaphysical entities for its integrity of perception and representationism [9], which is a philosophical theory that bases knowledge on the assertion that the mind perceives only mental images (representations) of material objects outside the mind, not the objects themselves. The validity of human knowledge is thus called into question because of the need to show that such images accurately correspond to the external objects. Therefore, most representationists believe that environment is basically meaningless and it is the human mind which creates meaning. The criticism they have on interactionists is that they believe in a sender and this pushes them to metaphysics and theological arguments instead of scientific discussions.

Defending such an argumentation leads researchers to the concept of Alterity-Otherness [10] which helps the researchers to think about cultural artifacts as objects of human experience which can expand beyond scientific disciplines, geographical borders and time to the others. That leads to the concept of Cultural Affordance. The core of this theory is the acknowledgement of concept of culture or context, within which the existence of the other is perceivable and the underlaying messages are detectable as well.

There can be detected common elements in the different approaches to the concept of affordance.

1. Detecting information is direct and without secondary analysis;
2. Affordance emerges from interaction, either subjective or objective;
3. Affordance embeds values and meanings, which invite the receiver to react immediately;

4. Affordance is the meaningful trigger of what to do, while Gestalt deals about what this meaning is.

This paper concentrates on the values and meanings which are inscribed within the cultural artifacts. However, discussing about the interactive nature of affordance, directedness, elements engaged in such a procedure etc. need to be referred to other researches.

2.2 Universality or Context Oriented

Apparently, the design discourse is divided in whether affordance theory is more meaningful or semiotics [11], whether cultural analysis (referring to interactivism) would be more helpful for designers or scientific analysis (referring to representationism). We believe that this division reminds us about cultural or natural origin of the concept of affordance theory. This discussion includes two main approaches:

1. Existence of Alterity, otherness leads to the important meanings from cultural heritage which needs to be discovered in order to prevent previous mistakes, and facilitate evolution of human experience.
2. The separation between culture and nature would have to be ended. This duality exists in the Western philosophy, with approaches like the one of Jean Jacque Rosseau, whose dream is to return to the nature or Sigmund Freud who is writing about the opposition between human instincts and suppressing civilization, which would reach to the concept of discontentness [12]

In the context of designed objects, this discussion becomes complex when considering works of cultural heritage or exploring the artistic values in cultural artifacts. The important art historian Arnheim believes that art anchors its definition on Renaissance Movement and Humanism [13], and previous heritage or heritage from other cultures would not fit in definition of art in Western sense. However, this should also be understood in Arnhem's own temporal context, since today we consider the value of art as a universal manifestation, as does the Charter of Human Rights: this allows us to discover the hidden possible meanings with an open mind.

Just as affordance emerges from interaction, art emerges from dialectics and a struggle to advice humanity in its own contradictions. In other words, the artist- designer-craftsman were facing the same problems or challenges in their time similar to the current challenges of modern designer-artist today.

Reaching this point, the hypothesis we want to shape is that giving cultural context to the value system of directly perceived information, not only affords, but also leads to core interpretations of Global Civilization which needs to be detected, understood, analyzed, resonated and answered in order to overcome the superficial geographic interpretations and could go beyond, towards cultural sophistication avoiding old and new mistakes.

We face several issues while going beyond universality or context-relations [14]: while we agree on the universality of human aims, dreams and intellectual destination, we also agree on context-dependency and different conceptualizations of those intentions. On a unified planet, design with cultural context enriches diversity and meaningful experiences that corresponds to the need of all.

3 Review on Examples from Egypt and Iran

3.1 Critical Design Approach in Egypt to Explore People's Awareness of Cultural Content

This part is the result of one year's research on Islamic Art in Egypt by the first author. The observation related to cultural awareness of artifacts in Egypt is more complex because throughout history, the country was continuously ruled by different populations leading to a potpourri of styles, from Ancient Egyptian Art, at to different styles of Islamic Art.

Particularly the latter, in terms of the aesthetic language, it became amorphous, because of overlaying in time of new ways of expressivity, leading to a complete misplacement of gene, and displacing the idea that artefacts are a product of a culture that involves a particular range of time and space. The result is that people calling anything related to Muslim's culture as Islamic art without distinction of purpose, use and tradition, further historical period and geographical location. Not only in the Western World, but sadly in the own lines of Muslim citizens, from the public to designers, from scholars to artists. The research started from this observation and an exhibition booth was installed in a public park to attract people to interact with. The place was strategically chosen to be able to get in contact with a large sample of people from different social background.

Following the three levels of Donald Norman regarding the acceptance of beauty in design, visceral, behavioral and reflective, interviewed people were attracted to the behavioral and partly reflective emotions acknowledging the visual impact of the presence of Arabic patterns and calligraphy on shown products as "Islamic Art", regardless of the form or function of the object. Demonstration for these preferences was given when high industrialized products, taken on purpose the most common white coffee cup with cylinder shape and altered with stickers with Arabic Patterns, were well considered in line with the local taste.

This first finding was supported by a second experiment, using the "speculative design" approach and test on the acceptance of people of design manipulation, inverting form with decoration in order to establish whether a traditional form has implication on the user's perception. The first of the two objects was a Mishkah, a very well-known traditional lamp from the mosque on which was painted the masterpiece of Edvard Munch "The Scream". The other product was a lamp from IKEA, on which were added geometric patterns.

As result, again the IKEA lamp with generic colorful stickers with a simplified Islamic pattern was preferred, exposing clearly the fact that the understanding of cultural references is only visual, but not context and history related, excluding completely the idea of cultural affordance.

Further experimentation aimed to work with only material and handcrafted items in order to "isolate" the shapes from the decoration and verify if those shapes can be recognized alone as "Islamic". Starting from a initial material-shape experimentation with recycled glass, three bodies of glass had been produced that resemble a Islamic shape of the Mamluk period when put together. However, many different combinations of these three elements were generated in order to evaluate the impact on the formal

character. The "obvious" cultural reference of the forms was less evident, however, the intention of this kind of experimentation was to turn "Arabic" forms in a modern, accepted design language for daily life objects. Based on this, in a workshop-based course in EMOTIONAL DESIGN, participants were asked to "redesign" everyday objects with "Western" shapes applying Arabic forms, while ornaments and patterns were not required and only restrictedly allowed.

As conclusion, it can be stated that to reintegrate into consumer's mind the value of specific forms and use of material, in a world of technologically evolved performing materials is a challenge. The contemporary design scene in Egypt is tackling this issue: while very successful in being recognizable when Ancient Egyptian motives are included in contemporary design proposals, the much more to the contemporary life style related Arabic character struggles to find an aesthetical response with convincing cultural affordance.

3.2 Example from Iran

3.2.1 Re-Interpreting Art Works from Traditional to Modern

Complex and rich mirrorwork is very deeply anchored in traditional tombs of Iranian Saints and Holy places. They are meant to deepen the personal reflection going beyond the appearance of light by generating a new meaning to the place.

This meaningful value has been reinterpreted by Monir Farmanfarmaian transforming the expressivity into a novel artistic works, which invites the spectator or observer to engage with what is reflected and go beyond. The way Monir arranged the mirrorworks enhances the intrinsic value changing the pure function of mirror in what originally has been the meaning of the tomb mirrorworks, proving the possibility of transferring these intangible values into contemporary objects [15].

Parviz Tanavoli is a contemporary Iranian sculptor. He achieved fame by his most famous sculpting piece called هیچ Hich, which means nothingness, and his artificial plays with elements of Iranian tradition and crafts, such as locks, keys, windows and etc. By doing this he was actually experimenting a new language of modernity for Iranian objects that refer to Persian cultural heritage. What he did by using the concept of nothingness, was not denying the tradition, but questioning the tradition, looking for the lost soul which should be returned back to artifact. And this allows for a renewed understanding of what the observer is illusorily observing, but also needs to reframe, rethink and re-understand. Also in the art works of Paris Tanavoli the idea of cultural affordance can be observed in the transformation into contemporary items.

3.2.2 Designedly Examples

Behind the concept of affordance, whether supporting the idea of an intrinsic value system that overlays with intangible meanings a tangible object or not, commonly it is used the concepts of modern, modernity and other definition to root designedly examples in a frame of western classification and recognition.

At the left the image shows a Praying Altar which is traditional, at the right there is the interpretation of the concept of Altar by using tree, blooms and floral elements. This

has been part of the project entitled *Interior design inspired from Modern Narration of Interior Design, through poems of Forough Farrokhzad.* A modern interpretation of the traditional home was used in this project, based on Forough's concept of modern poetry where, for example, blossoms refer to evangelical or good news from heaven or a tree embedding life. All of these would help improve the living experience [16].

4 References for Detecting Cultural Affordances: Reflective Translation

Translations is generally a delicated and complex enterprise, especially when underlaying meanings, that can be interpreted only by a native speaker in the context. Single words become consequently a "cultural" trap of misinterpretation, leading to different, misleading and often offensive meanings in certain contexts. These meanings are deeply anchored in the geographical and cultural context. As an example, the definition of beauty and especially translating that concept into another culture is a complex challenge. The effort that needs to be made is not to reduce such an equivalent to a word, definition or phrase, but also to try to find other possible terms that might fit into the translation. In the face of such diversity, the concept of reflective translation can make sense, as it shows that the interpretation reflects the complexity within the culture from which these terms emerge. The table below shows at least there are eight different terms for the concept of beauty in middle eastern culture.

Terminology for Middle Eastern Beauty	Equivalent Meaning
Jamal (جمال)	Visible Beauty
Melahat (ملاحت)	Invisible Beaut
Bahjat (بهجت)	Beauty Coming from Happiness
Sobhan (سبحان)	Beauty Coming from Peace and Clean
Jalal (جلال)	Beauty from Power and Majesty
Talat (طلعت)	Beauty from rising and blooming
Hosn (حسن)	Beauty coming from Ethics
Baha (بهاء)	Beauty coming from Knowledge

As another example understanding the experience of Middle Eastern Home, from terminology of home gives two meanings at least:

مسکنMaskan: a place where SAKINA (SHAKINA) comes to the ground (dwelling)
منزلManzel: a place where the glory of life (happiness and children) would come to earth

Keeping these concepts in mind would help to better understand the original meaning of objects and environments within culture, and also allow designers to better translate these objects into modern design language. In this context, as an explanatory example standing for many or most other culture-contextual designs, it is necessary to examine

possible positive readings of underlying meanings in order to translate and correctly metaphorize the related context of new design proposal.

Items have two or more prepositions that need to be acknowledged. The artifact in traditional design of the Middle East does not only have practical function but also signifying function as well. As examples:

a. Geometry is not just geometry, but revealing the hidden heavenly order
b. Carpet is not just carpet, but a projection of heaven into the home
c. A cup is not just a cup, but a grail which purifies the soul of the drinker

What appears to be an exaggerate spiritual approach in the eyes of Western population, is a very normal point of view in the related cultural context and varies from geographical context to another. Not observing would mean ignoring the cultural affordance of imbedded life style.

5 Design as a Manifestation and Further Considerations

Narration is a core tool of contemporary design practice, a product without a story confines its use in its function and loses immediately attractivity after putting it away. The second tool that has been explored, is reflective translation, using and exploring the origins of key words to open the core meaning of cultural context in everyday life.

Based on the research of this paper, the following conclusions could be formulated to support the initial hypothesis and related comparative studies:

a. Meaning emerges from interaction, socio-cultural interaction is as important as physical interaction, they need to be merged together as well.
b. Past generations, communities and civilizations have left their experiences through generating culture
c. Applying cultural content on contemporary design (narration) through meaningful interaction helps us to prevent cancellation of identity of oneself, place and community

As stated by the designer Carl Magnussen, “Good design is not about form following function. It is function with cultural content. By adding “cultural content” to the concept of “form follows function”, objects cease to be finite or predictable”. Only if the user is emotionally engaged, the interaction with objects becomes and experience and will exceed the paradigm of function that leads the Western aesthetical predominance of contemporary design.

Further considerations related to this research, which need to be addressed to a different analysis, regard the existence of semantic crisis. It is by the late Prof. Klaus Krippendorff [17], who introduced such a concept. The role of the designer is not just interpreting meaning, but often changing the meaning of those objects that have been designed. (Certain) values are embedded in culture, hence, cultural values cannot be adjusted by comparison to our own values but by living experience within the context and situation which those values are embedded in.

Last, the impact of memory of objects and artifacts with cultural content on personal sense of identity, sense of belonging to a place and community is a crucial element to be evaluated carefully. The research aims to be a introductory essay on design that uses and

applies interactivism, storytelling and reflective translation as intrinsic memory keepers of tradition and culture of a given context.

References

1. Wilde, O.: The Picture of Dorian Gray. Signet Publishers (2007)
2. Gibson, J.: An Ecological Approach to Visual Perception. Psychology Press, Routledge Classics (2014)
3. Huang, K.H., Deng, Y.S.: Social interaction design in cultural context: a case study of a traditional social activity. Int. J. Des. **2**(2), 81 (2008)
4. Ajdari, A.: An experimental study on Cultural Affordances. Doctoral Dissertation defended in Politenico di Milano, Italy (2008)
5. De Monticelli, R.: Values, norms, justification and the appropriateness of emotions. The Routledge Handbook of Phenomenology of Emotion, pp. 275–287. Routledge (2020)
6. De Monticelli, R.: Feeling of values, toward a phenomenological theory of affecivity, in Bagnara, Sebastiano and Crampton Smith: Theories and Practice of Interaction Design (2008)
7. Szokolszky, A.: An interview with Eleanor Gibson. Ecol. Psychol. **15**(4), 271–281 (2003)
8. Smets, G.: Industrial design engineering and the theory of direct perception and action. Ecol. Psychol. **7**(4), 329–374 (1995)
9. Bickhard, M.H., Richie, D.M.: On the nature of representation. A case study of James Gibson theory of direct perception (1983)
10. Zingale, S.: Design e alterità: comprendere l'altro, pensare il possibile. Design e alterità 1–159 (2022)
11. Norman, D.A.: The way I see IT signifiers, not affordances. Interactions **15**(6), 18–19 (2008)
12. Freud, S.: Civilization and its Discontents. Broadview Press (2015)
13. Arnheim, R.: Art and humanism. Art Educ. **24**(7), 5–9 (1971)
14. Cole, M.: Cultural Psychology: A Once and Future Discipline. Harvard university press (1998)
15. Fisher, W.: Human Communication as Narration: Toward a Philosophy of Reason, Value, and Action, University of South Carolina Press, 5 (1987, 1989)
16. Samiazar, A.: Birth of Iranian Modernism (in Persian); Bagh-Nazar publication (2016)
17. Ajdari, A., Kourosh K.: Considering the role of design to improve dwelling experience, tools and methods. In: First Conference on Mutual Contribution of Architecture and Design. Alzahra University (2018)
18. Bickhard, M.H.: What is Interactivism?, Interactivist Forum. www.lehigh.edu. Retrieved 20 Mar 2023

The Extraordinary Everyday. The Post-Crafts in the Historical City

Viviana Trapani(✉)

Dipartimento di Architettura, Università degli Studi di Palermo, 90100 Palermo, PA, Italy
viviana.trapani@unipa.it

Abstract. In the 1980s, Anna Maria Fundarò, founder of the Sicilian design school, carried out a study on the craft activities still active in Palermo's historic centre, for reactivating a new and specialised material culture through design. Fundarò's vision anticipated the concept of "design for the territory", which is now widely applied in the design community, especially in relation to local contexts rich in traditional knowledge, non-formalised design. At the same time, since it is connected to new technical opportunities and sustainable strategies, artisanal and neo-artisanal production (newly supported by the digital manufacturing) is currently part of an innovative and evolutionary scenario regarding this discipline. Starting from a consideration about the renewed relationship between traditional productions and design, the paper focuses on the cultural and narrative processes of artefacts whose masters are craftsmen, still operating in certain urban historical environments; the paper emphasises the capacity for design to activate new and *extraordinary* meanings, through processes of deconstruction and re-contextualisation. In order to verify the relevance of Fundarò's methodologies and lines of research, many work spaces, materials, techniques and products have been detected and surveyed; during this documentation process in the historic centre, today mainly devoted to tourism, many artisans have been interviewed, involving them and their artisan skills and know-how in the project itself. The experience was greatly affected by the outbreak of the pandemic and the heavy restrictions it entailed. Several of the on-going projects acquired a strong relational and storytelling connotation when exploring new domestic and autobiographical aspects.

Keywords: Design · Post-craft · Everyday life · Palermo · Narrative

1 Where is the Craftsman?

Up until the industrial revolution, craftsmanship was the prevailing mode of production, generally characterized by small-scale, mass-production, through a combination of conception and production in the hands of the same individual, who brought together mastery of the tools, the knowledge and skills necessary for the conception and production of the objects and artefacts; furthermore, the figure of the craftsman was at the centre of the processing of know-how that was often non-formalized, widespread and shared in local communities and contexts.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 197–207, 2024.
https://doi.org/10.1007/978-3-031-49811-4_19

Italian design has developed its own specific, cultural and local character, based around relational, collaborative, experimental design, which has often been able to enhance and transfer artisanal know-how to the industrial dimension and contemporary idiom.

In fact, Italian design is recognized as having an "artisanal root" that has nurtured its particular quality:

"[…] an economic and industrial system has developed through a particular and original process of modernization of artisanal culture, transferred to small and medium-sized industries, and from the design and artistic culture of the humanist tradition, reworked by that cultural phenomenon known to all as Italian Design." [1, 21].

IIn the 1980s, a recognized master of design like Enzo Mari also tried to visualize in a unified framework the constant presence of an "artisanal gradient", also in the industrial world, extending the dimension of craftsmanship to the contemporary world and illuminating its connections (also ethical and political) with design planning. In setting up the 1981 exhibition *Dov'è l'artigiano?*[1], Mari re-pieced together the two extremes within which artisanal practices and knowledge emerge in the variety of contemporary production: from the possession of the means of production and the convergence in a single figure responsible for design and execution, to the other extreme, in which there is a complete dissociation of individuals and skills that implement the various phases of the production process [2]. Alongside the many theoretical reflections and design approaches regarding the permanence of an artisanal dimension in Italian design culture, it is today worth comparing an authoritative point of view from outside the discipline, which has broadened the debate on craftsmanship with its relevant social, philosophical and cognitive implications. The pragmatic sociologist Richard Sennett proposes to "[…] save the *animal laborans* from the devaluation that Hanna Arendt had made of it" [3,272]. Pupil of Hannah Arendt (author of this definition), Sennet demonstrates, through a rich repertoire of examples drawn from history, a thesis that he has placed at the centre of his volume *L'uomo artigiano*[2].

"[…] making physical objects also provides insights into techniques that can shape relationships with others. Both the difficulties and the possibilities of making things well also apply to the building of human relationships" [Ibid., 275].

From the practice of the *artfully made*, from the adaptive and contextual intelligence of the craftsman, according to Sennett, there emerge forms of sensitive knowledge and active adherence to social life, which can be effective responses to today's multiple ongoing crises.The complex and refined material culture, which the westerworld has managed to develop, once again becomes a model of personal identity and collective intelligence for the renewed centrality of the *artifex man* in the building of the individual's quality of life. Sennett offers us intense theoretical food for thought that has contributed to arousing in design culture an interest in, and adherence to, new models of craftsmanship, also in the light of the themes of digital and social innovation, fostering of the individual and social ties and the building of virtuous relationships for the environment in urban and territorial contexts.

[1] Where is the Artisan? (Author's translation).

[2] Man as Craftsman (Author's translation).

In design culture, the historic and recurring *querelle* between the proponents of industrial and/or craft production today certainly appears to be definitively outdated; on the other hand, systemic and strategic approaches are emerging, implemented through design processes that combine conception, production and fruition of goods, both material and immaterial; these approaches are geared towards the protection of the environment and the community, which require individuals endowed with cultural awareness, creativity, traditional and advanced technical skills. Moreover, the identity and emotional value of the product is being increasingly emphasized, while today's complex production, communication and consumption systems fuel an adaptive and inclusive, expressively and technologically hybrid design, which has marked the transition from "Industrial Design" to "Design", in its broader and more structured meaning of human-centred and environment-centred design.

2 Ordinary vs. Extraordinary

Starting from these concise considerations on the contemporary interpretations of the relationship between craftsmanship and design, we would like to propose a reflection on the traditional craft productions of our object landscape, not only for its character of *permanent archetypes,* which still support many of the activities and rituals of everyday life, but also as triggers of a complex configuration of meaningful relationships, both material and immaterial, between people, things and living spaces.

The aim is to verify the possibility for designers not only to create innovative objects and functions, but also to reconfigure - through design - the meaning of what is part of the ordinary scenario of the predominantly 'anonymous' things that surround us, by trying to associate the designer's skills with an ethno-anthropological, analytical capacity and a 'story-telling' expressiveness, capable of producing that "[…] functional knowledge for living in a socio-cultural context" that is today increasingly central to the mission of design [4]. Interaction with contexts, practices, subjects possessing traditional knowledge, is one of the ways in which design offers itself as a process of essentially cultural reworking and innovation, in the development of new functional and symbolic qualities of objects; this process can lead to the emergence of the extraordinary even in an object of ordinary, everyday use, something seemingly linked to the past.

Because, as pointed out by the anthropologist Pietro Meloni, "Ordinary is something apparently banal but at the same time highly complex. The definition of ordinary is in itself ambiguous; it means something that cannot be understood without an advanced level of deconstruction and re-contextualisation within the social space" [5,84].

Meloni's words are an invitation for the designer to retrace all the cultural processes and narratives, the bearers of which are the artefacts and craftspeople still operating in the everyday and in the proximity of, for example, certain particular urban environments; they offer up an invitation to trigger new and 'extraordinary' meanings through the processes of invention, transformation, deconstruction and re-contextualisation that are inherent to design. (Fig. 1)

These reflections on the connections between design and traditional production have stimulated and guided a series of didactic experiments that, albeit at different times, and different conditions and outcomes, have aimed to propose "[…] a renewal of the tones,

Fig. 1 .Notebooks, Edizioni Precarie

narrative, emotional levels and relationships that design can finally adopt with regard to those anthropological themes that have always remained outside the narrow confines of modernity" [6,43].

3 Anna Maria Fundarò: Design as Material Culture

In analysing the state of the art of craft production in the historic centre of Palermo - the subject of this paper - it is essential to start from the teaching and scientific experience of Anna Maria Fundarò, founder of the School of Design in Palermo. In fact, Fundarò, in the 1980s, abetted by the extensive involvement of students and collaborators, produced a comprehensive map of handicrafts still alive in the historic centre[3]; in its original vision, the study of the artisanal skills and practices still present in the historical quarters constituted the necessary premise for reactivating, through innovative design, a new Sicilian material culture, characterized by its relationship with the history of a city and a territory, geared towards forms of sustainable development for a community aware of its own cultural identity(Fig. 2).

It should be noted that, while today the characterising link between Italian design and craftsmanship in its multiple local forms is a scientifically established fact, in the 1970s

[3] The research, which was selected in 1981 for the 12th Compasso d'Oro exhibition at the Milan Triennale, was published in the same year in the volume 'Il lavoro artigiano nel centro storico di Palermo' (Craftwork in the historic centre of Palermo*);* an extraordinary encyclopaedic atlas of craftsmen's trades, which includes drawings, historical documentation, and testimonies from craftsmen, and which covers the city, working spaces, objects, tools, and people.

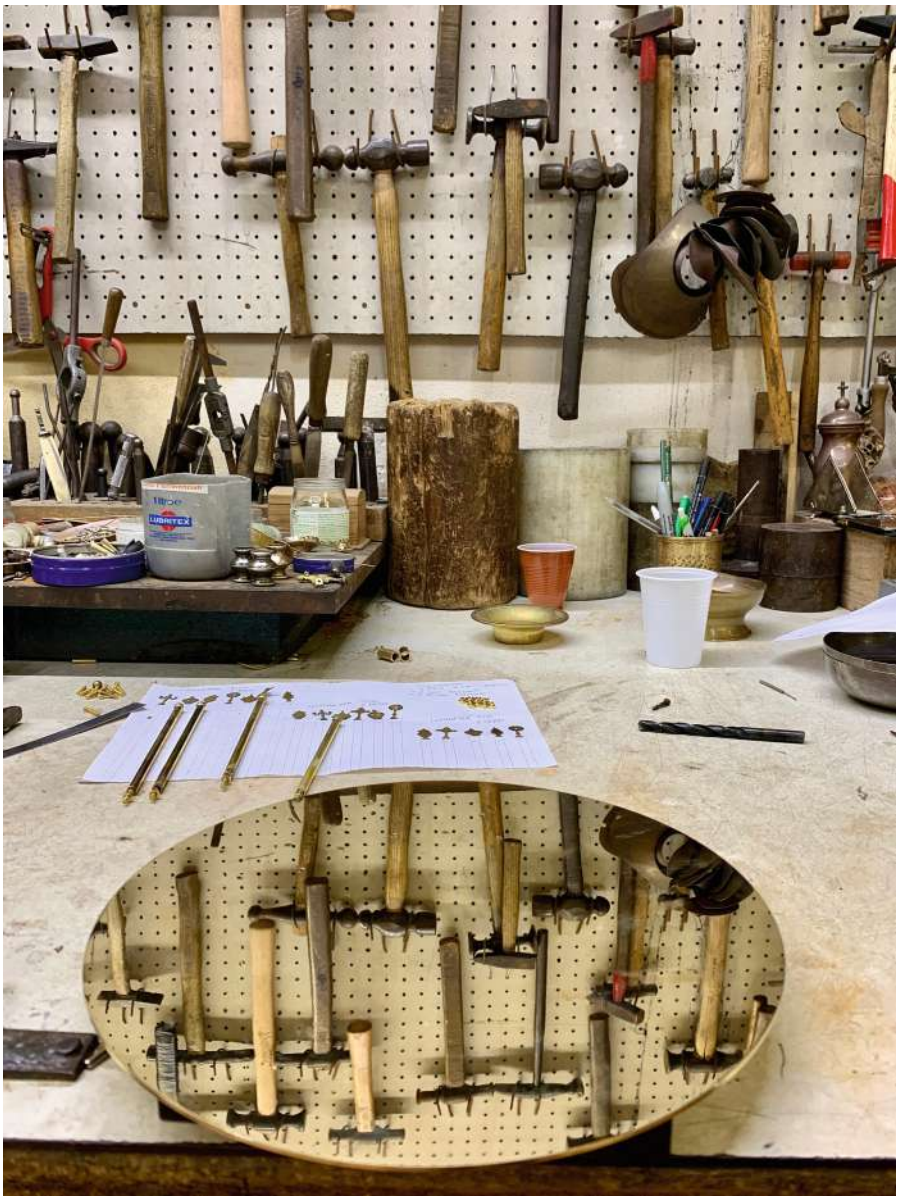

Fig. 2. Small Sacred Space of A. Di Bernardi. Realization in the workshop of master silversmith A. Amato

and 1980s only a few avant-garde designers tried to combine design with craftsmanship as an expression of a widespread folk culture, starting from positions that were highly critical of industrial mass-production and its disruptive social and cultural implications[4].

It was only much later, through an intense process of reworking the subject, that the scientific community of design focused (in local contexts, steeped in traditional knowledge and non-formalised design practices) on that particular innovative dimension rich in cultural connotations that is typical of Italian design, proposing the concept of "design for the territory and for traditional production"[5].

Today's design culture is reintroducing artisanal and neo-artisanal production[6] (and post-artisanal) in a rapidly evolving scenario, linked to a new centrality of innovation in social and digital manufacturing[7], which nurtures the widespread creativity of *fablabs* and *makers*, with the additional prospect of greater self-determination on the part of the individual as regards market supply.

Exemplary in its breadth and methodological quality, themes of renewed relevance emerge:

- The relationship of continuity and/or discontinuity between pre-industrial modes of production and design;
- Craftsmanship providing a way and a place of experimentation for the design of the industrial product;
- The cultural and anthropological dimension that emerges from traditional formal and figurative material; and which enriches artefacts with fascinating non-material content (individual and social histories, practices, values and ideas shared by the community);
- The research and scientific classification methodologies "in the field" of traditional knowledge in historical contexts, developed as support for design planning.

[4] A distinctly anti-academic approach was that of Riccardo Dalisi, who at Napoli experimented with forms of collective creativity, such as "less polluted samples possible by culture" [7,84]; or like Alchymia by A. Guerriero, we proposed the design- crafts for a predominantly expressive purpose.

[5] In 2008, in the in-depth quantitative and qualitative mapping of Italian design research, set out in the book "Design Research Maps / Prospects for university research in Italy" [9], the scientific activities attributable to "Identity, territory, and local production" are significantly placed in the sphere of "Beyond Made in Italy: new frontiers of design research", as if to confirm Fundarò's intuition that the future must be planned starting from its own cultural identity.

[6] *The New Craft* exhibition set up at the Fabbrica del Vapore on the occasion of the 21st Milan Triennale Exhibition, illustrates the relationship between craft and advanced technogy in different fields of design with particular reference to digital production technology and 3D printing [8].

[7] Digital manufacturing is based on the introduction of the most advanced digital technology, such as numerical control and laser cutting machines, 3D printing systems, which make it easy to produce small series and customised products, profoundly changing not only the production processes but also the organisation and management of the factory. But craft workshops have also profoundly changed their set-up, contaminating themselves with the world of *fablabs* and *makers*. For institutions, too, the transition to "Manifattura 4.0' has become a strategic objective of economic planning lines.

4 New Craft in the Historic Centre

Recently[8], the spirit and scientific approach of A. M. Fundarò [10] was re-proposed through a comparable, extensive survey and documentation of urban spaces, craft ateliers, materials, techniques, products, in the old centre of Palermo; the research and didactic experience were tackled by students and teachers with a particular willingness to listen to the individuals possessing artisanal know-how, something which is at increasing risk of extinction, yet is still relevant in relation to a strongly changing urban identity.

Whereas the new tourist vocation of the old centre has led to the flourishing of small and very small craft workshops (often dealing purely in *bricolage*) geared mainly towards reworking a cultural tradition that has been deconstructed into stereotypes for tourism, some craftsmen (e.g. sheet metal working for everyday tools, precious-metal working, the production of *coppola*, the typical Sicilian hat, and other traditional head-gear) continue to express their know-how, techniques and figurative range, alongside innovative experiments by young neo-artisanal designers(Fig. 3).

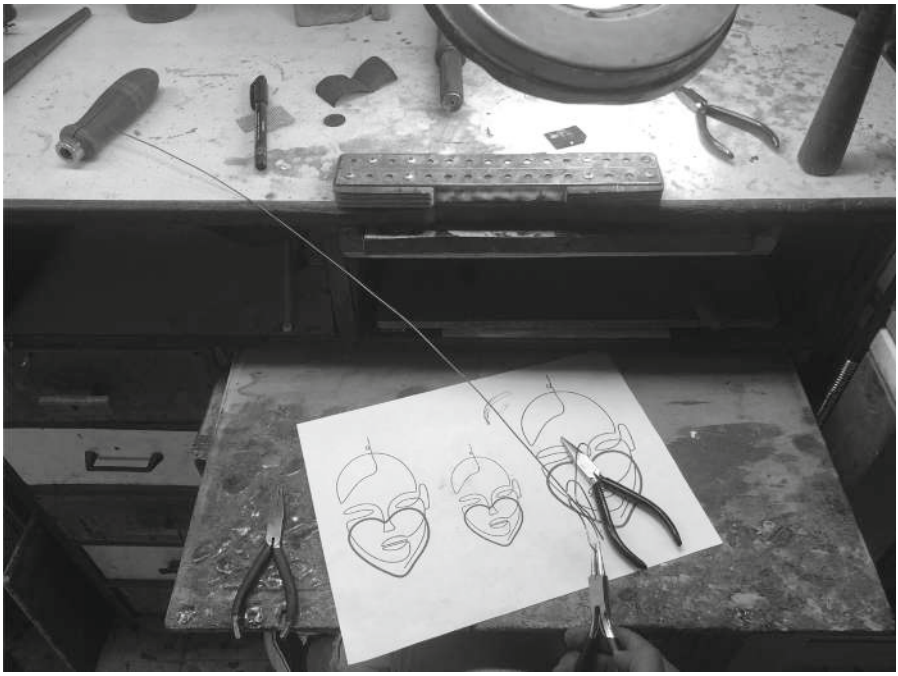

Fig. 3 .Next-Voto by C. Corteggiani. Realization in the workshop of the master goldsmith R. Intorre

[8] Master's degree course in Design and Culture of the Territory, Laboratory of Design for the Territory, Prof.Viviana Trapani, a.y. 2018/19.

Edizioni Precarie[9] is an operation devoted to graphic design and "artisanal design"; it was founded in 2013 in Palermo by Carmela Dacchille, who was motiva-ted by a poetic reflection on the widespread folk-art in artefacts of everyday use. She carried out thorough research, collection and classification of the paper used in wrapping food in the city's historical markets, and this led on to collections of notebooks, albums, illustrated stories, produced with hand-crafted, artisanal, calligraphic systems, in a process that is simultaneously design, artistic *post-production*[10], social innovation and urban revitalisation. In fact, *Edizioni Precarie* also presents itself as "[…] a physical place that, in addition to being a design studio and production workshop, is also a container for projects and ideas born from the creativity and commitment of new artisan designers, illustrators, graphic designers and photographers"[11].

5 New Domestic and Autobiographical Dimensions: Projects

The proposed educational experience was also greatly affected by the simultaneous outbreak of the Covid 19 pandemic and the considerable spatial and psycho-physical constraints to which all were subjected. Thus, some of the projects and objects developed, despite their material and functional diversity, acquired a strong relational and narrative connotation, presenting themselves as devices for exploring new domestic and autobiographical aspects, bearers of symbolic meanings often pertaining to the realm of the sacred.

Federica Pravatà's work starts from a reflection on the new dynamics of cohabitation as dictated by the Coronavirus, which had us living in a suspended time of almost zero socializing and a new way of working (smart working). Homes suddenly turned into offices, classrooms, gyms, but above all, domestic space once again became a place of welcome, caring, cherishing affections and emotions, and all enhanced by the pandemic. The quarantine in fact provided food for thought regarding the homes we inhabit, in particular, the resilience of the spaces of our small *living machines*, where all the complexity of our private and public spheres was concentrated; and it was often necessary to radically rethink the relationships between spaces, people, and behaviour in order to rediscover new aspects of well-being and security, of both the individual and the family.

The project started from conversations with the artisans in via Calderai, a street in the historic centre of Palermo, still characterised by a homogeneity of production for specific activities: bread and cake making, garden work, catering. The tools, techniques and materials (mainly metal sheets), together with the artisans's tales fuelled the project idea: a portable, light and user-friendly luminous device (made from reused sheet metal utensils for food preparation and socializing) to be built and sold in via Calderai. In fact, the project uses an aluminium sheet mould used for baking a typical Sicilian cake, to

[9] Edizioni Precarie's design idea was selected for ADI Design Index 2015 and nominated for the Compasso d'Oro 2016.

[10] The reference is to the concept of post-production proposed by the art critic and curator Nicolas Bourriaud [11] to illuminate the peculiar character of contemporary art, which tends to elaborate existing works or objects, rather than to pursue originality and absolute creation.

[11] https://www.edizioniprecarie.it/

create a portable container-lamp, which follows people's movements in the temporary organisation and functionality of domestic spaces.

Ambra Di Bernardi's project was developed in collaboration with Antonino Amato's Fabbrica Artigiana Argenteria, which produces and restores artistic and sacred silverware. The aim was to bring the concept of the sacred back into the home; precisely because of the pandemic, the home, as well as a space for sharing affections and emotions, may become a place to refocus on essential values and rediscover the symbolic dimension of the things that give it its lifeblood. The project proposes the construction of a small and precious "sacred space", to be positioned in a privileged place in the home, to preserve and at the same time showcase memories and values, both personal and shared, through the display of the objects that are most precious and evocative for us; this functionality is unheard of in our cultural tradition, but it may bring to mind the small domestic altars of Shinto tradition (*Kamidana*) often found in Japanese homes.

The object created by Maestro Amato consists of a silver or brass plane; eighteen thin rods of different and decreasing heights are grafted onto part of the edge, supporting figurative elements taken from the Christian liturgy, selected from the silversmiths' repertoire (candelabra, crowns, monstrances, *ex-votos*, thuribles, cross-shaped reliquaries, etc.) and redesigned in such a way as to allow for a miniaturised and two-dimensional production. The possibility of adapting the object to requests for customisation was realized through the design of a system of variations in the relationships between all the elements (the material, the shape and size of the base, the height of the rods, the arrangement of the elements on the plane).

Next -Voto by Carolina Corteggiani is proposed as a *contemporary ex-voto*, conceived during the period of generalised lock-down due to Covid 19. The *ex-voto*, which over the centuries has represented an object of worship, to bond with the divine, in this project is stripped of its devout connotation to become a secular object, the bearer of a complex emotional meaning that reflects a precise historical moment. Like the traditional *ex-voto*, it takes on the significance of a gift and a token of gratitude; but in this particular circumstance it is directed at those people who protected and reassured us in a time of great difficulty.

Through a small and iconic artefact, an armband depicting faces covered by masks, we wish to remember and pay tribute to the work done by doctors, nurses and all the people who have been committed to caring for our health: those who, clad in protective suits, with marks left by masks on their faces after so many hours of work, ensured care, safety and comfort to those in need during the most critical periods of the COVID-19 pandemic. *Next Voto* was handcrafted in the workshop of Roberto Intorre, an architect and goldsmith from Palermo, in 925 silver and brass, from a 1 mm thick foil. Even the elastic clasp of the bracelet, which, in the women's version, allows it to be worn on the wrist, is reminiscent of the medical mask that we have been wearing for so long. *Next Voto* has also been reproduced in a resin version, through an innovative 3D printing process using SLA stereo-lithography.

6 Conclusion

In conclusion, it might be stated that the interest and originality of the research and the project presented, in my opinion, consists in having placed awareness of one's own cultural, spatial-temporal and also existential perspective at the centre of the research and project design; teachers and students accompanied the development of a project of great complexity, which was, at the same time, of an extremely concrete nature, transforming a particularly difficult situation (e.g. due to the pandemic), in terms of social relations and working activity, into an experience of introspection and learning through listening and empathy established between all those involved in the process. Moreover, the "extraordinary everyday", in the sense of everyday life outside the norm, that we all experienced during the pandemic, may in any case be understood as an aspect of a more general need to reorient design towards those "anthropological tonalities and themes" that Andrea Branzi has been proposing for some time, for a design culture capable of dealing with ever broader and more systemic states of crisis.

References

1. Bosoni, G.: Tipo e controtipo nello "stile" italiano. Tradizione e innovazione nel disegno industriale per lo spazio domestico. In: Bosoni, G. (ed) La Cultura dell'abitare. Il design in Italia 1945–2001, p. 223. Skira, Milano (2002)
2. Mari, E.: Dov'è l'artigiano. Electa, Milano (1981)
3. Sennet, R.: L'uomo artigiano, p. 315. Feltrinelli, Milano (2008)
4. Striano M.: La narrazione come dispositivo conoscitivo ed ermeneutico. M@GM@ Rivista Elettronica di Scienze Umane e Sociali, **3** (3) (2005)
5. Meloni P.: La vita quotidiana come progetto socio-culturale: note di antropologia del design. In: Lotti G. (ed.): Interdisciplinary Design. Progetto e relazioni tra saperi, pp. 82–101. DIDA Università di Firenze, Firenze (2004)
6. Branzi, A., Linke, A., Rabottini A.: Gli strumenti non esistono. la dimensione antropologica del design, p.55. Jhoan&Levi, Monza (2013)
7. Branzi, A.: La casa calda, pp.156. Idea Boobs Edizioni, Milano (1984)
8. Micelli, S.: New Craft. Marsilio, Venezia (2016)
9. Bertola, P., Maffei, S. (eds.): Design Research Maps/Prospettive della ricerca universitaria in Italia. Maggioli Editore, S. Arcangelo di Romagna (2008)
10. Fundarò, A.M. (ed.): Il Lavoro Artigiano Nel Centro Storico Di Palermo. Università degli Studi di Palermo, Palermo (1981)
11. Bourriaud, N.: Post Production. La culture come scénario, Dijon (2002)

PROCESSES

Archives and Processes

Francesca Zanella(✉)

Department of Engineering Enzo Ferrari,
University of Modena and Reggio Emilia, Modena, Italy
francesca.zanella@unimore.it

Abstract. The discipline of design is today marked by a profound transformation of design processes and methods arising out of the comparison with scientific research methods (from biotechnologies to artificial intelligence), calling into question even the formal dimension of the object which has been the fundamental characteristic right from the origin of industrial product design. The conceptual and creative process benefits from this comparison, and also from an analysis of the system of objects and reference models. In this way, research, with the connection between different fields, and the relationship with the past, and therefore with the various repositories of artefacts and traces of experiences, represent two fundamental elements. As a result, it is important to enquire, both from a historical and operational perspective, into the role not only of collections but also of archives as tools, objects, spaces of collection, stratification and the exchange of traces, that is, of segments of the work of the designer, but also of the laboratory, and therefore closely connected with the process.

Within the conference processes section, therefore, it has been considered necessary to reflect on the role of the archive which, for the discipline of design, represents its origin, since, to different extents, it brings together and preserves the traces of processes and, thanks to the different structures and compositions of each archive, imposes a constant questioning of what is design; in this paper, such reflection will be made on a limited sample of specific 'Personal Archives' or 'Personal Papers', focusing on the 1970s, to highlight themes and methodological approaches.

Keywords: Processes and Archives · Enzo Mari · Bruno Munari · Alessandro Mendini · Design

1 Processes and Archives

What is the nature of a design archive and how does it help us to investigate the meaning of process, creativity, conception and of knowledge production and sharing?

These are two compelling and closely connected questions about which an increasingly heated debate is developing, even if fragmented within different disciplinary contexts, from the history of design to theory and project, to archival and information theory disciplines.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 211–224, 2024.
https://doi.org/10.1007/978-3-031-49811-4_20

On the one hand, the archive is a representation of the contemporary dimension of renewed processes of knowledge sharing and production [1–3] which make new interpretations of the archive necessary, also with respect to the unavoidable lesson of Foucault [4] and Derrida [5]. On the other hand, the archive is a symbolic representation of contemporaneity, thanks to its centrality for certain visual research [6–10], and, by extension, to the new directions of design, a design which is an increasingly complex and extensive discipline and practice due to its relational and interdisciplinary dimension, whose flow between creation, research and production is well represented by the Krebs creativity diagram, as suggested by Paola Antonelli [11]. The designer, then, becomes a connector between areas of knowledge and practices, inside a new context of cultural and aesthetic artifacts-goods whose value derives from an evaluation of the power of the signs and symbols conveyed by media icons and physical artefacts [12]. He/she is a connector of different methods of production: not only that of robotics and industry 4.0, but also that which is handcrafted, still crucial, as Richard Sennet points out "What does the process of producing material things tell us about ourselves?" [13, 17].

There are numerous analytical approaches: those who work in the field, producing 'archives' and data repositories, those who organise and manage said repositories, and those who investigate them to analyse and reconstruct contexts and histories. The archive, in fact, has always been a place of historical research, but with respect to the long history of this activity, in this case, our point of reference is that defined by the lesson of the school of Annales [14, 15], and therefore by the structuralist turning point, from the foundational contribution of Foucault, to that of Derrida, to the post-Foucault reflection [16] and then the tradition of studies that from the end of the 1990s embraced a return to the archive in the context of artistic research, which has strongly influenced curatorial and museological practices and historical-critical studies, as well as the transformation imposed by the digital dimension [17].

In the more limited area of design archives and their role in historical research, it needs to be pointed out how a reflection on the nature of historical sources is still central: "If we consider humanistic disciplines as 'text-based disciplines', we have to ask ourselves: what is text for the history of design? How is the text established? That is, what do we classify, date, interpret, study, when we find ourselves before the project of a material or communicative artifact?" [18, 16]. These are the questions Dario Scodeller poses to define the specific scope of investigation of the histories of objects, projects and, therefore, processes. The system of sources in the context of design, as of the arts, is, in fact, extremely complex, being composed of a multitude of texts, but also of collections that are the result not only of dispersions, omissions and cancellations, but also of different constitutive processes. In contrast with the traditional archive, that on which the archivist discipline was initially based, design archives are analysed both as a product of the creative process, and as artwork in its own right, and it is precisely in this dual nature that the history of the gathering of archives, fonds and collections resides, and in which, precisely for the ambiguous nature of these documents, both the act of the selection of single segments on the basis of an evaluation of quality and aesthetic value, and the safeguarding of the series, are of primary importance.

For all these reasons, it is the story of making the archive, all archives, and therefore also that of design, that must be considered; this is the central question for Beatriz

Colomina [19] who, starting from two extreme cases, Adolf Loos and Le Corbusier, decodes the nature of each archive considered as an expression of a precise idea of personal memory which inevitably conditions the historical investigation. This awareness is even more necessary when we try to understand what the processes of design in different historical phases are. To support this hypothesis we can refer to the reflections of Giorgio Agamben in his archaeology of the work of art, in which he affirms the need to interpret the past as a "shadow cast on a question addressed to the present" [20, 9], and in which the nature of contemporary art is investigated, indicating as a path of research in the context of post-Duchampian art, the drawing "from scratch of the map of the space in which modernity has placed the subject and their capacities" [20, 27]; this subject, the artist, "in constantly practicing their art, seeks to establish their life as a form of life itself" [20, 28].

In order to verify such an affirmation, we have set out to analyse a number of cases of 'Personal Archives' or 'Personal Papers', limiting our attention to a historical period of transformation of the discipline of design, practices and critical reflection, particularly significant for the role assigned to the archive: that is, the brief period of time between the end of the 1960s and the following decade of the 20th century during which there was a change of direction within both visual and design research, due to the need for a definitive overcoming of modernist aesthetics and ideology that is based also on an idea of process linked to new practices and a new idea of design.

The 1970s were years in which the artwork was referred to as a process in which the performance dimension cited by Agamben is fully evident, leading to a reflection on what is the boundary between work and document [21].

In the context of the field of design, it is in this decade that the awareness of the need to propose alternative paths to the myth of design as it had been constructed in the sphere of the Modern Movement, founded on the language of abstraction as a formalization of the myth of the machine, on the one hand, and on the utopia of design as a rational tool of action on reality, on the other hand, fully matured. Composition began to be refused; the reference model was no longer that of methods and industrial processes. Investigative methodologies and field work were borrowed from other disciplines, and academic exchange extended to scientific and artistic research. All this also affected the production of 'artifacts', the design process, communication languages and therefore, philosophical and critical debate in the sphere of which new perspectives started to arise with respect to the reflection that, for example, Giulio Carlo Argan had proposed in the 1950s. In the writings of this decade, Argan had developed a reflection on design as a field in which to verify the analysis of the making of the work starting from the phenomenology [22], to identify the social transformation element of the project, establishing "the point of entry of art into design, and the place where to verify its social function, not in the final appearance of the product, but in the process" [23, 32]. With respect to this viewpoint, new critical hypotheses were appearing already in the 1960s. One of these is that of Filiberto Menna who, according to Maria Giovanna Mancini, gradually moves away from Argan's theses, both in seeing design "as a vehicle of social changes" [24, 22], and in the subsequent acknowledgement of a crisis in design and in contemporary culture as a crisis of the link between design and society in which the process is replaced by planning [24]. Filiberto Menna, instead, in his *La Regola e il caso* (The rule and chance) (1970),

puts at the centre the individual and the dynamics of play and the dimension of eros in response to the failure of design: "The interest for design is instrumental to the much wider interest for the subject" [24, 28]; this is a position that finds a clear demonstration, for example, in the analysis of the work of Bruno Munari, and in particular, his *Sculture da viaggio* (Travel sculptures) [25].

The debate which is, obviously, not polarised by these two voices, evolved, arriving at the exhibition organised by Emilio Ambasz for MoMA *Italy the New Domestic Landscape* (1972), that junction which today is recognized as an important turning point, a show with which a change in the way of considering the product and the dynamics of its creation was confirmed.

The essays published in the catalogue by Argan [26], Menna [27], Alessandro Mendini [28] and Germano Celant [29], called on to reflect on the specific Italian situation, portray a critical picture undergoing change, implying, even though not stated explicitly, a transformation of practices and therefore a change in the nature of archives, which are no longer only witnesses of design processes as a means of mediation between the demands of those who produce and those who use: it is no longer only the drawing, the model and the photographic documentation that transmit the creation of a project, from conception to production. The Counter Design section states this with clarity. Celant's interpretation clearly reveals the sharing with artistic practice of a new way of considering the relationship between the final object and all the elements that lead to the work, in some cases replacing it. It is a critical position strongly linked to the culture of the neo-avantgardes, shared by a number of exponents of Italian and also international design. The critical contributions of the paper, complementary to the thesis of the exhibition, lead us to ask a number of questions which we will try to answer through the cases analysed below, that is: What traces does the process and performance dimension, that prevails over the artwork, but also over the product, which during the 1960s and 1970s took on an aesthetic value, leave in the archive? What is the nature and the function of the archive in this phase in which the modern industrial model, with its almost 'authoritarian' structure, is under question, a situation countered by, on the one hand, a different meaning of goods [30], and on the other hand, a return to the individual dimension?

2 Through the 1970s

2.1 Bruno Munari. The Rule and Chance

"Theoretically, designing a chair should not require more mental effort than using it. In Munari's strongly reductive methodology, conception and fruition coincide, while remaining distinct moments. This, I believe, is the most original aspect of his research" [31, n.p.].

That is how Giulio Carlo Argan presented the catalogue of Bruno Munari's donation to the University of Parma, highlighting the visual and optical nature of Munari's work for which "the object is born as an object in the instant in which it considers the subject in a parallel and symmetrical way" [31, n.p.]

In effect, from *Artista e designer* (Artist and designer) (1971), to *Da cosa nasce cosa* (One thing leads to another) (1981), to museum education, to the films of Monte Olimpino, to 'didactic drawings', we can trace a constant attention to the problem of

use, an attention transmitted through different media. In the dictionary dedicated to Bruno Munari [32], Marco Sammicheli inserts the entry "Collectionsim", with which he describes the map of "a number of Italian paths" for research on Munari, and to define the character of the "precious repositories" [32, 86] distributed in the territory that provide resources for studies and curatorial projects. If carefully analysed, the mapping reveals the nature of Munari's work, on the one hand, and the mechanisms of aggregation and dispersion of his works (whether objects, books, notes, drawings…), on the other hand.

There are private collections born out of passions and obsessions, or those which reflect the dynamics of the market as, for example, the Sonia and Massimo Cirulli or the Giancarlo Baccoli collections; corporate archives that bear witness to work and collaboration relationships, starting from Jacqueline Vodoz and Bruno Danese's collection; public archives and collections that direct the attention towards certain specific segments of interest, and which should be investigated also as evidence of critical attention, and sensitivity to heritage and also to cultural fads. At this point, we could mention the CSAC of the University of Parma, the collections in the Museo del Novecento in Milan and the Museo del Novecento in Florence and MART in Rovereto, among many others.

The "Collectionism" entry, therefore, is much more than an inventory of sources; in facts, it leads us to ask ourselves what is the origin of these heritages in which the timeframes and practices of work, creation and production coexist with those of the subsequent lives of the works. To what extent do these timeframes, which are the timeframes of the archive, affect the "written history"?

In the case of Munari, we can do so starting from one of the first collections – that intended for the department of Design at the University of Parma and the result of a dialogue between the designer and his interlocutor, Arturo Carlo Quintavalle. The 'construction' of that nucleus is characterised by an exchange between the 'design intention', becoming a sort of manifesto, a work among the works of Munari, and a logic of collectionism, that of the historian. The nucleus of materials used to document the present, is strongly linked to a moment of critical reflection on design and the relationship with art, particularly crucial for Munari. The collection, in fact, starts from the donation of a drawing for a *Useless Machine* (Macchina inutile) of 1947, followed by the acquisition over two years of design objects and materials that reveal all the aspects of Munari's research, from *Travel sculptures* to *Negatives-positives*, xerographs, illustrations, books and graphic design, games, industrial design, whose design process is not documented systematically, but through exempla, thereby putting to the test the historian who is forced to understand the reasons for the ideational processes, the ways of investigating problems and their formal solution.

2.2 Enzo Mari Design and Archive

In contrast with "the rule and chance" that informs the network of deposits and collections linked to Munari's activities and the construction of the archive, also in the stories of its structured "fragmentation", among which we can mention, for example, also that of the different deposits and collections of Ettore Sottsass jr. [33, 34], there is the "Aesthetic Research" archive of Enzo Mari which not only restores, but is also a research, project and communication tool.

To understand how and why the archive for Enzo Mari is part of the research process and is not only a product and witness, we cannot fail to take into consideration the first important occasion of the systemisation and communication of his work method, the *Funzione della ricerca estetica* (Function of aesthetic research) volume edited by Edizioni di Comunità during the monographic exhibition in Verona at the Castelvecchio Museum in 1970.

"At 37 years of age, I find myself having either hypothesized or planned or created certain 'artifacts' in the light of needs considered primary from time to time. Today I consider it a priority to communicate the development of this work and its reasons (my work, unusually, can be defined making use, at the same time, of the terms artist and designer, which are already in themselves abstract and adulterated)" [35, 5].

This is how Mari presents the reasons for the book in the introductory notes, starting from the way he views research, an "analytical process that through exemplifications and models, tends towards the clarification of language and its ends, cannot do without a working methodology: this is a constant need of design" [35, 52]. Research is, therefore, an autonomous and founding process, inside of which the artwork is a research tool that requires continuous verification through the project as a "series of operations performed to implement what is considered useful in the light of priority needs" [35, 10].

Leaving aside the programmatic introduction, albeit important because it confirms Mari's understanding of the need to define a communication tool, after years of activities in the sphere of the visual arts and industrial design, we are interested in analysing the structure of the volume, the heart, in effect, of the 'visual' treatment conducted through works and design materials.

Drawing a grid that runs through the over 100 pages of the catalogue, Mari restores his work, distinguishing between research as verification and research as project, demonstrating through the works produced from 1954 to the end of the 1960s, what are the themes identified by him in the context of aesthetic investigation, tackling the relationship between artwork and design, from modular programming applied in multiples to mass production. This founding text for understanding Mari's work has a series of problems that deserve a wider analysis that takes account of his theoretical references at this time, and its position inside a heated debate on the ideological dimension of design and artistic practice: from the objections that the same Licisco Magagnato, director of the Castelvecchio museum, makes in the preface on the theses sustained by Mari on the nature of the relationship between artist and client which cannot be of a paternalistic nature [36]; to the verification of the consequences of Mari's positions with respect to the market in those years; to the evaluation of the opinion of Alessio Fransoni who claims that the distinction between research as verification and research as design hides the usual division between art and design [23, 9]; to the continuity with respect to his individual design researches with which he participated at the Compasso d'Oro award in 1967; finally, to the contextualization of this 'treatise' within the experience of *Nouvelles Tendances* with respect to work themes: "A work which we consider as founded on a certain structural methodology and on the will of conscious enquiry, for which we believe it is possible and useful to verify our intentions, especially in specifically technical terms; in the variation, in the programming, in the forms in which we structure them, and in all those aspects of our research that affect aspects and problems belonging

to that vast panorama in which, […] we want to participate as directly and collectively as possible" [37].

The archive can be understood as the counterparty of this visual treatise. A counterparty because the archive is closely connected with work, and is an expression of it and an integral part of the space of the work; it's not a communication tool, and therefore, belongs to the private sphere, according to Colomina's definition [19]. The archive, in its rigorous construction and nurturing, is a tool for recording the network of relationships and processes; it is itself a process; it is an exemplum to draw on as the basis of aesthetic research.

Mari adopts the canonical tools of the archivist: the inventory, the large books that contain the recording of the works and are the index of access to the materials; a model descriptive sheet of each individual project traced back to the categories of intervention. The archive is also a pedagogic tool of which it's important to maintain its integrity, safeguarding its architecture. For this reason, upon the delivery of the documentation to the CSAC of University of Parma, he draws up a catalogue card of each project. Mari integrates the by now codified information (title, client, contributors, dates and description, and then also illustrative materials and the means for assembly and transport) with fields that are used for describing the phases of the project: besides the description of the process, he records an analysis of the request and the context, the interlocutory position of the designer, and therefore the development phase of the study on the basis of the analysis carried out and the hypotheses chosen [38], followed by the recording of the executive phase.

The archive, therefore, is an integral component of the research process; it documents the project which, in all events, as affirmed even more clearly in the *Italy the new domestic landscape* exhibition in its *Proposal for behaviour* intended for the Counter Design section, without communication it remains a dead letter:

"the only correct undertaking for 'artists' is that of language research—that is, critical examination of the communications systems now in use, and critical acts affecting the ways in which man's primary needs (rather than ideologies as such) are conveyed—and almost always manipulated. For this reason, 'artists,' and those connected with their work, must not confine themselves to experimenting and devising new modes of expression but must show a fundamental concern for the manner in which the substance and implications of their research are communicated and received; and especially they must question who the interlocutors are." [39, 264]. For this reason, it's necessary to define a system for communication "it is not a question of simply making abstract pronouncements […] but of constantly bringing one's work (especially one's critical work) into relation with one's contingent reality, one's own will to make statements and clarify them, and one's own free, ideological choice, which alone can explain the motivations." [39, 264]

Communication, therefore, is a constituent part of the work of the designer. We could say that it is an integral part of the research and design process; it is a moment of exteriorization of the archive, through display and documentation.

2.3 Alessandro Mendini. The Vertigo of the List and the Theory of Fragment

"You're only interested in the drawn design as an arrow to be shot against the illogical logic of the productive mechanism, as a theorem for demonstrating the incongruencies of the system. You are interested in the design of the project, if not the planning of the design of the project. That is, you look, propose and meditate only on the "project of the man"" [40]. Thus writes Alessandro Mendini to Enzo Mari, one of the recipients of the epistolary with which he introduces the "Domus" issues in 1980, at a time when he was reflecting on the crisis of the project, architecture and design, in the "physical definition of the relationship between man, his environment and his objects" [41, 583]. It's a crisis of the project for which Mendini is searching to give a response also through an overcoming of its canonical codes. The definition of the relationships thus considered as a "design meditation through images" (41, 584) can be achieved with illustration (comics, screenplays, cartoons), because in this way it's possible to highlight the contradictions, the myths, the violences of contemporary culture: "An introverted kind of research, a project that reflects on itself, by non-professionals, freeing up a series of energies according to unpredictable practices and forms." [41, 584]

In this sense, Mendini talks of the "drawn design" as a way to overcome the rational dimension of design of which Mari is an exponent, offering us the opportunity to continue our analysis starting from this dichotomy. In the "drawn design" and in the "planning of the design of the project", we can identify two different processes and therefore two ways of imagining the archive. One archive that is an accumulation of images (Mendini), and another which is the systemisation of visual research (Mari): two ways for which the first can be understood as an auto-narration, and therefore an expression of an existential vision; the second, instead, as an investigative tool and dialectical and political action.

With respect to the question here identified of analysing the meaning of the term 'process' in the context of design and the role of the archive, Mari and Mendini represent two opposite visions. It's a distance/difference that is revealed precisely during the course of this decade, after both of them had carried out research on the themes of building prefabrication at the end of the 1960s, which Mari considered as a development of programmed research [42], while Mendini carried out this research between 1968 and 1969 inside Studio Nizzoli Associati, seeing in the meta-project a means for overcoming the concept of composition [43–46].

From this common territory of experimentation, a progressive divergence occurs, which for Mendini coincides with his exit from Studio Nizzoli Associati (1970) and his direction of "Casabella"; a divergence that finds evidence also in the way of understanding the design process and the way to lay the traces of one's own path. From a theoretical point of view, an important milestone is the already-mentioned New York exhibition at MoMA in 1972, in whose catalogue Mendini was called upon to contribute as the director of "Casabella". His essay [28] is complex, an attempt to combine the start of a reflection on Italian design founded on the evaluation of the relationship between design, production, and economic context, with the emergence of new requirements. Affirming the centrality of education for the design renewal process, he reveals the elements that are beginning to characterise his "other" status within contemporary debate. Foreshadowing the Global Tools laboratory founded in 1974 [47, 48], Mendini wishes for the logic of rational culture to be overcome by recovering imagination and

creativity. In this 'detached' and programmatic analysis of the Italian scenario, Mendini, however, reduces the space to the existential dimension that informed a previous article, *Architettura per l'uomo dimenticato* (Architecture for the forgotten man) [49], in which he affirmed: "design is the process through which humanity should achieve conscious formalisations of the surface of the globe, to create environmental surroundings which are symbolic and functional to giving a meaning to life" [49, 493]. Within a collective dimension, the designer must tackle underlying problems, taking on board the needs of the "key character in the design drama", the actor that represents nothingness, the forgotten man, diminished, posing the problem of the responsibility of the designer with respect to the underlying problems of the moment. The difference with an idea of design as a tool of social interaction, as per Argan, then developed by Mari, but also by Tomàs Maldonado [50, 51], lies in an existential-type interpretation, whose "existential scouts" are Kirkegaard, Nolde, Dreyer, Beckett and Bergman, which leads, for example, to replace the tools of town planning, based on zoning, measurements and statistics, with an approach to the transformation of the "crust of the earth", that is, to geological eras and stratification and perhaps a reference to the lesson of the geographer Pierre George [52].

Mendini's attention during the early 1970s shifted from the architectural meta-design scale to that of the object, a journey shared with other exponents of the radical avant-gardes: "Objects, drawings, ideas, are a translation of my own life in iconographic form, because my nature tells me to operate through images because it's the only way that suits me"; the points of reference are "my subjective and aberrated reaction, not the logic of the facts in themselves" [53, 515). It's a subjective reaction that passes through the physical dimension, in which the body is experience and a system of instruments: "If the body is the primitive and irreplaceable system of objects and rites available to man, the task of guaranteeing this critical conscience falls to design. It is up to it to discover an archaic and coordinated criterion of survival, movement, speed, phonetics, representation, the intensive use of the senses, biological self-control, sound and elementary rhythm, invention of his own body as a signal, meditation, relaxation…" [54, 538].

An awareness that leads to testing areas and methods with which design practices are called into question, therefore not only the products, but also all the outcomes of the design process, the documents, when in the project a creative intention is coupled with the execution of the artefact, adding a piece to the vision of the process as a form: "The pencil is also included in the general impasse of architecture, that is, that means, that tool that best summarizes the process of the project. But what is there beyond the pencil […] there is not the evanescence of film, there's instead the hand of man, the recovery of the anthropological physicality of design. Because only in this way or in the dialectic between these extremes, is it possible to create a true blank slate, the possible terrain to tackle the problems of the project from scratch" [55, 569].

Design is no longer made up of radical messages and revolutions, and not even a passage through which to create something definitive, valid for eternity "Because change in things is perhaps more important than stability, indeterminacy more than certainty and, a sense of the romantic more than rationality" [56, 518]

To understand in what terms it is possible to talk of archive, for Mendini we have to focus on the intensification, in 1974, of interventions characterised by an interpretation that contributes to reinforcing a 'different' approach to design: the list is one of the literary forms he took to circumvent the logical construction of the approach (we can refer to *Inventario* (Inventory), which introduces *Objects for spiritual use* in "Casabella" no. 392/393, *Accumulo di parole e dizioni che oggi mi piacciono* (Accumulation of words and phrases that I like today) in "Casabella" no. 385. How can we not refer to what Umberto Eco writes about Achille's shield in the Iliad being "the epiphany of Form, of the way in which art manages to construct harmonious representations in which an order, a hierarchy, a figure-background relationship between the things represented is established" [57, 12]. The shield introduces sequences of texts and pictorial representations selected by Eco to give examples of another narrative form, that of the list to which authors over time have turned to represent the *present* infinity, made of objects that may be countable but which we fail to number" [57, 15]. For Eco, the list is a narrative form to represent the indescribable, and the list is a rhetorical form, a reading that is well suited to the modalities that Mendini uses to develop his thinking, but also in the definition of his archive that he identifies as a part of himself,: "and which we can link to a widespread method in recent years in the field of artistic research, notes Cristina Baldacci, citing Rosalind Krauss's fundamental essay [58] "you yourself – more than your work – constitute the 'document'. Houses, things, signals, ideas, constitute your life in iconographic form, because nature and fate lead you to work by images, the only way that suits you. Here the story starts all over again, because the life-document is true and false, useful and useless, and always only a shadow of what could be" [59, 507].

In these reflections and in the *Teoria del frammento* (Theory of fragment), we retrace the elements that help us to decode the meaning of the collection of materials left to CSAC by Mendini: "It is good to disperse one's physiognomy, to falsify one's tracks […] I have an enormous 'dead archive', but woe if it leaves my house; goodbye to my reputation. Debris, residues, accumulations, fragments of projects and memories, mountains of cultural dung […] Almost everything is in a state of non-expression compared to the little I can show: as if it was the tip of an iceberg. Almost everything is slag with respect to the poor quality: as happens to gold seekers […] The project is an infectious disease that leaves you full of scabs, which stabilizes, cemeterizes, anticipates live the 'package' that I will be when dead. 'History' perhaps would mean slipping out of oneself. Instead, the things and the ideas that we have not the ability to detach from the contingency of our person are those that interest us most, in that they are authentic documents and relics of the man, not monuments of the superman […] It is necessary to introduce the maximum number of errors in one's biography; much weakness has much value." (60, 528–529)

These thoughts decode the series of materials donated in 1982 to the CSAC of the University of Parma: a flow of traces from 1956, of thoughts noted, of lists, of sketches, of satirical drawings constitutes a cloud of floating objects, abstracts from the flow of the design process, from the unity, from the logical and inseparable links typical of the project, but at the same time precious references to the many connections between the different media that Mendini used to carry out his reflection on design.

3 Conclusions

The aim of this contribution has been to verify whether, and in what terms, the process and performance dimension, which prevails over the artwork, but also over the product design, which during the 1960s and 1970s took on an aesthetic value, leaves a trace in the archive. Secondly, we question the nature and the function of the archive during the two decades considered in our analysis and whether the archive changes as much as the debate on design changes.

To investigate these questions, three very different cases have been considered, both for the nature of the design research of the three authors, and in the archives 'produced' by them: the multiplicity of Munari's archives and collections exemplifies how different collecting processes sometimes hinder the idea of an archive as a unique witness of the process, highlighting, at the same time, the 'ambiguous' nature of the design documents, especially for authors who, like Munari, don't separate artistic research from that of industrial design. With Mari and Mendini, we have two radically distinct ideas of the archive, the fruit of a precise debate on the idea of process and which must be interpreted in the light of this context.

In all three cases what should have emerged is how different conceptions of design process correspond to different methods of sedimentation of the traces of the work, which can sometimes be disjointed or autonomous with respect to the object, and therefore the possible different forms that an archive assumes in the end. Such an investigation is the starting point for a wider analysis that should be constructed through the complex system of design, in the transformations that occur over time, verifying the different roles of the various parties and therefore the different processes in the construction of archives. Historical research, if carried out with this awareness, can offer stimulating ideas and bring to light the relevance of archives as precious sources that exemplify investigative strategies, creative processes, means of exchange, and therefore exemplary heritage.

References

1. Appadurai, A.: Archive and Aspiration. In: Information is Alive, pp. 14–25. Nai, Rotterdam (2003)
2. Nancy, J.-L.: Où cela s'est-il passé? (entretiens avec Nathalie Léger). In: Le Lieu del'archive, suppl. La Lettre de l'Imec, Paris-Caen (2011)
3. Latour, B.: Ces réseaux que la raison ignore - laboratoires, bibliothèques, collections. In: Jacob, C., Baratin M. (eds.) Le pouvoir des bibliothèques. La mémoire des livres dans la culture occidentale, pp. 23–46. Éditions Albin Michel, Paris (1996)
4. Foucault, M.: L'archeologie du Savoir. Galimard, Paris (1969)
5. Derrida, J.: Mal d'archive: une impression freudienne. Editions Galilée, Paris (1995)
6. Foster, H.: Archival impulse **114**, 3–22 (2004)
7. Ewenzor, O.: Archive fever: photography between the history and the monument. In: Enwezor, O. (ed.) Archive Fever: Uses of the Document in Contemporary Art, catalogue of the exhibition held at the International Center of Photography, New York, 18 January–4 May 2008, pp. 11–51. International Center of Photography, New York (2008)
8. Baldacci, C.: Archivi Impossibili. Johan & Levi, Milano (2016)
9. Merewether, C. (ed.): The Archive. MIT Press, London, Boston, Whitechapel Gallery (2006)

10. Mancini, M.G.: Archivi sovraesposti. Storia dell'arte e dell'autorialità. In: Mancini, M.G., Maiorino, M., Zanella F. (eds.) Archivi esposti. Teorie e pratiche dell'arte contemporanea, pp. 15–24. Quodilibet, Macerata (2022)
11. Antonelli, P., Tannir, A. (eds.): Broken nature. 22. Triennale di Milano. La Triennale di Milano, Milano (2019)
12. Bassi, A.: Nuovi contesti e condizioni per il design contemporaneo. In: Bassi, A., Bulegato, F. (eds.) Le ragioni del design, progetto, ricerca, università, pp. 17–23. San Marino University Press, San Marino (2014)
13. Sennet, R.: The Craftman. Penguin Book, London (2009)
14. Le Goff, J., Nora, P.: Faire de l'histoire, vol. 3. Gallimard, Paris (1974)
15. Le Goff, J.: Documento/monumento. In: Enciclopedia Einaudi, vol. V, pp. 38–43. Einaudi, Torino (1978)
16. DeLanda, M.: The archive before and after Foucault. In: Information is Alive, pp. 8–13. Nai, Rotterdam (2003)
17. Manovich, L.: The Language of New Media. The MIT Press, Boston (2001)
18. Scodeller, D.: Archivi digitali e fonti documentali del design: nuove prospettive storiche e storiografiche sul design? I casi Gio Ponti Vinicio Vianello e Vico Magistretti. AIS/Des. J./Storia e Ricerche **5**(10), 1–27 (2017)
19. Colomina, B.: Privacy and Publicity: Modern Architecture as Mass Media. Mit Press, Boston (1994)
20. Agamben, G.: Creazione e anarchia. L'opera nell'età della religione capitalista. Neri Pozza, Vicenza (2017)
21. Lippard, L.: Six Years. The Dematerialization of the Art Object from 1966 to 1972. University of California Press, Oakland (1997)
22. Gamba, C.: Saggio introduttivo. In: Argan, G.C. (ed.) Progetto e oggetto. Scritti sul design, pp. 11–30. Medusa, Milano (2003)
23. Fransoni, A.: Enzo Mari o della qualità politica dell'oggetto (1953–1973). Postmedia books, Milano (2019)
24. Mancini, M.G.: Design come comportamento. Gli scritti di Menna e la lezione di Argan. Piano b **3**(1), 20–37 (2018)
25. Menna, F.: Munari o la coincidenza degli opposti. La botte e il violino (3), 11–18 (1966)
26. Argan, G.C.: Ideological development in the thought and imagery of Italian design. In: Ambasz, E. (ed.) Italy: The New Domestic Landscape Achievements and Problems of Italian Design, pp. 358–369. The Museum of Modern Art, New York (1972)
27. Menna, F.: A design for new behaviors. In: Ambasz, E. (ed.) Italy: The New Domestic Landscape Achievements and Problems of Italian Design, pp. 405–414. The Museum of Modern Art, New York (1972)
28. Mendini, A.: The land of good design. In: Ambasz, E. (ed.) Italy: The New Domestic Landscape Achievements and Problems of Italian Design, pp. 370–379. The Museum of Modern Art, New York (1972)
29. Celant, G.: Radical architecture. In: Ambasz, E. (ed.) Italy: The New Domestic Landscape Achievements and Problems of Italian Design, pp. 380–387. The Museum of Modern Art, New York (1972)
30. Aureli, P.V.: Il progetto dell'autonomia, Quodlibet, Macerata (2016)
31. Argan, G.C.: Introduzione. In: Bruno Munari. Università di Parma, Parma, p. 12 (1979)
32. Sammicheli, M.: Collezionismo. In: Sammicheli, M., Rubino, G., (eds.) Munari politecnico: fare dell'arte con qualunque mezzo. Nomos, Busto Arsizio, pp. 86–87 (2015)
33. Bulegato, F., Scotti, M.: Animare un archivio. L'inventario e il regesto digitale dell'attività sulla grafica e il design di Ettore Sottsass jr. della Fondazione Giorgio Cini, Design per connettere. In: Assemblea SID POST2020, 25 e 26 febbraio 2021, on-line - Università degli Studi di Palermo, pp. 418–429 (2022)

34. Bulegato, F., Scotti, M.: L'Archivio di Ettore Sottsass Jr. Ricostruire mondi. Magazén **3**(1), [re]constructions, 39–60 (2022)
35. Mari, E.: Funzione della ricerca estetica. Edizioni di Comunità, Milano (1970)
36. Magagnato, L.: Prefazione. In: Mari, E. (ed.) Funzione della ricerca estetica, p. 4. Edizioni di Comunità, Milano (1970)
37. Gruppo, N., Gruppo, T., Mari, E.: Arte e libertà. Il Verri **12**, 133–135 (1963)
38. Ghiraldini, A: Archivi del design. Nuove forme creative e di narrazione per la condivisione della memoria. Il caso Enzo Mari. Ph.D. thesis, Università degli Studi di Parma. Dipartimento di Discipline umanistiche, sociali e delle imprese culturali (2022)
39. Mari, E.: Proposal for behaviour. In: Ambasz, E. (ed.) Italy: The New Domestic Landscape Achievements and Problems of Italian Design, p. 265. The Museum of Modern Art, New York (1972)
40. Mendini, A.: Caro Enzo Mari. Domus **607** (1980). Mendini, A.: Scritti, p. 619. Skira, Milano (2004)
41. Mendini, A.: Visione come progetto. Modo **26** (1980). Mendini, A.: Scritti, p. 583 (2004)
42. Vinca Masini, L.: Arte programmata e prefabbricazione. Una proposta di Bruno Morassutti e di Enzo Mari. Domus **428**, 13–15 (1965)
43. Oliveri, G.M.: Prefabbricazione o metaprogetto edilizio. Etas Kompass, Milano (1968)
44. Mendini, A.: 'Metaprogetto sì e no' (The problem of building metadesign). Casabella **333** (1969)
45. Mendini, A.: Possibilità per il metaprogetto in edilizia. Casabella **325**, 38 (1968)
46. Mendini, A.: Dallo stile al metaprogetto (1968). Mendini, A.: Scritti, pp. 37–43 (2004)
47. Galimberti, J., Catenacci, S.: De-schooling, manual labour and emancipation. Global tools' architecture and design (1973-1975). In: Brown, M., Fisher, M. (dir.) Collaborations and their Discontents: Collaboration in Contemporary Art & Architecture, pp. 99–121. Courtauld Books, London (2018)
48. Borgonuovo, V., Franceschini, S. (eds.): Global Tools (1973-1975). Quando l'educazione coinciderà con la vita. Nero, Milano (2018)
49. Mendini, A.: Architettura per l'uomo dimenticato. Casabella **349** (1979). Mendini, A.: Scritti, pp. 493–495 (2004)
50. Maldonado, T.: La speranza progettuale. Ambiente e società, Einaudi, Torino (1970)
51. Maldonado, T.: Avanguardia e razionalità. Articoli, saggi, pamphlets 1946–1974, Einaudi, Torino (1974)
52. Perre, G.: L'ère des techniques (1974), trans. it. La geografia nella società industriale (1976)
53. Mendini, A.: Non violenza. Casabella **374** (1973). Mendini, A.: Scritti, p. 514–515 (2004)
54. Mendini, A.: Il corpo oggetto naturale: Robot sentimentale. Casabella **399** (1975). Mendini, A.: Scritti, pp. 537–538 (2004)
55. Mendini, A.: La mano oltre la matita. Modo **15** (1978). Mendini, A.: Scritti, pp. 569–570 (2004)
56. Mendini, A.: Nuovo design. Casabella **383** (1974). Mendini, A.: Scritti, pp. 537–539 (2004)
57. Eco, U.: La vertigine della lista. Bompiani, Milano (2009)
58. Baldacci, C.: Archivi impossibili. Un'ossessione dell'arte contemporanea. Johan & Levi, Milano (2016)
59. Mendini, A.: Tutto normale. Casabella **362** (1972). Mendini, A.: Scritti, pp. 506–507 (2004)
60. Mendini, A.: Teoria del frammento. Casabella **394**, 528–529 (1974)

25 Ways to Hammer a Nail. "Postcrocian" Aesthetics and Everyday Life's Poetics in Enzo Mari

Rita Messori(✉)

Dipartimento di Discipline Umanistiche, Sociali e delle Imprese Culturali, University of Parma, Parma, Italy
rita.messori@unipr.it

Abstract. The essay analyzes the poetics of Enzo Mari in the light of postcrocian aesthetics, in particular Umberto Eco and Luciano Anceschi' contributes.

The field of reflection of the essay, conducted on several levels (both meta-artistic and intra-artistic) is polarized around some expressions and some key words, explications of issues perceived as urgent.

First, a rethinking of aesthetic experience on the basis of the results of psychology and the phenomenology of perception.

Secondly, a rethinking of the status of the work of art, which becomes "open work" or work "with multiple outcomes"; to characterize the work is a semantic stratification, a multiplicity of meanings that requires an active user, able to enter the work and trace an interpretative path. Thirdly, a rethinking of the aesthetic-social impact of art capable of activating an "aesthetic education", a new and more conscious experience of the "environment", be it natural or cultural: artistic objects, as well as those of design, have a transformative power of ordinary space-time, and consequently of the habits that mark it. This creates a very close link between aisthesis, poiein and praxis, between aesthetics, artistic operation and life, in its ethical and social aspect.

Keywords: Process · Enzo Mari · Postcrocian aesthetic · Every-day life's poetics

1 Beyond Croce. Towards a Revaluation of the Operating and Fruitive Processes

"Within the framework of the current sensitivity, this progressive tendency to the opening of the work is accompanied by a similar evolution of logic and science, which have replaced the unique modules with plurivalent modules. The multi-value logics, the plurality of geometric explanations, the relativity of spatio-temporal measurements, the same psycho-phenomenological research of perceptual ambiguities as a positive moment of knowledge, all these phenomena serve as a clarifying background to the desire for 'works with multiple outcomes' that replace, even in the field of artistic communication, the tendency to uniqueness with that tendency to possibility that is typical of contemporary culture. Secondly, while certain experiments of work open to a vague fruition

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 225–232, 2024.
https://doi.org/10.1007/978-3-031-49811-4_21

still expressed a feeling of decadent type and a desire to make art an instrument of communication theoretically privileged, the latest examples of works open to a productive complement express a radical evolution of aesthetic sensitivity. Examples of architecture in motion manifest a new sense of the relationship between work and user, an active integration between production and consumption, an overcoming of the purely theoretical relationship of presentation-contemplation in an active process in which intellectual and emotional, theoretical and practical motives converge. Furnishing phenomena now in series (lamps and armchairs able to take different shapes and angles, bookcases variously recomposed, etc.) offer the example of an industrial design that is a continuous invitation to the training and the progressive adaptation of the environment to our needs of utility and aesthetics. In this context, phenomena such as music, which have long been linked to the presentation-contemplation relationship typical of the concert hall, now require an active fruition, a co-formation, which at the same time results in an education of taste, a renewal of perceptive sensibility. […] It should be allowed that the new type of open work can also be, in sociologically favourable circumstances, a contribution to the aesthetic education of the common public" [1, 169–170] [2].

With these words Umberto Eco, in a famous speech of 1958 *Il problema dell'opera aperta*, published after ten years *in La Definizione dell'arte*, indicated at the same time the end of a season of Italian philosophical aesthetics, strongly marked by the neo-hegelian thought of Benedetto Croce, and the opening of an entirely new season, whose resources of meaning are still not entirely drawn. *Gestalt* psychology, phenomenology, philosophy of form on the theory side, and artistic research prone to experimentation and encroachment on the practice side, lead to a real breakthrough; turning point that we could call "aesthetic-artistic" for the close dialogue that develops between philosophers, theorists and art critics, artists; dialogue in which abstraction was wisely balanced by the description of the particular phenomenal.

The field of reflection, conducted on several levels (both meta-artistic and intra-artistic) is polarized around some expressions and some key words, explications of issues perceived as urgent. Expressions and key words on which Umberto Eco builds his speech.

First, a rethinking of aesthetic experience on the basis of the results of psychology and the phenomenology of perception, therefore beyond both an empirical conception and a positivistic conception: the "perceptive ambiguities" (related to the ambiguities of the communication, essentially not univocal) emphasize the plurality and variety of possible experiences and consequently the active and not merely passive role of the subject of experience.

Secondly, a rethinking of the status of the work of art, which becomes "open work" or work "with multiple outcomes"; to characterize the work is a semantic stratification, a multiplicity of meanings that requires an active user, able to enter the work and trace an interpretative path. To be taken up is the original meaning of the term "work": it is basically a material operation, an act according to rules, a form. The work is not the ultimate outcome of this activity, it is not a closed form, a mere product, because it continues to act as a trainer and producer, even when it is apparently "finished", released from the action of the producer (or of all the subjects who contributed to the production, as in design). The function of the artist (and the designer) is to activate a training process

open to the action of multiple subjects co-founders, co-operators. In this sense, Eco speaks of "active integration between production and consumption", which appears as "active fruition", "co-formation".

Thirdly, a rethinking of the aesthetic-social impact of art capable of activating an "aesthetic education", a new and more conscious experience of the "environment", be it natural or cultural: artistic objects, as well as those of design, have a transformative power of ordinary space-time, and consequently of the habits that mark it. This creates a very close link between *aisthesis*, *poiein* and *praxis*, between aesthetics, artistic operation and life, in its ethical and social aspect. New living practices are born from the daily encounter between subjects of experience and objects that reveal themselves bearers of possibilities of use always new. In *The open work*, Eco contrasts the negative relationship of "alienation" between subject and object, typical of capitalist consumerism, with the positive one of "harmonious integration", to which the designer must aim. This integration, in the wake of Dewey's philosophy, is to be understood in the sense of a dynamic relationship between the parts that go to compose a constantly evolving whole, whose law of formation and transformation is that of nature itself. One of the most significant effects is the acquisition of an "ecological" look.

To emerge are real programmatic lines, which unite Eco to another great protagonist of post-Crocian Aesthetics, Luciano Anceschi. Anceschi has insisted on the necessity to consider "the doing", the "operating process" as an original and intrinsic aspect of the same statute of the art. This implies a renewed relationship between aesthetics and poetics, in which the choice of operational strategies by the artist are always closely linked to a theory, a reflection on doing; hence the close dialogue between many of the greatest artists of the time, particularly in an era strongly marked by the study of language, and philosophical aesthetics is no exception. Both Eco and Anceschi devoted much of their research to the arts of the word (the novel for the first and poetry for the second). This priority accorded to language has a decisive role within the three main axes of reflection mentioned above: the aesthetic and fruitive experience, the work as a process, the relationship between art and life. If, for example, for Anceschi, poetry is primarily the study of poetic "doing", of the operative strategies of poetic composition, for Eco the model of fruition is the reading, according to the well-known formula: we are actually "*lector in fabula*".

Quoting at the beginning of his speech examples token primarily from architecture and design and only later from the figurative arts and literature, Eco recognizes the transversality of some reflections and the impossibility of differentiating or classifying in a rigid way the different artistic forms. At the same time, by giving the linguistic "text" the role of an epistemological model, Eco (like Anceschi) risks not fully grasping the contribution of the theoretical-practical research carried out in the field of design to the three issues immediately highlighted. It was in fact a matter of completing a series of steps: beyond the primacy of the arts of the word and, on the basis of the tradition of *Ut pictura poesis*, of those of the image; beyond the differentiation, closely connected to this primacy, between the artistic product, destined to the contemplative pleasure, to the increase of the knowledge or to the opening of a world, and the non-artistic product destined to the use and the satisfaction of a need; type of product within which two levels must be differentiated: the artisanal and the industrial, manufactured in large scale.

With the exhaustion of the *Linguistic turn* (at least in a continental context) and the advent of the *Iconic turn,* the *Performativ turn*, and the recent emergence of the *Everyday Aethetics*, we can not only say that design is impossible to apply *sic et simpliciter* the model of the text – and that it must be included in the scope of non-verbal even when we do not want to analyze the communicative aspects – but also that in design the axes of reflection come to unprecedented developments, and at the same time anticipators of subsequent theoretical breakthroughs, linked to the image and performativity [3].

An example is the theoretical-practical research of Enzo Mari.

1.1 Design, Process, Form

"I am convinced that design corresponds to a deep human drive, such as survival instinct, hunger, sex. We're a species that wants to change its environment. Designing is an activity that involves every practice, when humanity tries to improve its norms or when, contradicting them, it finds 'other' solutions: from the work of a plumber or an elementary school teacher to the efforts of those who try to redefine a legislative or linguistic code, or those who would like to rationalize our way of life 'from the spoon to the city' to quote the famous slogan of the architect Ernesto Nathan Rogers"[1] [4–6].

Already Argan, within the First International Congress on Industrial Design organized within the Triennial in 1954, had seen the point of grafting art into design, and the place of verification of its aesthetic and social function, not in the appearance of the product but in the process [5, 21] [6, 32]. As clearly emerges from this quote taken from *25 ways to hammer a nail. Sixty years of ideas and projects to defend* (2011)*,* according to Enzo Mari, separate clearly the project from the training process is, for a designer, almost impossible [7]. Mari here implicitly takes the distance from the Cross: the project cannot be reduced to a mental ideation which would follow a concrete realization since it immediately implies a doing, a material *poiein*, that can from time to time, remodulate or adjust the initial intuition, the imaginative momentum that animates the designer. A momentum never abstract but always rooted in a space-temporally determined situation.

It is therefore no coincidence that Mari uses the verb "to design" instead of the noun "project". Designing is an activity that comes from practice and returns to practice. It is a matter of thinking differently and at a time of transforming the space-environment in which man desires to live better and better; the satisfaction of need is part of a perspective not so much of survival, as of good life, of a qualitative well-being understood as full realization of the possibilities inherent in human nature, in a virtuous relationship with other natural beings. Design thus corresponds to a "deep human drive", a drive inherent in him. The project becomes a sort of all-encompassing idea of many aspects of the designer's work, which finds its unity in the original tension ("drive") of man, in some respects ideal and utopian, towards the improvement of living conditions.

We can now understand why Mari insists so much on the example of the bridge; an example of "product" not only emblematic but also highly symbolic. The bridge is a

[1] Enzo Mari writes in the footnote: "These words by Ernesto N. Rogers can be found in the article *Reconstruction: From the object of use to the house*, in 'Domus', Milan, n. 215, November 1946. The date is significant: the war is just over, Europe needs to be rebuilt. In those years (but still today) the phrase assumed the value of manifesto".

technical invention that arises from the profound need to relate, to mediate; it is not only a matter of making near what is far, but also and above all of making accessible what seems unreachable. The bridge is ultimately the very image of the instrument whose use allows us to realize a possibility of our being in the world, starting from a perceived urgency [4, 6, 7].

The concept of use introduced by Mari, here and in other texts, is of extraordinary relevance: it is a way of "acting", of making use of the design object freeing a way of its agency; open to new practices, new habits, new ways of living our space-environment, our world. The use of the instrument is therefore not limited to satisfying a need; At stake is the improvement of life, a natural tension that leads us to find "other solutions" to the needs that life imposes on us, even using the same objects differently.

Using an object more than once means therefore not only to repeat a certain way of acting made possible by the object itself, but also to discover new ways of acting and in general to act in situation; ways inscribed in the object, particularly in its form, at the potential level. The more the object carries within itself a power of action the more it can give rise to a plurality of uses and practices that go to transform our space-environment.

With Mari we should think about the use as the activation of an action power; action that must be understood both in relational terms (as interaction between subject, object and environment) and in formative terms (as training). Planning must therefore include a multiplicity of possible uses, that is, interactive and educational processes. In this sense, design becomes a set of material and operational processes, which must open to an indefinite multiplicity of strategies and practices of life. To use a phenomenological expression, the space-environment that Mari has in mind is a "world of life" (*Lebenswelt)* that is based on doing, on an interactive, formative and transformative action. As we said above, the same aesthetic experience is conceived, on the basis of the *Gestalt* psychology and of *phenomenology*, as a forming and relational activity.

Therefore, if consumerist capitalism is based on instrumentalization, reification, objectification, it is precisely on the "being-instrument" of the instrument that we must reflect. Countering alienation, fighting it, does not mean denying the object-tool produced in series, nor returning to the object-tool produced by hand, as something that fits only one person (such as the hammer and sickle). Countering alienation means, instead, rethinking being the instrument of the object, in poetic terms, of process, of operational training, of intersubjective universality, of plurivocità of use, understood as action, oriented and solicited by the object itself. The design object must not be unique but plural. The object has an orientation role; It is a necessary medium through which human nature is realized as essentially interactive.

Design does not tend to humanize the machine, but tends to make the object a fundamentally "ambiguous" tool. The ambiguity of the sensitive-perceptive experience of the object is related to the semantic-praxic ambiguity; the aesthetics of the object coincides with this "ambiguity". In front of a design object we can also feel lost and disoriented; we do not know how to use it because it causes us to go beyond a routine and repetitive use. It is not a matter of using it in the sense of reiterating a determined, univocal action, in the sense of repeating it in an always equal or unique way in the sense that the action exhausts or cancels the object. The object then escapes us, forcing us to reset a sequence of movements, to assume different body structures. Think of the series

of photographs that depict different ways of using the same chair. The design object that Mari has in mind provokes us in its essentiality, in its being potentially usable and reusable in many ways.

1.2 Design and The Poetics Of Everyday Life

The question of use must therefore be inserted into a poetic, that is, the study of a series of operational strategies through which the form is concretized, without ever closing. The aim is to produce an object that, once used, can keep alive the training activity, opening to a multiplicity of practices. If the object-product opens an infinite number of possible uses, this means that it escapes any unique or unique grip. The grip cannot be reduced to a mere objectification, expression of a will of control, and of domination strictly linked to alienation. Discarding things, in the sense of disposable, is the reduction of man and objects to a single meaning, indefinite the negation of the symbolic sphere. Use is not consumption, in the sense of exhaustion of an object to a single meaning.

This means that the experience of the object within a daily context of life, or its fruition, cannot fail to take into account the poetics, we could say "the daily" that is, the training process to which the aesthetic and social quality of the product is closely linked. A product becomes a real object of experience, more or less pleasant, only if it is traced back to the relational and formative actions of producing, ultimately to its process. This is why Mari brings the consumer into the process, makes it active, as active is the object itself, because it is form in formation (as *Gestaltung*) [8].

"What is meant by 'poetic'?" asks Echo in *The Open Work.*

"The line that goes from the Russian formalists to the current descendants of the Prague structuralists means by 'poetics' the study of the linguistic structures of a literary work. Valéry in the *Première Leçon du Cours de Poétique,* broadening the meaning of the term to all artistic genres, spoke of a study of artistic making, that *poiein 'qui s'achève en quelque oeuvre'*, '*l'action qui fait',* the modalities of that 'act of production' which aims to constitute an object with a view to an 'act of consummation'. We mean 'poetic' in a sense more tied to the classical meaning: not as a system of constrictive rules (the *Ars Poetica* as absolute norm), but as the operating program that the artist proposes time and time again, the work project to make itself as the artist explicitly or implicitly intends it. Explicitly or implicitly: in fact a research on poetics (and a stria of poetics) is based both on the statements expressed by the artists (an example: The *Art poétique* of Verlaine or the preface to Pierre et Jean Maupassant), both an analysis of the structures of the work, so that, from the work in which it is made you can deduce how it wanted to be made" [2, 17–18].

In defining about the role that the operating process has within art, both Luciano Anceschi and Umberto Eco see in Paul Valéry an essential point of reference. In spite of the explicit openness towards architecture and design, Eco, like Anceschi, prefers to focus mainly on the analysis of the operating practices of the arts of language and on the theories of the artists closely tied to their practices. This does not contribute to a full fulfillment of Valéry's poetics (or "poietics"), who thought rather of a poetic "extended" to all the arts, and not "restricted" to some of them. An enlargement to design, for example, would have made it possible to introduce key concepts such as the importance of the body, the environmental and the collective (and not only intersubjective) dimension. Consequent

would have been the putting in crisis of that "intentionality" of the subject-author of which the poetics would have to characterize the traces inside of the work.

In Mari's poetics, for example, it is difficult to identify a single subject as the author of the production process, since the industrial dimension implies the intervention of several subjects at multiple levels of production, which cannot be considered "mere performers" of a project idea, already defined and therefore "closed". Likewise, the fruition cannot be exclusively traced back to the experience of the significant and expressive intentionality of the producing subject. Plurality within production is closely linked to a plurality at the level of fruition, in this case not only aesthetic, semantic-praxic, but also social, in terms of community involved. Design instead, and for this reason it is utopian and unrealistic, would like to shorten the distances and change the generalized taste, the common sense, identifying archetypes and original gestures, even if the risk is to be initially understood only by a very small elite.

Finally, to be put out of play is the centrality of the subject itself. The poetics outlined by Mari wants to rethink the relationship between man and nature, beyond any anthropocentrism. The "methodology according to nature" that he has in mind sees in the laws of formation of nature the very norms of the productive process. Decisive will then be the use of the term-biological concept of "homeostasis", which represents a precarious balance of the natural form. The example made by Mari both in *Funzione della ricerca estetica* (1970) *and in Progetto e passione* (2001), becomes here the metaphorical image of the design product whose internal structure (modularity) responds to external stresses "disturbing" and tends to transform while maintaining some constant characteristics.

The search for the original module of the "archimodulus" is very similar to the search for a "Ur-form" understood as a form in formation whose structure and whose autonomy is continually tested, adjusted, until finding a relative stability, a fragile equilibrium, always on the point of breaking; As a basic form, the search for the design "Ur-object" coincides with that of the "Ur-form". The composition of the form, conceived as a natural form, endowed with its own energy, with its own forming force that is realized according to some recognizable "directives", has a semantic and praxic scope n the name of the unity of a plurality of significant actions.

"One of the phenomena that we most easily and frequently perceive visually, in the natural landscape that surrounds us, is the disintegration of the variously related modular structures that define it. By force of gravity, this disintegration is resolved in the fall of the modular components and in their restructuring according to the possibilities of aggregation of the initial modules and the new equilibrium conditions. This phenomenon is so widespread that it ends up conditioning, to a large extent, the image we have of the natural landscape (so much to determine the common sense that we attribute to the expression 'with naturalness') and consequently to condition our way of perceiving the arrangement of the artificial forms of a 'work' of art. […] Thus the natural modules (e.g. collapsed rocks) precipitate and reorganize conditioned by their modularity (e.g. tendency to split along stratification lines), gravity and the need to adapt to other environmental structures (e.g. wooded area). To verify and demonstrate these phenomena were made models in which modular elements, by self-timing each time by gravity, always determine an optimal image and therefore significant for this aesthetic hypothesis" [9, 39–41].

The object is given to use by changing, adjusting, and at the same time forming a certain way of use action, according to a law that is its own and that is traced gradually during the process, which continues in the grip, by the consumer or user. Its ability to "settle", to find from time to time a homeostasis, makes the object available to multiple outlets, to multiple actions that require it to be accomplished, to become significant.

The "Ur-object" that Mari has in mind lends itself to use but is not fulfilled in it, since it opens to an indefinite series of uses and thus does not end in a single outlet. The object in which grip and action coincide is a dematerialized object, with a rigid shape, with a unique meaning. The object is disposable. Consumption ceases to be a process and becomes a mechanical and stereotyped action that does not require any reciprocal adjustment, either by the object or by man. In this way his being medium is erased in the illusion of a direct relationship with the world. What seems decisive is the structural homology between the natural form and the shape of the object-product of design. This means that production, even in its industrial aspect, follows a *nomos*, a formative law, that of nature. Beyond any opposition between nature and technique, paradoxically in the experience of the industrial object that man can find his original belonging to *a natura naturans as* a productive and formative act, inseparable from *natura naturata*, as plurality and variety of products.

References

1. Eco, U.: La definizione dell'arte. Mursia, Milano (1968)
2. Eco, U.: Opera aperta. Forma e indeterminazione nelle poetiche contemporanee. edited by R. Fedriga. La nave di Teseo, Milano (2023)
3. Di Stefano, E.: Che cos'è l'estetica quotidiana. Carocci, Roma (2017)
4. Mari, E.: 25 Modi di piantare un chiodo. Sessant'anni di idee e progetti per difendere un sogno. Mondadori, Milano (2011)
5. Argan, G.C.: L'"Industrial Design" come fattore di integrazione sociale, in La memoria e il futuro. I Congresso internazionale dell'Industrial Design, Triennale di Milano 1954. Skira, Milano (2001)
6. Fransoni, A.: Enzo Mari or the political quality of the object. 1953–1973. Postmedia, Milano (2019)
7. Mari, E.: Progetto e passione. Bollati Boringhieri, Torino (2001)
8. Mari, E.: Autoprogettazione?. Centro Duchamps, Milano (1974)
9. Mari, E.: Funzione della ricerca estetica. Edizioni di Comunità, Milano (1970)

PROCESSES. Contemporary Strategies and Perspectives

Design Through Body Memory for the Regeneration of Urban Areas

Anna Anzani[1(✉)], Giulio Capitani[1], and Eugenio Guglielmi[2]

[1] School of Design, Politecnico di Milano, Milan, Italy
anna.anzani@polimi.it
[2] Design Campus, Università degli Studi di Firenze, Florence, Italy

Abstract. This contribution stems from a reflection developed in a field that lies between interior architecture and psychology and will touch on the relationship between memory on the one hand and perception, sensory experience, creativity, and the relationship between people and inhabited spaces on the other. Special attention will be devoted to the role of design in urban regeneration and its dialogue with the historic city. Lazzaretto Nuovo in Venice will be presented as a case study on which rearrangement concepts will be proposed, in the perspective of its possible reinterpretation through interior and spatial design.

Keywords: Memory · Body · City · Perception · Creativity

1 Introduction

In the cities of developed countries, where improved living conditions have led to a progressively ageing population, the worrying spread of dementia is associated to the loss of memory, a fundamental dimension of individual and community identity. Incredible as it may seem, observations carried out on Alzheimer's patients, who are unable to recognise their nearest and dearest, show how the musical memory that has accompanied their lives is safeguarded, thus enabling them to express their emotional and psychic state [1].

According to Bachelard [2], our development is strongly influenced by experiencing places, which produces values and attitudes toward the world and creates a close cultural connection, which is biologically based and geographically "embedded" [3]. This connection allows us to perceive a space as rich of meaning and to recognize it as a place [4]. Through our body, by physical actions or manipulations, by capturing the tactile characteristics of objects and architectures, we make sense of things. Actually, we are influenced by our surroundings on a physical basis even before we consciously enter into sense-making processes, which is the basis of *affective engagement* [5].

In the space of the contemporary city, where the boundaries between reuse and new construction are becoming increasingly blurred, architectural and interior design projects should weave a constant dialogue between past, present and future, focussing on the relational aspects of space and preserving the links with places [6]. The recovery of

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 235–243, 2024.
https://doi.org/10.1007/978-3-031-49811-4_22

urban areas should start from a design capable of pursuing a physical and psychological re-appropriation of space, extending our environmental commitment to all the sensitive data of our bodily relationship, not only visual, with space.

2 Memory and Reinvention

As we know, three quarters of Europe's population is concentrated in cities and by 2050 it is expected that more than 70% of the world's population will live in urban settings [7]. Living in a city activates a circular process: while the built environment influences the mental states of the inhabitants, reciprocally, the mental states of inhabitants affect the characteristics of spaces, both private and public. In the past two years, the rise of psychological disorders such as anxiety, panic, and boredom have become particularly acute because of the lockdown due to the pandemic [8]. Therefore, in national and European institutional policy agendas [9], safeguarding physical and mental well-being has become a top priority.

Through the body, we perceive the landscape of which we are surrounded, and our ecological relationship with the environment influences our well-being and the exercise of our minds [10]. On the other hand, built spaces also relate through memory, mediated through the senses, conveying meanings and atmospheres. The relationship with places thus has a perceptual, physical basis and a mental one; it has both a dimension of present and one of memory. In turn, memory consists of a complex experience involving the physical, emotional and mental levels [11].

Along with perception of climate and geography, nonphysical experiences such as dreaming and memory, fantasies and daydreams inspired by imagination, past and present, contribute to grasping through the body the intimate quality of a place. According to environmental psychology, among the characteristics that generate good emotions are not only light, colour, size or aesthetics, but also relational attributes, which allow us to develop a psychological relationship with space and feel it attractive, rich in stimuli, and capable of telling something new about the environment and ourselves.

A highly developed field of environmental psychology is the study of the effects of nature on our minds and bodies. A great deal of research has shown that exposure to natural landscapes produces positive effects on many levels, from cognitive and emotional development to individual health and resilience to trauma. Spending time in a natural environment or exposed to greenery would provide protection against a surprising range of illnesses through enhanced immune system functioning.

Another explanation of how this positive effect is generated involves the concept of fascination. The regeneration theory of attention considers that, in daily life, the attentional resource that we must continually employ toward activities that would not spontaneously attract us is not unlimited and tends to be depleted. This has a negative impact on some of the most important mental activities, such as problem solving, concentration and development of behavioral strategies. To activate resources that prevent these negative effects, fascination comes into play, that is, involuntary attention that requires no cognitive effort and is guided directly by the pleasantness of environmental stimuli or by leisure or autotelic activities [12].

Dwelling on the concept of fascination, i.e., effortless attention, we hypothesize that not only natural landscapes, but also historical artifacts rich in stratified memory, which are often decayed, abandoned, frayed, can promote reconnection with ancestral feelings, arouse strong emotional involvement and produce a state of psychophysical well-being [13].

Human creativity, which includes representation as a direct consequence of perception, cannot disregard memory; it is always an activity of reinvention in which the present is not "caused" by the past according to a linear logic, but rather is influenced in an equally decisive way by the future, in the form of emotions, values and projects that attract and orient us [14; 15]. Our nervous system is made to be constantly active and productive; a characteristic of human consciousness is what Bergson calls the "urgency of creation", which is also the basis of knowledge: "one can only know and understand what one can to some extent re-invent" [16]. This concept also applies directly to the dimension of dwelling, that is, the main relationship between people and space, which as such has ancestral origins. Dwelling begins with the possibility of re-inventing, even transiently, a portion of space [17].

Memory is also involved in our perception of space, which is characterised by simultaneity and the consistency of all its parts. In the perception of a large visual field, the parts of the space are progressively learnt as it is traversed by our receptors and the memory gives the newly identified elements a spatial meaning in relation to those already perceived [18,19].

3 Place and Memory: The *Lazzaretto Nuovo* in Venice

The recent epidemic, that has so profoundly affected our behaviour, has led us to investigate the existing relationship between space and collective memory, through reinterpreting the personal and social aspects of a physical example that originated in the past as a product of needs for protection and public hygiene that are also our own.

The focus was on one of the most significant structures conforming the city of Venice, that of Lazzaretto Nuovo. Built through a long and articulated process, at the end of the 18th century, the Lazzaretto Nuovo lost its primary function as a sanitary institution and at the beginning of the 19th century was destined for exclusively military purposes; in 1975 it passed under state protection and finally to the private sector. Within the perimeter of this ancient complex there are two 16th-century gunpowder stores, one of which is used as a Library, the impressive *Tezon Grande*, a building of about 2,000 square meters originally used for the purging of suspicious merchandise and presently devoted to permanent and temporary exhibitions, and the original delimitation of the ancient boundary wall, partially reconstructed in the 19th century (Fig. 1).

3.1 Research Objectives

Within the current architecture of Lazzaretto Nuovo, a study has been carried out, trying to highlight the aspects that have defined its physical and functional image both in the past and presently, through the filter of memory, of human presence understood as the corporeity of inhabited space, in the perspective of its possible reinterpretation through spatial design and social reintegration of marginal urban fragmentations.

Fig. 1. The Lazzaretto Nuovo Island, a) access pier; b) ancient gunpowder store; c) Tezon Grande, exterior; d) Tezon Grande, interior

3.2 Methodology

Traditional methods were used such as those of historical research and cartographic and iconographic reconstruction of the different developments of the factory. This was followed by various direct approaches through a photographic documentation of the current state, a verification of the geometric survey and a filing of building materials by types and functions.

The aim of the study was to propose a collection of concepts to rearrange the *Tezon Grande* and the other buildings of the complex through a multimedia project that involved the senses through chromatic-perceptual, acoustic and olfactory values. Special attention was also paid to the relationship between the architecture and the natural surroundings, such as the characteristic *Sentiero delle Barene* and salt marshes, unique lagoon ecosystems.

3.3 Results

In the Lazzaretto Nuovo Island, which is characterized by a strong relationship with the natural environments and gives an unusual image of the city of Venice, out of the main touristic routes, three different concentric areas were identified, corresponding to the path for walking the island itself.

The first outer ring coincides with the *Sentiero delle Barene*, a 1 km long sandbank path immersed in the nature lagoon, which can be seen capable of expressing the theme of a mental as well as a physical travel. The unique territory of the Venice lagoon suggests enhancing a very subjective dimension for experiencing time and space. Slender structures that dialogue with the surrounding vegetation can allow to enjoy the open space, breaking the pattern of the traditional nature trail and still preserving a highly instinctive experience (Fig. 2a).

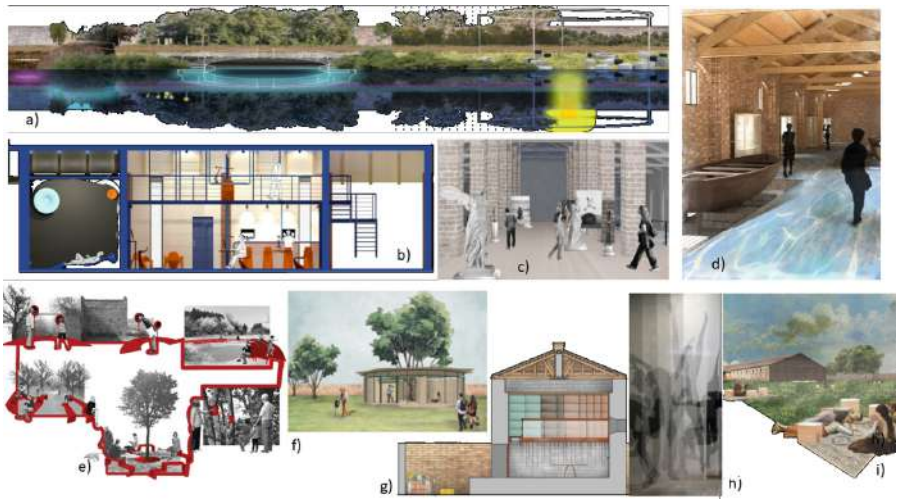

Fig. 2. Lazzaretto Nuovo Island, collection of exhibit design concepts (Drawings by Agostini Perrone M., Andreoli S., Arrichetta S., Bertozzi B., Bosello G., Brignoli M., Brusaferri M., Cassano S., Cattaneo E., Ceccaroni S., Cester A., Chieppa S., Cianci M., Citella G., Cosentino F., Cozza P., Creanza C., D'Alessi S. G., D'Assisi G., De Angelis G., Dell'Erba M., El Mehdi S., Federici G., Forino F., Galeppi S., Gori S., Jeong E., Macciò F., Maiocchi A., Manzoni F., Marchetti V., Mavilla C., Mirarchi M. A., Motta A., Nocerino A., Oliveto F., Pace M., Panizzi A., Pedretti G., Pellini A., Perra A., Rasella M., Romano C., Ruffo S., Sattolo G., Sconza G., Semeraro P., Stahl N., Tomasotti L., Varuolo R., Vezzoli E., Viscardi J.)

Body can become the link through which the island is known both on the surface and in depth, discovering its history and its past. Different installations can suggest actions which invite users to get closer to the different facets composing the island. The elements are designed in sustainable materials obtained from plastic waste coming from the ocean or local brambles after a recovery process (Fig. 2e).

With the idea of giving voice to nature, away from the main Venetian canals, an experience was imagined which does not interfere with what lives on the island, but adds to it, taking the form of small theriomorphic beings. A key part of the trail is the *Laguna Living Lab*, a space that introduces to the island and is dedicated to a lofted work area, with equipment and archives for workers and scholars and to an immersive space for video projections (Fig. 2b).

The second inner area is included within the boundary wall and is occupied by a garden characterized by the presence of ancient trees, archaeological remains and two 16th-century gunpowder stores. According to the Japanese philosophy discussed in Jun'ichirō Tanizaki's (1886–1965) *In Praise of Shadows* [20], an environment so much acquires value and beauty as it shows the signs of time and lets its past shine through imperfections. This approach characterized a concept aimed to highlight, aesthetically and functionally, the environment of the Lazzaretto for its historical importance, based on a careful analysis of its climatic and spatial components, on non-invasive interventions, temporary structures, recyclable materials. The materials chosen – oak, larch, fir wood and rope – were selected for their high resistance to moisture, wear and tear. In

addition, all materials are available locally and can be reused by small, historic venetians cooperatives of artisans who, culturally, are involved in the recovery of nautical ropes and wood from the Venice canals (Fig. 2f).

The recognition of a dual nature in the city of Venice, where there is a city above the water level, and a veritable forest of pillars fossilized by the effect of the sea below it, led to imagine the water level as a filter between the elegance of the facades and the strength of the foundations. Reality as it appears to us loses any value, the moment we realize that it is not the same for everyone, and the absolute hides behind a filter (Fig. 2g).

The legends about ghosts and vampires that populated the Island of Lazzaretto Nuovo at the time of the plague epidemic in the 12th century, the magical and esoteric traditions of a mysterious Venice that still survives today have inspired a concept aimed at enhancing the metaphysical atmosphere of the green enclosed within the walls of the Lazzaretto Nuovo. The result is a space that has maintained the *genius loci* and is converted back into a place for exhibition, research, creative and social activities, artistic performances, usable to the widest and most diverse possible audience (Fig. 2i).

The third concentric area corresponds to the *Tezon Grande*, a space historically devoted to the treatment of suspicious merchandise and now place of permanent and temporary exhibitions. The architectural essentiality of Tezon is characterised by an interior space which is totally open, free of partitions: this allows a fluidity in the use of the space, which can be very flexible, letting to maintain a permanent exhibition and to modify the exposition routes as desired, depending on the use, even momentary, and the design sensation that wants to be conveyed.

The *Tezon Grande* is the heart of the place; it symbolizes the human intervention in the island and stands out as a built element in contrast to the nature around. This is the arrival point, the destination of the visitor who gets off from the boat and experience the place by walking from the *Sentiero delle Barene* through the Garden, to the gates of the building. Crossing its threshold, visitors are transported elsewhere, to a dimension apart, independent and undefined. Atmosphere, temperature, exposure to light, humidity, acoustic perception, materials: everything changes with respect to the outside.

The *Tezon* was historically a place of transit, which locked the hosts in a physical and indefinite temporal dimension, in the hope of being readmitted to life in the city. With the aim of proposing an experience of journey and transition, a place where certainties fall and nothing is static and defined, a concept was characterized by a semi-dark inner atmosphere where the visit is guided by lights, sounds and transparencies (Fig. 2h).

The idea of creating a set that can host a series of events, exhibitions and temporary installations that could range from more classical art forms, such as painting and sculpture, to some more modern ones, namely audio-visual projection shows, led to conceive special display cases and panels that can be used in different ways (Fig. 2c).

Two coexisting exhibitions can be displayed in the *Tezon* that, in different ways, lead the visitors to perceive the flow of water. The space is fluid, adaptable and immersive, but at the same time essential and primitive, in order to preserve and enhance the history and the intrinsic character of the structure. Two exhibitions are placed along the first two aisles, leaving the third to a multipurpose space: the permanent exhibition houses the artifacts that are already on the site, including boats, amphorae and other small objects.

At the end of the path, a relaxation zone allows to watch different projections and have the sensation of being underwater (Fig. 2d).

4 Role of Design

In a historic phase characterized by an ecological crisis, reflections on the anthropic and cultural values of Lazzaretto Nuovo takes a particular relevance, since the island can be seen as a paradigm of Venice and its relationship with nature; in turn Venice, echoing Settis' well-known essay *If Venice Dies* [21], can be seen as a paradigm of the historic city, and the latter as a paradigm of the future of the planet. At present the cities, and Venice is no exception, appear as uninterrupted systems of interior spaces available to a continuous renewal of functions and image, where the difference between interior and exterior spaces is less and less obvious [22]. According to Crespi [23], our century is fated to measure itself against temporariness and precariousness, also in terms of aesthetic practices. Having ceased their cycle of expansion over the territory, cities have moved into an intensified use of the existing architectural heritage, and a new functional interpretation of urban voids (streets, squares and parks) [22].

Both as a practice that can match the needs due to climate change and energy shortage and as an evolutive strategy that human culture has always adopted to understand reality, reuse is being progressively re-discovered [24]. Within an eco-systemic perspective, reuse can be considered a sustainable approach to design, an opportunity to exploit the potential of existing buildings and a tool to take care of people and the planet (avoiding land consumption). A strategy that we all apply in our daily lives, and which belongs to the project tradition in architecture, design, art, cinema, literature and music - the re-contextualisation and re-functionalisation of pre-existing elements to create something that was not there before is practically the history of 20th century music [25]. What Crespi denominates "design of the unfinished", involves the use of a figurative language which goes beyond the simple re-purposing of space and is representative of the reinvention of its memory content.

Considering natural and built environment as a unique ecosystem, characterized by complex relationships that develop at different levels and involve individuals and communities in a multi-sensory experience, design culture could promote an innovative view which use body memory as a knowledge process, pursuing a dialogue with the *genius loci*, enhancing the symbolic significance of places. A new frontier in interior design is to take advantage of historical structures dense of stratified memory, often characterized by decayed surfaces, frayed spaces rich of tactile qualities, to boost temporary functions, organised through reversible devices adapted to rapid changes of use, whose quality can promote reconnection with ancestral feelings, arouse strong emotional involvement and become a driver of urban requalification.

Acknowledgements. Massimo Schinco and Chiara Lecce are gratefully acknowledged for sharing many reflections. Lazzaretti Veneziani [26] is thanked for providing graphic materials and allowing access to the spaces.

References

1. Chielli, A.: Semantic and architectural sound space. musical creativity and performance. In: Anzani, A. (ed.) Conscious Dwelling. Springer Series in Design and Innovation, vol. 20. Springer, Cham (2022). https://doi.org/10.1007/978-3-030-97974-4_10
2. Bachelard, G.: La poétique de l'espace. Presses Universitaires de France, Paris (1958)
3. Anzani, A., Lonardo, E., Schinco, M.: Reusing the built space: atmosphere and human experience. In: Camocini, B., Dominoni, A. (eds.) Engaging spaces. How to increase social aware-ness and human wellbeing through experience design. Franco Angeli, Milano (2022)
4. Tuan, Y.F.: Topophilia: a study of environmental perception, attitudes, and values. Prentice-Hall, Englewood Cliffs, NJ (1974)
5. Fritsch, J.: Understanding affective engagement as a resource in interaction design. Engaging artifacts. Oslo. www.nordes.org (2009)
6. Plevoets, B., Van Cleempoel, K.: Adaptive reuse of the built heritage: concepts and cases of an emerging discipline. Abingdon-on-Thames, Routledge, UK (2019)
7. United Nations Department of Economic and Social Affairs. World Urbanization Prospects: The 2018 Revision. Book Series: Statistical Papers - United Nations (Ser. A), Population and Vital Statistics Report (2019)
8. Ghebreyesus, A.T.: Addressing mental health needs: an integral part of COVID-19 response. World Psychiat. **19**(2), 129–130 (2020). https://doi.org/10.1002/wps.20768
9. WHO European Framework for Action on Mental Health 2021–2025 (2021). https://apps.who.int/iris/bitstream/handle/10665/344609/WHO-EURO-2021-3147-42905-59865-eng.pdf?sequence=1&isAllowed=y
10. Mace, W.M., James, J.: Gibson's ecological approach: perceiving what exists. Ethics Environ. **10**(2), 195–216 (2005)
11. Marchino, L., Mizrahil, M.: II corpo non mente. Comprendere se stessi e gli altri per vivere meglio. Sperling & Kupfer, Milano (2011)
12. Inghilleri, P.: I luoghi che curano. Raffaello Cortina Editore, Milano (2021)
13. Pallasmaa, J.: Space, place and atmosphere. Emotion and peripheral perception in architectural experience. Lebenswelt: Aesthetics Philosop. Exper. **4**, 4202 (2014)
14. Schinco, M.: The composer's dream: essays on dreams, creativity and change. Pari Publishing, Pari (2011)
15. Schinco, M.: Dreams. The relational link between nocturnal and diurnal creativity. In: Anzani, A. (ed.) Mind and Places. Springer Series in Design and Innovation, vol. 4. Springer, Cham (2020) . https://doi.org/10.1007/978-3-030-45566-8_3
16. Bergson, H.: La Pensée et le mouvant. Essais et conférences. Alcan, Paris (1934)
17. Douglas, M.: The idea of a home: a kind of space. Soc. Res. **58**(1), 287–307 (1991)
18. Guglielmi, E.: Nature and anti-nature. The fractals of the unfinished. In: Crespi, L. (ed.) Design of the Unfinished. The Urban Book Series. Springer, Cham (2021). https://doi.org/10.1007/978-3-030-73457-2_11
19. Guglielmi, E.: Nature and anti-nature: reflections on the contemporary cityscape. In: Anzani, A. (eds) Conscious Dwelling. Springer Series in Design and Innovation, vol. 20. Springer, Cham (2022). https://doi.org/10.1007/978-3-030-97974-4_7
20. Tanizaki, J.: In praise of shadows. Vintage Classics, London 2001 (1977). Original edition, Japan, 1933
21. Settis, S.: Se Venezia muore. Einaudi, Torino (2014)
22. Branzi https://www.treccani.it/enciclopedia/interni_%28XXI-Secolo%29/ (2010)
23. Crespi, L.: Manifesto of design of unfinished. In: Crespi, L. (ed.) Design of the unfinished. A new way of designing leftovers regeneration. Springer, Cham (2021). https://doi.org/10.1007/978-3-030-73457-2

24. Crespi, L., Anzani, A., Caramel, C., Crippa, D., Di Prete, B., Lonardo, E.: Designing remains. In: Amoruso, G. (ed.) Putting Tradition into Practice: Heritage, Place and Design. INTBAU 2017. Lecture Notes in Civil Engineering , vol. 3. Springer, Cham (2017). https://doi.org/10.1007/978-3-319-57937-5_153
25. Giuliani, M.: Reuse. Re-contextualization and re-signification in art and care. In: An-zani, A. (ed.) Mind and Places. Springer Series in Design and Innovation, vol 4. Springer, Cham (2020). https://doi.org/10.1007/978-3-030-45566-8_8
26. https://lazzarettiveneziani.it/it

Environmental Re-design of the Top San No Touch 2.0 Portable Toilet: The Contribution of the Bio-inspired Approach

Mariangela Francesca Balsamo(✉)

School of Architecture and Design, Univesity of Camerino, Ascoli Piceno, Italy
mariangela.balsamo@unicam.it

Abstract. This research is part of the scientific discipline of Design for Environmental Sustainability and Industrial Design, and deals with the topic of the relationship between bio-inspiration and ecodesign as a promising synergy for the design of industrial products.

This contribution describes the methodological process addressed to investigate, analyse and quantify the contribution offered by bio-inspiration, an approach considered to be a driver of innovation aimed at increasing the environmental sustainability of products.

In order to understand and verify the real advantages that the bio-inspired approach can offer, in terms of environmental sustainability, to the design of industrial products, a bio-inspired redesign of a sustainable product in possession of environmental quality certification was undertaken, in order to quantitatively assess the product's life-cycle environmental impacts through the standardised LCA methodology.

In order to achieve the stated objective, the research was conducted with different methodological approaches and operational tools according to the research phases, interacting with experts from different fields and scientific disciplines which allowed the acquisition of complementary technical-scientific knowledge.

Keywords: Biomimicry · Design for Sustainability · Bio-inspired redesign · Comparative LCA

1 Introduction

Within the scientific discipline of Design for Environmental Sustainability, the biomimetic approach applied to design culture is becoming increasingly popular. Biomimicry is the discipline that studies natural biological systems in order to emulate them in forms, processes and strategies useful for finding more sustainable solutions to human design and technological problems [1].

The increased understanding of nature's solutions is also due to the recent development of new scientific knowledge and technological tools, in particular nanoscience and nanotechnology. The latter make it possible to analyse, describe and reproduce hitherto unpublished and unexplored aspects and processes of nature at the nanometric scale [2].

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 244–253, 2024.
https://doi.org/10.1007/978-3-031-49811-4_23

Although its epistemology still seems to be under construction, the discipline offers a set of tools and guidelines to support the design process in order to develop high-performance materials and artefacts [3].

Biomimicry, which is based on the emulation of principles found in nature, starts from the "assumption that if one imitates nature, one automatically returns to an inherently eco-sustainable state, since nature by definition operates in a sustainable manner" [4]. This assumption is often justified by the evolutionary optimisation process lasting millions of years, making bio-inspired solutions innovative, ecologically viable, resilient and low-risk.

While these premises are conceptually valid, biomimetic products do not always guarantee optimal qualities, and this may be due to multiple factors, such as scalarity: characteristics observed in nature cannot always be directly transferred and scaled to the project, thus risking the application of inefficient solutions [5].

Although there are hypotheses of tools aimed at quantifying the sustainable potential of biomimetic products [6], the literature review shows that such environmental benefits have rarely been quantified [7].

This last open question represents the focus that this research intends to investigate, and thus aims to verify the real environmental benefits that the biomimetic approach can offer to the design of industrial products.

In line with the Design for Environmental Sustainability design criteria that were realised by re-designing existing objects, the research undertook a redesign of a certified sustainable product to verify the environmental benefits that the biomimetic approach can offer over and above the established eco-design guidelines and strategies, in terms of sustainability.

The aim of the research is therefore to quantitatively explicate, through a Life Cycle Assessment and comparison between the starting product and its bio-inspired re-design, the environmental benefits obtained from the biomimetic approach.

The methodological process that follows sees the articulation of two macro-phases that led the research in the achievement of the main objective: the first one focuses on the research and selection of the case study, while the second macro-phase concentrates on the bio-inspired design development of the product followed by the comparative environmental analysis between the case study and its biomimetic re-design. It is a research process conducted with different methodological approaches and operational tools depending on the phases, interacting with experts from disciplines other than the design field and acquiring complementary technical-scientific knowledge useful for research development.

2 Research, Selection, Analysis of Case Study for Biomimetic Design Experimentation

Of fundamental importance is the first selection parameter, which involves the identification of products with environmental quality certification. The research focused on the study and analysis of voluntary eco-labels and environmental labels included in Integrated Product Policy - IPP [8]. It was therefore appropriate to examine the voluntary labelling systems defined by the UNI EN ISO 14020 standards, directing research

towards Type III certifications, i.e. environmental declarations that contain a quantification of the environmental impacts associated with the product's life cycle calculated through the Life Cycle Assessment system.

The numerous products of interest for design with environmental certification and declaration led the research to define selection parameters in order to identify the case study for the bio-inspired design experimentation process. These parameters exclude

- product categories whose performance is given by the exclusive use of material (such as paper, textile, ceramic products);
- energy-consuming products, as the life-cycle environmental impact manifests itself mainly in the use phase;
- products that do not belong to Made in Italy and design-oriented companies, as the intention is to relate to and collaborate with production realities with a high interest in design and the issue of environmental sustainability.

The application of the selection criteria and the subsequent evaluation of the quality and quantity of the available data resulted in the selection of the Top San No Touch 2.0 portable toilet from Sebach s.p.a., Italy's leading product service rental company (Fig. 1).

According to the European standard UNI EN 16194 [9], a portable toilet is an independent portable unit intended for use by a single person, equipped with a waste tank that is not connected to the sewage system. It is a product with similar functions to the sanitary facilities located in housing developments and connected to the sewage system. Although configured in an essential manner, the portable toilet is a rather complex product and is mostly made of high-density polyethylene using injection moulding technology.

Following agreed relationships with the company, the technical analyses necessary for understanding the product were elaborated. The analysis of the environmental impacts supplementary to the EPD, through the standardised Life Cycle Assessment methodology, made it possible to identify options for environmental improvement of the portable toilet to be considered in the bio-inspired design development.

The first analysis relates to the architecture and functionality of the product and its role along the phases of the rental service. The mobile bath is characterised by a parallelepiped shape with a vertical major axis. The roof at the top of the bath is slightly rounded to allow rainwater to run down the sides, while the platform is equipped with side skids to allow the product to be lifted by forklift forks. The side walls are fixed to the roof and the platform to ensure structural rigidity, and on one of the four sides there is a door hinged to the boarding which, opening outwards, allows the entrance of the users of the portable toilet who will be able to use the toilet unit located inside the cabin. Through the study of current regulations and reverse engineering on the physical product, the architecture of the Top San No Touch 2.0, an abacus of components and summary sheets of the performance qualities of the portable toilet were drawn up.

At the same time, the result of the field research activities for the collection of photographic and audiovisual material and interviews with Sebach dealers were drawn up summarising the phases of the rental service and the product performance qualities in relation to the individual service phases. At the end of the various analyses performed, it was possible to create a synthesis of the formal, functional and performance aspects

Fig. 1. The Top San No Touch 2.0 portable toilet, Sebach S.p.a.

of the product integrated with the regulatory requirements and characteristics of the company's production reality.

The second technical analysis focused on the calculation of product life cycle environmental impacts in order to verify and supplement the data in the Environmental Product Declaration. Only summary tables of the environmental impact values are given in the document. It was therefore necessary to rework the LCA calculation, according to the standardised Life Cycle Assessment procedures and using the Eco-It PRé Consultants software, in order to acquire the Co2 equivalent(measure that expresses the impact on global warming of a certain amount of greenhouse gases compared to the same amount of carbon dioxide) values of each component of the portable toilet in relation to the product life cycle phases. From the interpretation of the quantitative data that emerged from the calculation, it can be stated that the greatest environmental impacts are found in the production of the macro-components that make up the cabin, i.e. the roof, side walls, skirting, door and platform.

By systematising the information from the technical analyses, it was possible to identify two eco-design objectives to be pursued in the biomimetic re-design process. The first objective concerns the elimination of non-reversible joints, pertaining to the eco-design strategy of "facilitating product assembly and disassembly" [10]. The parts of the portable toilet are connected by the use of rivets, a type of connection that does not allow them to be reused if a component is replaced. A total of 73 rivets are currently used to connect the parts of the central body of the portable toilet along the vertical edges, and the same to the footboard and roof.

The second objective relates to the eco-design strategy of "minimising the consumption of environmental resource" [10] by taking design action to reduce the amount of material used in the production of the components. The central elements of the portable toilet, i.e. the side wall - 3 of which are needed to form a portable unit - and the barrel-holder assembly, are characterised by a significant vertical development of approximately 2 m. Injection-moulded in HDPE, the central elements are manufactured with a constant thickness of 4 mm to guarantee rigidity and structural strength.

The side wall component, i.e. the component of the central part of the portable toilet covering three sides of the cabin, is taken into consideration for the start of the experimental design phase. This component is a priority for the achievement of the two redesign objectives, both in terms of its dimensional and functional aspects and as a nodal element for the configuration of the new reversible connection system.

3 Bio-inspired Product Re-design and Comparative Environmental Analysis

The biomimetic design experimentation of the wall component involved the application of the Topdown approach methodology. Starting from previously outlined specific objectives, we proceed to research and identify the biological model that offers corresponding solutions, and then abstract the natural functions and principles into design strategies in order to apply them to the new design.

The exploratory research process of biological models was characterised by research activities and information gathering through the consultation of specific databases, such as asknature.org of the Biomimicry Institute, and the dedicated bibliography. The exchange of information between the discipline of design and the discipline of biology was made possible through interactions with experts from the natural world: through analogical thinking, biological strategies and principles were identified that met the objectives of eco-design for re-design.

For the development of a reversible system of connections, the "temporary attachment" functions were explored. i.e. the connections that nature adopts or makes to survive or evolve. Living systems sometimes have to stay in one place, climb or move temporarily, which includes the ability to release the cling if necessary. Despite being temporary, connections must resist physical forces until they have served their purpose. Therefore, living systems have adapted attachment mechanisms optimised for the amount of time or number of times they must be used. Examples include insects that attach their eggs to a leaf until they hatch, and insects whose wings temporarily attach during flight but separate after landing. Connections in nature can be manifold, such as the caterpillar of

the Gaia Oto butterfly, or the hooks of the burdock that inspired De Mestral in realising the recognised reversible Velcro connection. The re-design of the product connections therefore envisages the abstraction and application of the reversible coupling principle, without the use of additional material, but by deriving the function directly in the relevant parts of the side wall.

In order to achieve the second objective, i.e. to slim down the thickness of the wall component in order to use less material, the abstraction phase takes into account the strategy of structural resistance per shape present in many biological models. For example, the scallop has a very thin shell, but thanks to its surface deformation it manages to provide just as much structural resistance. Another useful function in achieving the second objective is the principle of the hierarchy of elements, found for example in the dense network of reinforcing ribs below the surface of the Victoria Amazon leaf, which suggests the rational distribution of material.

The process of transposing the identified natural logics to the design development was conducted by applying the biological principles to the technical functionality of the side wall of the portable toilet. Design constraints related to the material and production technology, i.e. injection-moulded HDPE, were considered, as well as the formal-functional constraints of the component and the quality requirements dictated by current regulations. In this phase, multi-disciplinarity was a fundamental characteristic for the development of the biomimetic re-design process, while the tools adopted included graphic representation techniques for the conception of the new design, software for parametric 3D modelling (Autodesk Fusion 360) in order to have greater control over the modifications to be made, specialist software (Altaire Inspire) for verification analyses of the functional performance that the product must possess and guarantee, and the physical models for study and rapid prototyping using 3D printers for precise verification of the formal and functional aspects of the new design.

The re-design of the bioinspired reversible connection system focused on the assembly of the central body of the portable toilet, i.e. the three sides occupied by the side walls and the fourth side defined by the barrel-holder assembly. The surfaces of interest for the design intervention are therefore the vertical angles of the component. Following the current assembly phases of the portable toilet, once the wall has been positioned at the bottom, it is possible to continue with the positioning of a further wall on one of the adjacent sides. The new connection system between the vertical elements involves hinges machined directly from the mould of the component in order to obtain movable parts that house the vertically developed quick-release couplings inside them (Fig. 2a). These hinges are alternated with fixed parts: in this way, the movable parts of the first wall can be attached to the fixed parts of the corresponding angle and vice versa. To complete the coverage of the central part of the mobile bath, the imbotte component must also be fitted with the new reversible connection system from the corner pieces. By configuring a continuous module in this way, the central elements of the portable bathroom can be assembled manually. Disassembly of the snap-fits is made possible by using a specially designed accessory which, by inserting itself into the slots at each snap-fit, can lever the pin out of the snap connection.

The area of interest of the side wall for the bio-inspired design development to minimise material use was focused on the central part of the component. In order to

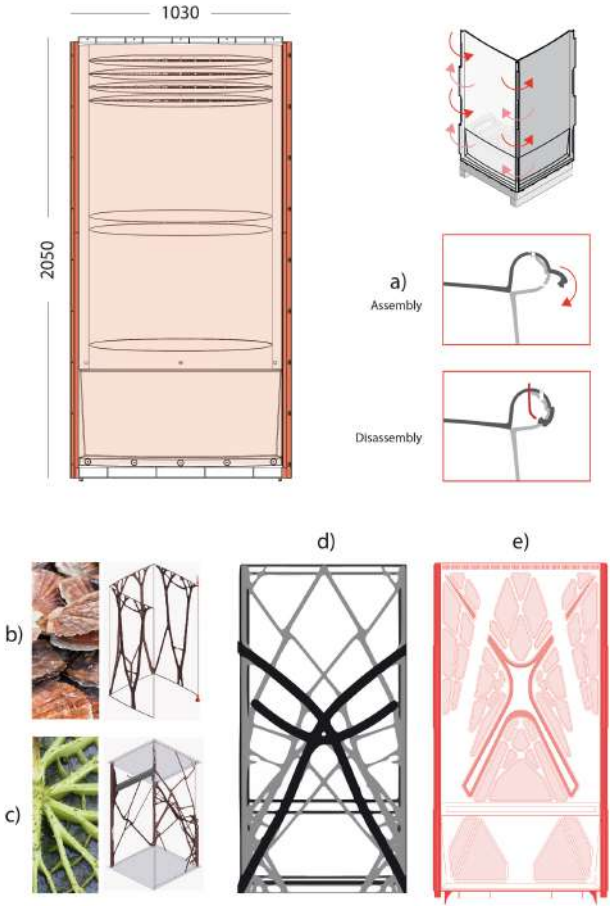

Fig. 2. Biomimetic design development of the side wall of the portable toilet.

understand how much less material can be used, it was necessary to identify the areas of the wall subjected to higher loads and/or stresses from, for example, product handling. This operation was made possible thanks to the topological optimisation of the component, i.e. the study, carried out with the Altaire Inspire software, capable of redefining the shape of the model, allowing the part to be lightened by subtracting unnecessary material in order to maintain the structural properties. In order to plan the analysis, it was necessary to involve researchers from the Unicam Structural Engineering area to define the characteristics of the 3D model, the constraints and the loads to be subjected to calculation, thus identifying two types of topological optimisation analysis. The first analysis, relating to the application of the principles of structural resistance by shape, aims to understand how the cabin structure reacts to loads from above (Fig. 2b). The second analysis, relating to the hierarchy and rational distribution of material according to forces (Fig. 2c), was planned to understand the behaviour of the structure when

subjected to horizontal loads (force that could be generated by vandalism, for example). The topological optimisation operation follows the logic of emptying, and since the component cannot have any holes or openings, it was necessary to identify the main lines that constitute the base line for the bioinspired redesign of the wall (Fig. 2d). We then began the process of formalising the component through its biomimetic principles, aiming to reduce the constant 4mm thickness of the current wall. Starting from a basic design modelled in a parametric environment - Autodesk Fusion 360 - and the continuous structural evaluation, by means of OptiStruct analysis of the Altaire Inspire software, it was possible to define the design from time to time until obtaining a model that guaranteed structural resistance with the same performance as the current one. The result is a side wall with a constant thickness of 2.6 mm characterised by surface movement: there is a base layer from which certain areas of the wall protrude towards the outside of the cabin (in light red) and areas that retract towards the inside of the cabin (in dark red, Fig. 2e). Thanks to the thickness thinning operation for the construction of the side wall, the weight and use of material has been considerably reduced: the current component is characterised by a constant thickness of about 4 mm and uses 9.7 kg of high-density polyethylene; the bio-inspired side wall, on the other hand, is characterised by a constant thickness of about 2.6 mm, guaranteeing the same structural strength performance as the original element, with 6.537 kg of HDPE used.

At the end of the bio-inspired re-design, it was possible to start the comparative environmental analysis phase with the original side wall. Although still in progress, it is possible to return the first results of the comparison between the two components for the production of the side wall alone. Following the standardised Life Cycle Assessment methodology, data was entered into the Eco-It PRé Consultants software regarding the number of components - of which it should be noted that 3 walls are needed to make a portable toilet -, the quantity of material and the injection moulding processing technology. The software works with Eco-indicators, choosing to return the following results according to the IPCC 2007 assessment method expressing Co2 equivalent. The LCA calculation shows that:

– the production of 3 current side walls generates a total of 95 kg Co2-eq,
– the production of three bio-inspired side walls generates a total of 64 kg Co2-eq.

This results in a reduction in environmental impacts of around 30% compared to the original. A substantial reduction that generates advantages not only in terms of the quantity of material to be used, which translates into a reduction of environmental impacts, but also in terms of costs, thus drawing economic benefits. In addition, the new reversible connection system allowed the impacts generated by the production of 73 rivets to be eliminated from the LCA calculation, amounting to −5% Co2-eq. Again, the benefits obtained have positive repercussions in other phases of the product life cycle, such as the reduction of time to be spent in the assembly and reconfiguration phases of the portable bath by Sebach operators.

4 Conclusions

The research process just described aims to answer an important question that the scientific literature has implicitly and explicitly begun to raise, namely whether indeed the biomimetic approach can automatically transfer more sustainable solutions into industrial product design. The question in this research has been formulated more specifically, namely how many more environmental benefits the biomimetic approach offers than the established eco-design guidelines and strategies. The aim was to undertake a bio-inspired redesign of products already conceived and manufactured according to eco-design strategies, in order to quantitatively assess the contribution of Biomimicry. The design development had to meet the necessary requirements in order to achieve a truthful quantitative assessment of the environmental impacts of the re-designed components: the high degree of manufacturing feasibility consistent with the reference business reality of the case study, the technical and regulatory requirements of the product, as well as a design consistency of the formal, functional and performance aspects to be maintained in the new product.

The process of bio-inspired re-design of the prioritised parts of the product and the subsequent environmental assessment, although still at the in-depth stage, enabled the comparative analysis between the result of the conducted design development and the original TopSan NoTouch 2.0 portable toilet product. Initial results of the comparative environmental analysis show that Biomimicry can concretely contribute to the generation of more sustainable products, and that the relationship between the Biomimicry approach and eco-design appears to be a promising synergy for the development of a new generation of products with a low environmental impact. Biomimicry, if practised thoughtfully and consciously, and with clear performance objectives in environmental terms, can be a powerful design tool that supports innovation [11].

A further achievement concerns the methodological aspect of the process addressed in this research. Specific methodologies and tools had to be adopted for each phase of the process. Consider (i) the phases of environmental assessment using LCA methodology and tools, (ii) the phases characterising the biomimetic approach to the project by interacting with biology experts and consulting specific databases, (iii) the use of specialised operational tools for bio-inspired project development to which the interpretation of results required continuous comparisons with researchers from the structural engineering discipline. The interdisciplinary aspect is therefore of fundamental importance for the development of research projects of this nature.

Finally, the acquisition of specific knowledge throughout the research process leads to reflections on the role of the designer, which is different from the past especially in complex research topics. A role in which the integration of knowledge of different approaches, methodologies and specialised operational tools is of fundamental importance to enable designers to hold a central position in conducting research processes of this nature.

References

1. Benyus, J.M.: Biomimicry: Innovation Inspired by Nature. Perennial, New York (2002)
2. Pietroni, L.: Introduction. In: Mascitti, J. (ed.) Bio-inspired design. Le prospettive di un design per la sostenibilità ambientale guidato dalla natura. Altralinea, Firenze (2018)
3. Fiorentino, C., Hunt, K.: Biomimicry: una epistemología en construcción. Cuadernos del Centro de Estudios de Diseño y Comunicación **133**, 117–129 (2021)
4. Levi, M., Rognoli, V., Salvia, G.: Il progetto della natura. Gli strumenti della biomimesi per il design. Franco Angeli, Milano (2009)
5. Langella, C.: Design e scienza. Collana scientifica Design Experience. ListLab, Trento/Barcellona (2019)
6. Terrier, P., Glaus, M., Raufflet, E.: BiomiMETRIC assistance tool: a quantitative performance tool for biomimetic design. Biomimetics (2019). https://doi.org/10.3390/biomimetics4030049
7. De Pawn, I.C., Kandachar, P., Karana, E.: Assessing sustainability in nature-inspired design. Int. J. Sustain. Eng. (2015). https://doi.org/10.1080/19397038.2014.977373
8. Commission of the European Communities: Green Paper on Integrated Product Policy (IPP), Brussels (2001)
9. UNI EN 16194 Bagni mobili non collegati alla rete fognaria. Requisiti per i prodotti ed i servizi necessari per l'utilizzo di bagni mobili e relativi prodotti sanitari
10. Vezzoli, C., Manzini, E.: Design per la sostenibilità ambientale. Zanichelli, Milano (2016)
11. Kennedy, E.B., Marting, T.A.: Biomimicry: streamlining the front end of innovation for environmentally sustainable products. Res. Technol. Manag. **59**(4), 40–48 (2016). https://doi.org/10.1080/08956308.2016.1185342
12. Baldo, G.L., Marino, M., Rossi, S.: Analisi del ciclo di vita LCA. Edizioni Ambiente, Milano (2008)

How to Use Strategic Design Process to Address Complex Challenges

A Practical Case of Application to Discuss Strategic Design Process' Fundamental Traits

Gianluca Carella(✉), Michele Melazzini, and Francesco Zurlo

Department of Design, Politecnico di Milano, 20158 Milan, MI, Italy
gianluca.carella@polimi.it

Abstract. In recent years, new market rules have forced changes in how companies relate to their customers. It is necessary to create new solutions precisely adapted to customers' needs. To do this, companies must expand their boundaries and adopt a transdisciplinary approach. In this panorama, the adoption of Strategic Designmeant as an approach to creating innovative product-service systems that characterize the company and its market positioning - appears fundamental and decisive. This paper deals with a practical case of application of the Strategic Design approach from a company operating in a non-traditional sector. The aim is to show the fundamental steps the company took in order to develop a new strategy thanks to the adoption of Strategic Design. As a result of adopting Strategic Design, the company created a new offer comprising a coherent and innovative product-system. This paper presents the positive implications emerged for the company from its adoption of Strategic Design.

Keywords: Strategic Design · Strategy innovation · Design strategy · Design methods · Competitive advantage

1 Introduction

Contemporary society presents a rapid evolution and change in demand that require new solutions, different from those created in the last years [1].

To respond to the changing demands of their customers, companies must become systems organizers and solution providers. This means they must organize themselves to provide a consistent and integrated set of products and services that are specifically adapted to the needs of their customers [2].

Companies cannot continue to work and produce within their own perimeter: it is necessary to consider the collaborations among different disciplines and players.

In this panorama, in recent years Strategic Design has played a key role in enabling various companies to differentiate themselves in the market.

Strategic Design aims to define, through a design approach, the strategy embracing product, service and communication elements that a company uses to create an identity,

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 254–262, 2024.
https://doi.org/10.1007/978-3-031-49811-4_24

define itself on the market and shape its mission [3]. The use of Strategic Design allows the company to develop a set of specific strategic results [2].

Such an approach provides a competitive advantage that is generally linked to good market positioning [4]. This strategy helps an organization to create original and defensible products, a recognizable brand and a clear identity that will attract the attention of potential customers and investors [3].

This is possible because Strategic Design by its very nature gives direction to more vertical competencies. It provides the possibility to manage teams and solve complex problems quickly and efficiently [4].

This paper aims to discuss how it is possible to apply a Strategic Design process to innovate a company, defining the steps to be followed and discussing the benefits of a Strategic Design process.

The example of a real case from a traditional sector will be presented to support the discussion. The case is related to a company operating in the field of prefabricated steel constructions that in the last years decided to adopt a Strategic Design approach to identify new design directions. The company aimed to position itself on the market with distinctive and innovative elements.

The research and design guidelines applied within the company included the adoption of Strategic Design processes combined with scenario building once in order to identify a new clear strategy to reposition the company in the market.

The aim was to create a new offer that could be implemented in the future, to compete against the traditional offers of the industry in which the company operated.

The paper adopts a qualitative single case study methodology, describing as results the methodological framework and process implemented and discussing the benefits that Strategic Design can bring to companies.

2 Theoretical Background

Contemporary society features a rapid evolution and change in demand that require new solutions, different from those created in the last years [1].

Companies need to create a competitive advantage, which Porter [4] believes they can achieve by positioning themselves differently from their competitors in the market. According to Porter's 'competitive advantage' theories, in order to gain this competitive advantage companies must focus on original solutions, a different production structure, and a brand that can be easily recognized.

The aim is to go beyond competition in order not to operate in what Mauborgne and Kim [5, 6] call a 'red ocean', i.e., an environment where competition rules are clear and companies compete with their rivals in order to share a slice of the market.

In 'red ocean' contexts, companies find themselves sharing profits among competitors and very often have an offer that for customers represents standardized and worthless objects defined by Peters [7] as commodities.

What companies should do instead is to work on creating a 'blue ocean' strategy [8, 9], i.e., a situation where they can operate in a market that is not over-competitive and where they]can explore a new type of customer demand.

Therefore, companies' efforts are focused on innovation, which for Barrett and Sexton [10] represents the end and a path to competitive advantage.

In this condition of necessary creation of competitive advantage, the use of Strategic Design can be the way through which companies can position themselves effectively on the market [11].

Strategic Design "is the project activity co-opted in the formulization and development of an organization's strategy. Its objective is to give shape to the strategy, which is meant mainly as a system-product, the organic and coherent set of various media (product, service, communication) with which an enterprise builds its identity, positions itself on the market, and defines its mission in society" [3].

The use of Strategic Design represents the possibility of making profitable decisions in a turbulent and uncertain environment (Landry 2000; Manzini and Meroni 2007).

Over the years, the contexts within which Strategic Design can make a contribution have increased in number, as they are no longer limited to a corporate context. Strategic Design can provide support within enterprises, companies, consultancy firms, institutions, governments, territories, and associations. (Zurlo 1999). It has become something that is not just a 'nice to have' but is a 'must have' to achieve a diverse and competitive offer.

The possibility of large-scale use can be attributed to the characteristics of Strategic Design: it allows a dialogic process between several actors, it creates value in response to identified needs, it acts and sets goals according to the context in which it has to act (Zurlo 2010).

Strategic Design not only makes it possible to understand how to solve a problem, thus acting as a problem solver, but also acts as a problem setting by evaluating different elements of the problem and considering other issues, before moving on to mere resolution (Zurlo 1999).

In elaboration of future strategies, Strategic Design identifies a series of signals of the present, references to possible changes taking place, and uses them to devise future visions the company could embrace in order to respond in advance to new changes.

It is therefore possible to say that Strategic Design in its work also focuses on Scenario Building activities. Manzini (in Manzini and Jegou 2003) asserted that the future cannot be predicted, but the present can contain clues of what will happen in the future and above all that what will happen in the future is the result of what we do from now on.

In any case, it must be emphasized that this new way of operating for companies requires a not inconsiderable transformative effort. This is because it requires new ways of interacting with customers, new strategies for operating in the market, and new ways of involving stakeholders.

3 Research Methodology

The purpose of this paper is to demonstrate, through a practical case, how Strategic Design can contribute to the creation of new strategies in companies, including in non-traditional sectors, and how this may lead to a winning positioning and the creation of competitive advantage.

Considering the setting of the study and the typology of the "how" question, it was decided to adopt a case study methodology, described in the literature as the most appropriate (Eisenhardt 1989; Yin, 2011) and the most effective for answering 'how" questions in support of investigations (Easton 1995).

The case study methodology can help to understand in detail the role that Strategic Design can play in the realization of a new winning offer. Furthermore, several scholars suggest using this methodology when it is necessary to understand how a certain method can foster organizational innovation (Eisenhardt 2021), leveraging on a single and particularly inspiring case (Siggelkow 2008).

This study tried to research and identify a case of a company that had applied Strategic Design to revolutionize its offer, thus completely transforming its strategy. Furthermore, companies were skimmed by discarding all those big established sectors with available innovation studies.

Preference was given to companies operating in traditional sectors, which are often commodity-like offerings and where innovating strategy is more complicated.

All the above mentioned parameters led us to select for our case study a company operating in the steel structure sector and established in the mid-1990s.

The chosen company was founded as a spin-off from another family business operating in the steel sector, for the production and processing of steel.

In recent years, the company has tried to offer something new, focusing on steel prefabricated housing. This choice was made in order to be able to offer something different compared to the industry landscape.

However, the strategy deployed has not led to positive results, as steel constructions are associated by users with cold and uncomfortable elements.

The company therefore decided to seek Strategic Design driven consultancy in order to devise a new strategy and elaborate engagement and communication methods that would be successful with its target customers.

The aim was to create something new that would allow the company to position itself differently, while also overcoming the problem associated with the 'cold element' that the company had encountered so far and that was characteristic of the steel structure sector.

This study is based on both primary and secondary sources. All data available in trade magazines, youtube, and several websites were used as secondary sources.

Furthermore, in order to understand how and why certain decisions were made, semi-structured interviews were conducted with the CEO and the marketing manager of the company.

These two interlocutors were chosen because they represent the key figures behind the Strategic Design driven project. This choice thus made it possible to discover a series of data from behind the scenes and to have more references on the positive implications obtained from this project.

Table 1 shows the data collection details.

Table 1. Overview of the different data and related sources analyzed

Data sources	Use in the analysis
Semi-structured interviews	Understanding the managerial decisions taken and the role of Strategic Design in the new strategy
Recorded interviews and events	Understanding the history of the company Understanding the role of design in the previous strategy Understanding the main steps of the new strategy Understanding the main project steps
Press	Compare other information and studies on the company's strategy both ex-ante and ex-post Studying ex-ante and ex-post communication artifacts to compare the new and the old strategy

4 Results

Following Following the analysis of the company, based on both primary and secondary sources, it was possible to identify the main steps implemented in the new strategy developed through the Strategic Design approach.

The main steps are presented below, together with a brief description of how they were conducted in order to highlight the benefits identified for each action.

4.1 Mapping the Company and Assessing the Market

The first step was to study the company and the related market.

For this purpose, a SWOT analysis was first carried out. This tool, through the study of Strenghts, Weaknesses, Opportunities and Threats (SWOT), is a well-established tool for strategic planning and quality control.

The purpose is to identify and examine the company's existing resources, both internally and externally, including the impact of current trends in order to identify possible positive and negative implications on the business (Hill and Westbrook 1997).

The second step was to develop a positioning map, a tool that gives information about "the place a product occupies in the mind of its target audience". (Andrei, Ecaterina and Ionut 2010; Bell 2008).

The last company analysis step was carried out through the 'ten types of innovation' tool, which aims "to assess how companies are approaching innovation internally, to help in analyzing the competitive environment and to reveal gaps and potential opportunities for doing something different and upending the market."

The tool presents ten levers that companies should consider in order to innovate. It can provide insights into the company's own situation and also into the situation of the

target market. This provides insights into both the areas of innovation the company may explore in order to compete with other companies, based on the market distribution.

The first analysis phase allowed the company to understand both the market and the innovation characteristics on which its competitors were focusing.

This made it possible to identify aspects that the company had not yet developed but that it was required to cover in order to be competitive; at the same time, some preliminary opportunities were also identified on which the company could focus in order to differentiate itself.

4.2 Analyzing the Most Important Stakeholders

The second step for the development of the new strategy involved the analysis of the different stakeholders.

This analysis was then deepened by focusing on end users: this activity represented a key step to understand how to take future decisions about the development and design of a product or service that should meet user needs.

End-users were analysed using the Personas tool.

Personas is a user archetype that helps guide decisions on product characteristics, interaction and design including visuals. (Pruitt and Grudin 2003)

4.3 Building Scenarios

All data obtained in the analysis phases were elaborated and used to develop future scenarios through the scenario building tool.

Scenario building is a tool to support the creative process, useful to create 'stories' of possible solutions from research results and related data analysis.

Scenarios represent "stories about the future, but their purpose is to make better decisions in the present" (Wilkinson and Kupers 2014).

Scenario development helps to identify possible paths towards a future vision, creating consistent descriptions of possible future situations.

The obtained result was the generation of four possible scenarios for new contexts and applications that the company could undertake.

The two most feasible scenarios, with respect to the company's core competencies, were selected, representing two new solutions, one in the residential and one in industrial segment, with design directions hitherto unexplored by the company.

4.4 Developing Both a New Services Set and a New Identity

The last step of the new strategy saw the development of a new set of services to be associated with the selected scenarios and the creation of a new brand strategy.

Using the insights gathered in the research phase and considering the characteristics of the new scenarios, the company defined the set of new services to be offered in relation to the new design solutions it would develop.

The decision on the set of services took into account both the strategic analysis of what the competitors were offering and the needs that in the research phase had emerged from the analysis of user needs and trends.

Finally, the company studied the tone of voice used in related industries featuring particularly high-performance communications, and developed a new brand strategy to communicate the new designed solutions and to position them effectively in the market. For the definition of the new brand strategy, the company took into account also the relationship with the company's previous brands, in an attempt to convey the same values.

Communications focused on both the performance and features offered by the new solutions, in order to overcome prejudices (particularly the one about steel structures as cold elements) in the minds of end users.

5 Discussion

This study has identified a successful best practice for the use of Strategic Design in companies resulting in the creation and effective definition of a new strategy and defining a new path to reach innovation inside companies.

This paper was conceived as a contribution offering a new strategic process to be put into practice by different companies, scaling up to other contexts, in order to offer them new opportunities, being able to produce a new strategy to operate on the market and to communicate with customers.

One of the main results emerged from this study is the definition of the main steps to be followed to effectively apply Strategic Design in a company.

Figure 1 summarizes the path to follow and includes all the main steps emerged from the case study analysis and commented in the findings.

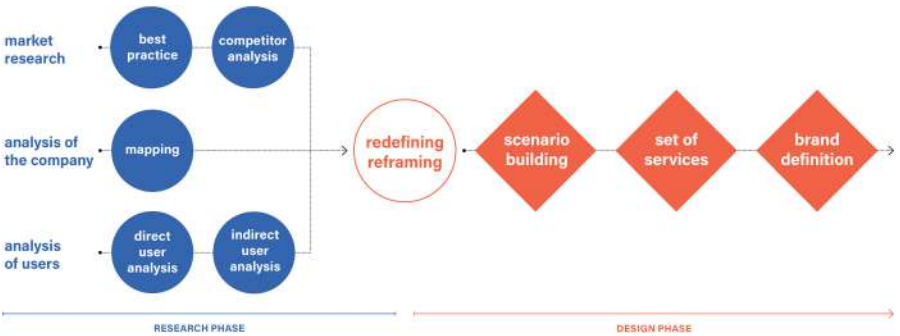

Fig. 1. Representation of the Strategic Design process adopted in the company.

The obtained results and the related effects allowed to verify the effectiveness of the use of this strategy with reference to the main objectives that Strategic Design should enable to achieve.

Zurlo (2010) states that Strategic Design should produce as an outcome an original offer, with a recognizable brand and a clear identity, with the power to attract both new customers and investors.

Furthermore, it was possible to confirm the validity of the process represented in Fig. 1, thanks to a series of positive effects that the company was able to verify on the market.

The first positive effect was the creation of new partnerships: the development of the new offer required the establishment of new connections that gave to the company the possibility to expand its offer and the systemic vision of the brand. Thanks to this achievement, the company can now offer its customers systemic solutions.

Another recognized positive effect of the new strategy was the market differentiation: considering the analysis made and the opportunities emerged, the company has decided to follow different phases associated to the new solution. In particular, the design, the implementation, the finishing, and the installation processes will be internalized by the brand itself, thus differentiating its offer.

Moreover, another positive effect has been the creation of new streams of revenues: new possibilities have emerged for the company to offer its services not just in relation to its finished products but also as stand-alone services. The company has realized it has in-house capabilities that enable it to also operate as a support operator disconnected from the vertical offer of the company.

Finally, another positive effect was that the company realized it can enter new markets: the company therefore grasped the possibility of being not only "a supplier of the material" but also a key actor in different contexts. The company will produce solutions for the construction and office markets, where it was not present before.

Through the described case study, we have therefore identified a Strategic Design driven methodological process that companies can adopt to achieve satisfactory results. We have also identified the benefits this adoption can bring, enabling effective market positioning and gaining a new competitive advantage.

References

1. Andrei, P., Ecaterina, B.R., Ionut, T.C.: Does positioning have a place in the minds of our students? Ann. Fac. Econ. **1**(2), 1133–1136 (2010)
2. Barrett, P., Sexton, M.: Innovation in small, project-based construction firms*. Br. J. Manag. **17**(4), 331–346 (2006). https://doi.org/10.1111/j.1467-8551.2005.00461.x
3. Bell, S.: International Brand Management of Chinese Companies. Springer (2008)
4. de Moura, H.T., Adler, I.K.: The ecology of innovation and the role of strategic design. Strat. Des. Res. J. **4**(3), 112–117 (2011)
5. Easton, G.: Case research as a methodology for industrial networks: a realist apologia. In: IMP Conference (11th), 11 (1995)
6. Eisenhardt, K.M.: Building theories from case study research. Acad. Manag. Rev. **14**(4), 532–550 (1989)
7. Eisenhardt, K.M.: What is the eisenhardt method, really? Strateg. Organ. **19**(1), 147–160 (2021)
8. Hill, T., Westbrook, R.: SWOT analysis: It's time for a product recall. Long Range Plan. **30**(1), 46–52 (1997). https://doi.org/10.1016/S0024-6301(96)00095-7
9. Jegou, F., Manzini, E.: Sustainable Everyday: Scenarios of Urban Life. Edizioni Ambiente (2003)
10. Keeley, L., Walters, H., Pikkel, R., Quinn, B.: Ten Types of Innovation: The Discipline of Building Breakthroughs. John Wiley & Sons (2013)

11. Kim, W.C., Mauborgne, R.: Blue ocean strategy, expanded Harvard business review Press, How to create uncontested market space and make the competition irrelevant (2014)
12. Landry, C.: The Creative City: A Toolkit for Urban Innovators. Routledge (2012)
13. Manzini, E., Meroni, A.: Strategic Design for sustainable solutions (2004)
14. Manzini, E., Meroni, A.: Emerging user demands for sustainable solutions, EMUDE. In: Design Research Now, pp. 157–179. Birkhäuser (2012)
15. Meroni, A.: Strategic Design: Where are we now? Reflection around the foundations of a recent discipline (2008)
16. Peters, T.: BE THE BEST/"COMMODITY" IS A STATE OF MIND. Tom Peters (2016, dicembre 28). https://tompeters.com/2016/12/bestcommodity-state-mind/
17. Porter, M.E., Advantage, C.: Creating and sustaining superior performance. Competitive Advantage **167**, 167–206 (1985)
18. Pruitt, J., Grudin, J.: Personas: practice and theory. In: Proceedings of the 2003 Conference on Designing for User Experiences, pp. 1–15 (2003)
19. Siggelkow, N.: Persuasion with case studies. Acad. Manag. J. **50**(1), 20–24 (2007)
20. Wilkinson, A., Kupers, R.: The Essence of Scenarios: Learning from the Shell Experience(2014). https://doi.org/10.2307/j.ctt6wp7mz
21. Yin, R.K.: Applications of Case Study Research. Sage (2011)
22. Zurlo, F.: Della relazione tra strategia e design: Note critiche. Design multiverso: appunti di fenomenologia del design. Milano, Edizioni POLI. design, pp. 89–98 (2004)
23. Zurlo, F.: Design strategico. In: Enciclopedia Treccani XXI Secolo, pp. 503–513 (2010)

Design for Emergencies

The Contribution of Design Culture in Emergencies

Chiara De Angelis(✉)

Scuola di Ateneo Architettura e Design (AP), University of Camerino, 63100 Camerino, Italy
chiara.deangelis@unicam.it

Abstract. The recent health crisis and the phenomena linked to environmental upheavals have aroused great interest in the theme of emergency and the need to systematise it.

The "Design for Emergency", not yet well defined and in continuous evolution within the scientific discipline of Design, is today at the centre of the cultural debate to find a more precise definition, limits and possibilities, good practices and necessary interdisciplinary relations.

After an initial introduction to the topic, the essay intends to define and discuss, through selected case studies, the design's contribution within critical contexts, through the reinterpretation of two terms, the "cycle" and the "wave", discussed in the essay "Designing in the Post-COVID Era" (2021) by M. Bianchini, P. Bolzan and S. Maffei [1].

The two terms, used by the authors to describe a range of phenomena, would influence differently the actions, methods and design strategies aimed at developing innovative and effective solutions and products to cope with emergency conditions.

Keywords: Design for emergency · cycle and wave · Industrial Design · protection and safety · Design-driven process

1 Emergency and Its Dichotomy Within the Project Culture

In normal when we refer to the term 'emergency', first situations that come into mind may be those due to unforeseen circumstances related to human safety such as accidents, floods, seismic events, avalanches, etc.

Today, between the climate change impacts and pandemics, social conflicts and wars, emergency seems to be an increasingly common element in people's lives, with which they are learning to coexist with.

Starting from its definition [2], emergency mainly has two meanings. Firstly, that of 'emergence; protrusion', identifying itself as a fact or phenomenon with particular relevance that emerges and must be understood as a potential threat for a system. Secondly, that by ' unforeseen circumstance', referring instead as a crisis or dangerous situation that must be tackled promptly and resolutely.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 263–272, 2024.
https://doi.org/10.1007/978-3-031-49811-4_25

These two definitions expand meaning, indicating both a normal danger situation recognised within everyday life, and an unforeseen situation that disrupts it for an indefinite time period, with the likelihood that something will generate damage out of the ordinary, putting human safety at risk [3].

In some regions, moreover, "what we consider an emergency is instead an everyday event" [4]. There are countries who have learnt to live with critical and complex situations that, if transferred to other non-risk areas, can be considered tragedies, suddenly upsetting their equilibrium.

For Maria A. Sbordone [5], the emergency reflects a short-circuit in the system, i.e. the result of various circumstances "not foreseeable by the dominant modernist logic"; a criticality sedimentation and accumulation that make an area fragile, consequently exposed with the probability that something at some point will "break", generating a events chain that propagate, overwhelming the region, profoundly changing its meaning. From the "unexpected convergence impact of human activities on ecosystems, testifying to a time never allowed for the sustainable remedial measures implementation" [5], to the widespread social, political, and economic conflicts that have emerged since the turn of the century.

Emergencies that endanger the safety of human beings, therefore, no longer concern only sudden phenomena more or less foreseen related to their safety; to these are added those that will generate in the future more lasting and burdensome states of emergency for: the planet, the environment and society, attributable to anthropic action to related forms of natural rebellion.

From these reflections derive design forms that investigate future emergency needs, reinterpreting the risk that arises from them, and then proposing solutions aimed above all at extreme survival conditions.

For years, design has been working on increasingly critical issues to safeguard the humans wellbeing and the environment, with all its scientific and digital support for monitoring, but even, today it cannot predict when an unexpected event will occur that will trigger a radical change in a normal state and what kind of impact it will produce, thus reducing the design 'veracity' relative to the above-mentioned futuristic solutions.

Design, operating within an experienced or experimental emergency scenario, plays an essential role both in responding to real needs [6] and in undertaking concrete, emergency-specific solutions that take into account people's needs, values, social and environmental resources, helping to reduce the impact on ecosystems in crisis/collapse.

2 Cycles and Waves: A Considered Overview on Strategies Applied by Design for Emergency

Emergency appears to be associated with "a complex phenomenon composed by elements that influence each other, which in turn influence the generic system behaviour" [7] consequently manifesting different regimes of conduct, based on the perturbation undergone. This gives rise to phenomena that express themselves more frequently, sporadic ones with a greater impact or those that we have forgotten about over time or that seem far away from us. There are also emergencies that disrupt an area and then reoccur over time, becoming habitual, until they are further disrupted by a small variation (butterfly effect) that could amplify the effects.

Therefore, starting from the territorial reactions and responses to the variety of emergency phenomena, specific project needs emerge to help people endure or overcome adverse conditions, trying to mitigate their consequences and protect them from dangers.

In order to offer a reasoned systematisation about strategies applied by Industrial Design in emergencies, it is necessary to recognise that urgent critical phenomena are composed by a plurality of actors and but multiple logics that cannot be separated [4] or decontextualized. Instead, it is necessary to focus on the common aspects that characterise emergencies, namely: time, which marks their continuity and duration; impact, which encompasses all the alterations and transformations produced; and scale, as the extension of the emergency.

In the essay "Designing in the Post-COVID Era. Transition Artifacts for Distributed Futures', in Distributed Design Platform, the authors M. Bianchini, P. Bolzan and S. Maffei, describe phenomena whose sudden and underestimated flows affect the environment, society, economy, technology and innovation, through the concept of 'waves'. The latter stresses the affected community by modifying its biological, economic and production cycles, making it vulnerable [1].

However, it is interesting to reread the above cycles from an emergency perspective, giving them a connotation contrary to the 'waves' concept.

In this way, it is possible to systematise emergency phenomena according to previously identified parameters (time, impact, scale) in relation to their periodicity and amplitude, under the reworked 'cycle' and 'wave' concepts.

In this contribution, therefore, 'cycle' will be used to describe all those emergent phenomena, of natural or anthropogenic origin, that are repeated over time, relatively short in duration, with minor impact and scalarity.

The 'wave', on the other hand, will turn out to have the same connotation as described above, within which all those phenomena that disrupt the territory for an indefinite period of time, with a greater impact and scale than the 'cycle', will fall.

This reinterpretation of the two terms, is a useful reading tool through which to systematise and catalogue case studies, such as products, processes and strategies, described below, with which design is expressed in critical situations in order to safeguard human beings and their environment. Conversely, we could read the same concepts as phenomena that influence differently the design actions, methods and strategies, aimed at developing innovative and effective solutions and products to deal with emergency conditions.

2.1 Strategies and Products in Response to Cyclical Emergencies

Over time, humans have learnt to understand all those emergency phenomena that tend to recur due to a risk within the territory or as an unfortunate result of circumstances caused by anthropic factors. The same is true for more endemic critical phenomena that are peculiar to other territories, which we understand through consumption of images and information transmitted by (globally connected) technological devices, making us increasingly aware and participants in an interconnected system [3].

We could cite, for example, the chronic emergencies in developing countries, or the needs experienced by those who have been forced to move and live at the mercy of events since the earliest times. All these phenomena, natural and otherwise, more or

less foreseen, with minor impacts on the environment, society, the economy, repeating themselves over time, could be classified under the concept called 'cycle'.

Through their evolution, humans have learnt to know them, modify them and live with them, managing the risks and organising the resulting needs in advance.

Within the 'cycle', design discipline proposes preventive solutions that are useful in everyday life, guarantee safety and protection should the same emergency conditions recur: be it sporting mishaps or sudden foreseeable disasters, for example.

We could mention, for example, life-saving furniture that can be placed within high-risk contexts and 'activate' in case of an earthquake; backpacks that become protection during avalanches; garments that can be transformed into shelters; etc.

Otherwise emergency products are available in compact kits to be kept 'at hand'. Kits can be found for practising emergency manoeuvres, guaranteeing the minimum necessities of life, signalling devices up to more specialised ones for use during conflicts.

Over time, these products have become increasingly specific in relation to the potential risk to be incurred in an area (e.g. flood risk, seismic risk, fire, etc.). In flood-prone areas, for example, ready-made mobile barriers have been designed[1]. In Israel, on the other hand, chemical and biological attacks are so commonplace that the population is equipped with specific masks[2] and houses are built with bunkers and functional furniture to safeguard people's lives [4].

Often conceived to cope with short or long critical situations, the emergency kit must be designed in a methodical manner, convey information, provide a sense of security, promote awareness and calm apprehension, as it plays an important role in helping oneself and one's loved ones in critical phases until help arrives, with the aim of minimising errors, including those due to negative emotions that may arise from a traumatic situation.

Through constant observation of needs in critical contexts, design is able to provide increasingly high-performance life-saving products, both on the basis of new knowledge about the phenomenon and survival needs, and thanks also to developments in science and technology, enabling the wearer to protect himself and perform his role safely.

One could mention workwear, which is becoming more and more high-performance: chef's uniforms that are easily torn off in the event of a fire[3], or uniforms for firefighters that provide precious extra life seconds during a fire, thanks to a special fibre that can absorb heat[4].

All this through a design process that is, however, expressed in a time relatively 'far' from the emergency.

The design process for cyclic events is not stressed by the urgency to provide immediate answers, for human and environmental safety, as there are already products on the market that act as a safety measure and manage the consequences and effects of a known event.

[1] Boxwall: Mobile, self-anchoring protective barrier against flooding. Designer: Sigur Melin.

[2] See the project Bezalel Research & Development, Bezalel Academy of Art and Design (Israel, est. 1906). Bardas Protective System.

[3] See 'fast Chef jacket' with quick opening in case of fire by the company Toma.

[4] The latest uniforms for firefighters are made from a special fibre called Nomex® by the company DuPont™.

In order to be able to develop appropriate and increasingly up-to-date responses, as in the examples cited above, there is a need to: constantly monitor and study cyclical phenomena; recognise the difficulties of others; interpret needs; and engage with stakeholders such as experts and production systems. But in order to be able to offer a more efficient performance product, based on new knowledge about a phenomenon and scientific-technological developments, one needs time above all.

Time in fact makes it possible: on the one hand to elaborate proposals, make considerations, discuss with the actors involved in the design process, develop prototypes and carry out tests on them; on the other hand, it offers the possibility of drawing on long production chains - in which several actors are included in the product realisation - which supply resources and materials useful for the final product realisation, but which require logistics that take into account the distances between factories.

To conclude, it could be argued that the design process in the 'cycle' benefits from observing existing solutions applied in an emergency (state of the art) and from the long run, to develop new devices that increase the probability of survival should the emergency reoccur.

2.2 Strategies and Products in Response to Wave Emergencies

Anthropogenic actions are generating cause-effect dynamics that over time tend to accumulate, scale and accelerate beyond the capacity of human control and intervention, weakening territories and creating new and unpredictable emergencies, which propagate in different forms both globally and locally [5].

All these major events that are beyond the ordinary, with impacts on human and anthropic ecosystems and in terms of overload, can be systematised under the concept of 'wave'.

'Wave' phenomena stress communities because they modify their economic and production, making them vulnerable, but also because they require costly investments in preparation to defend or protect themselves, or else they catch them unprepared [1], putting their resilience under strain, sometimes creating irreversible situations that are incompatible with their lives, so much so that they are forced to fight for their survival.

The project world's response for such events consists in implementing relatively quick, empirical solutions, taking advantage of readily available resources, dictated by the emergency type, in order to prevent the damage resulting from the event. Based on the duration of an event triggering the emergency, however, two types of 'wave' phenomena can be distinguished, which in turn influence design responses differently.

In the first case, the short-term event that arises may be new to the territory or more far-reaching than previous ones. New needs therefore emerge and, consequently, the requirement for new instruments to be able to deal with changed risks in the territory to face the reappearance of the emergency phenomenon.

For example, the skyscrapers parachute's introduction was a consequence of the attack on the twin towers on 11 September 2001, which found the United States unprepared against the terrorist risk. After that event, the design world took action to provide security for citizens so that the fear of tall buildings would not turn into a phobia [4] as well as to safeguard human lives. Or, causes of climate change have led to an urgent

need to support fire brigades with new equipment in order to assist them in search and rescue operations following more violent floods[5].

Quite a different condition is manifested when the effects caused by a longer-lasting 'wave' involve more: society with its structures, its services, its assets. Within this context, needs increase exponentially with respect to the capacity of a system to elaborate responses [9].

Design therefore has to prepare immediate and viable solutions in emergencies, while studying the phenomena, within a changing context, which may influence the needs as well as the responses themselves.

In 2014, the world witnessed the worst Ebola epidemic. The disease affected health workers in particular because it was so highly infectious and difficult to defend against, putting pressure on the already fragile health systems, which were also ill-equipped and forced to work in harsh climates.

In this case, designers, universities and companies took immediate action, prioritising an emerging need and working together to create a bioinspired protective suit[6] that was designed to reduce the risk for transmission during the undressing phase by coming off without the wearer having contact with the outside: as they had found that this phase was one of the main vehicles for transmission of the virus.

During a war, however, an important tool for medics and rescuers to help save lives is the tourniquet, which is essential for tamponading wounds in the limbs or extremities of the body until arrival at the designated medical centres. But during the clash between Israel and Palestine in the Gaza Strip, a simple medical device such as this could be unavailable due to: import constraints or gaps in the supply chain; shipments into the area intercepted and denied entry; disruption of traditional production means due to electricity shortages, all brought about by the conflict itself. The Canadian company Glia, in response to an urgent request from the Gaza Ministry of Health, collaborating with paramedics, hospitals and ministries, created a tourniquet that could be developed using a rapid and portable manufacturing process, executed in-house and tested directly in the field on trauma patients.

From an operational point of view, it was determined that the tourniquet should be 3D printed using solar energy and made open source, allowing anyone with access to a printer and electricity to produce tourniquets within the region, eliminating the transportation concept for the final product.

This solution is still being applied today in the war in Ukraine. Thanks to the sharing of the digital model via online platforms, anyone with a 3D printer can find the parameters for their own self-production, helping the affected community.

When territories are disrupted by a 'wave' phenomenon, the risk is to see the production chains for many goods come to a stop. A production model based on long supply chains (as may be the case for the 'cycle'), which sees the goods production spread over several countries or even continents, is difficult to manage in the aftermath of a disaster. In fact, logistical times are not compatible with the reactivity required in an emergency, and

[5] See Trident, a project by designer Dominic Siguang Ma, in collaboration with local American firefighters and rescue specialists.

[6] Personal Protective Equipment prototype for Ebola. Johns Hopkins University.

any damage suffered could compromise the entire supply chain, affecting the production of other related geographical regions.

In such a situation, the design, with its strategic capabilities, was able to implement resilience strategies towards the community supporting urgent needs due to a disaster or facilitating a return to normalcy and preserving a region's economy in great difficulty.

It does this by, on the one hand, proposing very simple but effective solutions due to their low level in terms of implementation and dissemination complexity[7]. On the other hand, by reconverting companies' internal processes to support them in the emergency phase, reorganising the production and distribution system through the identification of viable solutions, shaping innovation paths consistent with the resilience needs imposed by the crisis[8]. Resilience is nothing more than a form of rapid adaptation to the shock event, which occurs within a changing context.

All this has been made possible through the adoption, over the years, of digital tools as well as cad/cam software and technologies that allow design to simulate and explore countless formal solutions at the design stage that industrial processes cannot provide, and to be environmentally and economically efficient at the prototyping stage, thanks to the flexibility of Additive Manufacturing[9].

But even though these advances have made design more and more efficient, during an emergency design is further stressed to respond to crises, collaborating with different skills to combine knowledge and resources in order to support the community and make it resilient to phenomena.

Ezio Manzini, who in 2015 published 'Design, When Everybody Designs. An Introduction to Design for Social Innovation', describes communities as social actors who,

[7] In countries with a war-torn past, hidden landmines pose a silent and hidden threat. Demining such territories is a very expensive, time-consuming process that is done by hand by people who risk their lives, hampering communities that are just beginning to recover. Mine Kafon, by designer Massoud Hassani, is a project to bring cheap and easy-to-make mine detonators into Afghan minefields and promoted on the kickstarter site in 9 days. Spherical in shape and wind-powered, it is light enough to be propelled by the wind but heavy enough to detonate mines as it rolls. Consisting in bamboo stems with biodegradable plastic discs, it is made from locally produced recyclable materials and the construction is modular so that only damaged parts are replaced.

[8] Some examples: Gruppo Miroglio, an Italian company operating in the fashion industry, started producing in its factories cotton masks for sanitary use to cope with the Covid19 emergency. Or the Bc Boncar company in Busto Arsizio, specialised in luxury packaging, started the production of masks for customers, suppliers and prisons using the fabric bags used for their luxury products.

[9] To support the shortage of medical supplies for Covid-19 prevention and safety caused by the high demand rate, the additive manufacturing industry demonstrated that 3D printing could be used to enable the nasal swabs production and personal protective equipment for healthcare workers. 3D printing specialist SLA Formlabs collaborated with the University of South Florida (USF), Tampa General Hospital and New York's Northwell Health hospital system to develop nasopharyngeal swabs that could be quickly produced and sent to sold-out locations. Materials testing, printing parameters and designs, carried out in a matter of days, helped to find an optimal solution. The latest clinically validated swab uses an intricate lattice design to collect the virus sample while balancing patient comfort with the ability to collect a reliable and sufficient sample.

thanks to design's potential, are able to deploy design skills to define and realise their life strategies at different scales, constituting interesting social innovation for sustainability, fostering change in a fast-paced world with deep changes.

Being fast, however, does not only mean processing an intuition quickly, but also making sure that it is possible to realise that idea as economically as possible for the planet, taking into account the kind of emergency and its long-term effects.

3 Conclusions

The recent health crisis, as well as phenomena related to environmental and social upheavals, for example, have raised a great deal of interest in the emergency topic.

The Design for Emergency discipline, as yet undefined and constantly evolving, is at the centre of the cultural debate towards its more precise definition, exploring limits and possibilities; where not only the specific in-depth study on good practices, but also the necessary interdisciplinary confrontation will be decisive.

Therefore, in front an ever-changing planetary horizon, to be approached with caution, it is necessary to start systematising the strategies already applied by design in critical contexts, in order to build a synthesis framework to help us understand where, and in what way, design can be more efficient and promising, should unpredictable future emergencies catch it unprepared.

The reworked 'cycle' and 'wave' concepts, through reasoned case studies, seem to provide a useful key through which to discuss and organise these responses.

While the 'cycle' encompasses all the preventive and increasingly reasoned elaborations to known phenomena, the 'wave' stresses the design world to try to give extemporaneous, empirical and practicable solutions to a changing context that generates urgencies at a faster speed than the ability to elaborate answers.

'Wave' phenomena therefore appear as the most interesting to observe and where design can play a substantial role for helping restore an area to as normal a condition as possible. Through transparent and shared strategies and methods, it facilitates social cohesion and collaboration, bringing about circular scenarios, laying the foundations for the creation of a new economic model based on resilient communities.

A concept already explored in the 1970s by John T. Lyle, a professor at the University of California Cal State Polytechnic, who proposed a student class to think of a self-sufficient community, whose activities were based on their locally available renewable resources, similar to natural processes in which the material for the development of the living beings is sourced locally.

Science and technology are disciplines with which design will increasingly collaborate to create new materials, strategies and resilient solutions that allow trauma to be overcome in a positive way, becoming in the future indispensable to help people return in a situation as normal as possible and in tune with natural processes.

The emergency should therefore no longer be seen as something that creates vulnerability, but rather accepted as a natural change process, as well as an opportunity to try to introduce permanent long-term measures that celebrate the opportunities offered by the local territorial network, implementing restorative measures linked to sustainability.

References

1. Bianchini, M., Bolzan, P., Maffei S.: Designing in the post-COVID Era.: transition artifacts for distributed futures. distributed design platform. In: Viral Design. The Covid-19 crisis as a Global Test bed for Distributed Design (3) page numbers (2021)
2. Emergency, in Treccani.it – Vocabolario Treccani online, Istituto dell'Enciclopedia Italiana
3. Piscitelli, D.: First things first. Comunicare le emergenze. Il design per una contemporaneità fragile, List, Barcellona (2019)
4. Antonelli, P.: Safe. Museum of Modern art, Publisher, New York, Design takes on risk (2005)
5. Sbordone, M.A., Pizzicato, B.: Design and nature, a complex relationship. convergences. J. Res. Arts Educ. **13**(26), 73–78 (2020). https://doi.org/10.53681/c1514225187514391s.26.35
6. Papanek, V.: Design for the Real World: Human Ecology and Social Change, 2nd edn. Chicago Review Press, Chicago (2005)
7. Vianello, A., De Toni, A.F.: Complessità ed emergenza. Dalle leggi di natura alla creatività della vita. Multiverso_LAB 15 (2017)
8. Manzini, E., Bertola, P.: Design multiverso. Appunti di fenomenologia del design. POLI.design, Milano (2004)
9. Marotta, N., Zirilli, O.: Disastri e catastrofi. Rischio, esposizione, vulnerabilità e resilienza, Maggioli Editore, Santarcangelo di Romagna (2015)
10. Blechinger, G., Milev, Y.T.: Emergency Design: Designstrategien im Arbeitsfeld der Krise (German Edition) Springer, Berlin (2008)
11. Capra, F., Luisi, P.L., Frezza, G.: Vita e natura. Una visione sistemica, Aboca Edizioni, Sansepolcro (AR) (2020)
12. Cicalò, E.: Design per il quinto figlio. Progetti eccezionali per emergenze quotidiane, Riflesso Emergency - Magazine sulla Cultura delle Emergenze, 54–57 (2018)
13. Distributed Design Platform, Viral Design. The covid_19 Crisis as a global test bed for distributed design [File pdf], disponibile all'indirizzo web (2021). https://distributeddesign.eu/viral-design-book/
14. Germak, C.: Design Resiliente. Un quadro sinottico. AGATHÓN – Int. J. Archit. Art Des. 06, 26–35 (2019)
15. Manzini, E.T: Design, When Everybody Designs: An Introduction to Design for Social Innovation (Design Thinking, Design Theory). The MIT Press, Cambridge (2015)
16. Lerma, B.: Industrial reconversion in productive clusters. Design and active preservation of local know-how. AGATHÓN | Int. J. Archit. Art Des. https://www.agathon.it/agathon/article/view/245. Accessed 29 Sept 2022
17. Pilloton, E.T: Design Revolution. 100 Products that Empower People, Metropolis Books (2009)
18. Sbordone, M.A.T.: Smart & safe. Performative-suite design per la protezione e l'emergenza sanitaria/Design per l'emergenza sanitaria e hi-performative dress, List, Barcellona (2021)
19. Strategic, design, research journal. Design contributions for the Covid-19 global emergency [pdf], volume 13 Sept-Dec special issue, web: (2020). http://revistas.unisinos.br/index.php/sdrj/issue/archive
20. Studio Frith, Design Emergency, Wallpaper, pp. 167–205 (2020)
21. Morton, T.: T: Dark Ecology: For a Logic of Future Coexistence (The Wellek Library Lectures) (Reprint). Columbia University Press, New York (2018)

PROCESSES. Histories of Processes and Processes for History

Exhibiting Design as a Process

Fiorella Bulegato(✉) and Marco Scotti

Università Iuav di Venezia, Venice, Italy
{bulegato,mscotti}@iuav.it

Abstract. This contribution explores the idea of exhibition formats, both physical and digital, dedicated to design and focused on narrating the experience of the design process. It begins in particular with the analysis of a selection of exhibition models to define the story of Italian industrial design – later simply "design" – as a process and not as an individual product, looking into museums such as the permanent collection of the ADI Design Museum in Milan, as well as opportunities for reconstructions or exhibitions beyond the confines of physical space which rely on the forms of digital archives. In this regard, the two selected case studies shed light on the possibilities offered by the combination of heritage digitisation and data interoperability technologies used to build archives. By making it possible to search a gigantic volume of information relative to materials that belong to different conservators – from institutions to individual users –, these solutions extend the possible construction of new and renewed storylines centred on reconstructing the design process. The cases studied here involve two recent research studies finalized towards two archives: the project to reconstitute the Ettore Sottsass Jr. Archive based on the materials conserved at the Fondazione Giorgio Cini in Venice, conducted by the Università Iuav di Venezia in collaboration with Centro ARCHiVe, and the case dedicated to the Griffo typeface, which retrieves and expands the material preserved at the Tipoteca Italiana Fondazione.

Keywords: history of design · narrative · digital archives · ADI Design Museum · Ettore Sottsass · Tipoteca Italiana Fondazione

1 Exhibiting Design as a Process

This investigation into the possibilities of "exhibiting" design as a process and not as an individual product rests primarily on two key ideas.

The first comes from a conference held in 2007 at the Università Iuav di Venezia titled *Memoria e racconto. Per una museologia del design,* curated by Raimonda Riccini and Alberto Bassi. On that occasion, some of the major directors of international design museums pondered whether it was necessary or even opportune to develop a specific museological model for design, which might stand astride the two more traditional

The content of the text has been shared by the authors. In particular Fiorella Bulegato wrote the paragraphs *Exhibiting Design as a Process* and *Case Study 2: the Typeline project,* while Marco Scotti wrote the paragraphs *The Digital Models* and *Case Study 1: The Ettore Sottsass Archive.*

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 275–284, 2024.
https://doi.org/10.1007/978-3-031-49811-4_26

modes that, in synthesis, designate the isolated display of an art object or the focus on functionality for a technical object [1].

The second is from a more recent experience that seems to concretely carry out this approach. The newest of the Italian design museums, *The Spoon and the City,* the permanent collection of the ADI Design Museum in Milan which contains the circa 2500 objects of the Historical Collection of the Compasso d'oro award (1954–2020, in progress), tells the story of Italian industrial design – later simply "design" – by enhancing the dimension of design as a process, because the project, as the captions underscore, «is "merely" the result and endpoint of a long process» [2]. Considering design as a process, a series of exhibition devices were used to display the heterogeneous materials – sketches, drawings, models, prototypes, products, communication artefacts, photographs, documents, advertisements and so on – previously conserved or borrowed for the occasion from the many persons who participated in this process (Fig. 1).

Fig. 1. *The Spoon and the City,* ADI Design Museum, Milan (©Elis Gjorretaj)

A process that, to simplify, may be summarized as De Fusco's classic "four-leaf clover" [3] (project-production-sale-consumption), to which we might also add disposal/reuse. The ADI Design Museum therefore proposes a museological "model" to exhibit design and design history which is not new, but is rather unusual for Italy in the way it physically "mediates" the argument.

We believe however that this method may be extended to other forms of exhibiting design, those made possible by the digital archives which are also dedicated to content regarding the history of design [4].

In presenting this point of view, we embrace two of the methodological questions identified by David Huppatz in 2020 [5] which we believe are significant for the design

historians of the near future. In restating, without mentioning him, what Enrico Castelnuovo wrote some years ago – "It is only by conveying the role and interaction between the various agents in the field, the works, the designers, the engineers, the market place, the production, distribution and promotional processes, the clients, the institutions, the public, that we can attain a total history of design" [6], the Australian theoretician and historian emphasises the need to adopt a holistic approach in reconstructing the history of design, and to consider the final result as the outcome of a process of negotiation and compromise between the subjects that concur to its definition (first and foremost, the clients, designers, manufacturers, technicians and users). This process may be investigated by expanding the focus of study to the projects, models, prototypes and relations between different subjects, "documents" that are sometimes, or no longer, deemed to be worthy of attention.

Furthermore, it appears to be no accident that Huppatz finds yet another opportunity to conduct and disseminate – we might say "exhibit" – shared research conducted by international interdisciplinary groups in archives, libraries and digital databases, increasingly accessible and rich in materials, and the methodologies associated with them, based

Fig. 2. Dossiers and documents of the Archivio Ettore Sottsass jr., Fondazione Giorgio Cini, Venezia (Fondazione Giorgio Cini onlus, Archivio Ettore Sottsass jr., Centro ARCHiVe Venezia).

on the collection of data on the global scale, analysis by algorithms, investigations using powerful search engines (Figs. 2 and 3).

Fig. 3. Dossiers and documents of the Archivio Ettore Sottsass jr., Fondazione Giorgio Cini, Venezia (Fondazione Giorgio Cini onlus, Archivio Ettore Sottsass jr., Centro ARCHiVe Venezia).

2 The Digital Models

In the past several decades the forms of digital archives have expanded the opportunities for reconstruction and exhibition beyond the confines of the physical space in the places designated for the conservation and diffusion of documents [7]. The possibilities offered by heritage digitisation and by the technologies for data interoperability, which make it possible to search gigantic volumes of materials belonging to different conservators – from institutions to individual users – have in fact expanded the construction of new and renewed narratives.

Accelerated during the global shutdown caused by the Covid19 pandemic, these opportunities had been summarized as early as 2008 by Jeffrey Schnapp:

"the emerging media domains and practices loosely […] offer new challenges and possibilities for institutions of memory like libraries and museums: novel approaches to conservation and preservation based not upon restricting but multiplying access to the remains of the past; participatory models of content production, re-search, and curatorship; mixed reality approaches to programming and informal education that expand traditional library and museum audiences; enhanced means for vivifying and for promoting active or experientially augmented modes of engagement with both past and present" [8] (Fig. 4).

Fig. 4. Typeline edited by Isabella Collavizza, Project POR-FSE 2014-2020 (© Isabella Collavizza).

While their history is relatively more recent [9], archives dedicated to design, especially digital archives, have become a fundamental resource for research in Italy today [10]. They stand at the centre of the debate surrounding both the definition of a work and study methodology and shed light on a specificity that makes it possible to distinguish them, as well as integrate them, with libraries, exhibitions or collections. As digital archivists increasingly adopt an approach that operates between disciplines – bringing together the expertise of researchers, curators, editors and historians [11] –, archives and museum collections dedicated to design in recent years have presented projects developed to test new and original models to avoid the risk of dispersing the materials, facilitate new perspectives for study and animate the archives [12].

Based on an inclusive idea of accessibility [13] – and with certain important harbingers, such as Aiap's Centro di documentazione sul Progetto grafico (Cdpg) – a case such as the Vico Magistretti Archive, one of the few in Italy, represents for example a fundamental tool for the protection, enhancement and dissemination of design understood as a cultural heritage. Not coincidentally, this same institution, based in Milan, promoted the conference *Narrare con l'archivio* [14], underscoring the importance and the possibilities offered by the use of Linked Open Data (LOD) [15] technology to create connections within and beyond the archive.

This is just one example in the attempt to build on reflections about current models for producing knowledge [16] as well as the need for a dynamic curatorial approach, across different media and mindful of the spaces and places that generate and store the archive, to guarantee long-term conservation as well as activation and accessibility based on the shorter timeframes of the documents [17]. A perspective that looks to models of participation and integration to consider and design the archive as a place dedicated to connections, exploring the specific potential of the digital object [18], reinforcing the collaboration between subjects with different knowledge and skills, such as design historians, digital archivists, computer scientists, interaction designers.

The same digital object that the most recent experiences show to have become continuously enriched and integrated thanks to the construction of networks and with tools that involve the communities, based on reflections and practices originating in recontextualization and appropriation [19], aimed at the conservation of the ephemeral, as

testimony and oral sources [20], rethinking the archive through its contemporary definition as a *corpus* of materials, collected in a more or less recent past [21], increasingly open, fluid and interconnected.

3 Case Study 1: The Ettore Sottsass Archive

The reconstruction of the design process, by connecting various fonds, is one of the goals of the research project dedicated to the Archivio Ettore Sottsass jr., conserved at the Fondazione Giorgio Cini in Venice [22]. This study was conducted by the Università Iuav di Venezia in collaboration with the Centro ARCHiVe, a structure within the Fondazione itself which is responsible for the digitisation and inventorying of the Archive with the aim of making it freely accessible and searchable online.

Consisting of over 100,000 documents dated between 1923 and 2016, the collection contains the personal and design material produced by Sottsass in the fields of architecture, interior design, industrial and graphic design, in addition to graphic artworks, posters, handbills, drafts for publications, books, periodicals, university theses, various documents and some objects.

The problem of the dispersion across different archives of materials covering the same subject was addressed in this case by digitally reconstructing the connections between projects, thereby establishing relations between the many fonds that preserve materials regarding Sottsass.

To establish these connections, which means firstly to identify the projects "dispersed" across several archives, we initially chose to restrict the research area to graphic and industrial design, within the section of the archive defined as "Dossier" by Sottsass himself, and meticulously divided by the designer into folders corresponding to individual projects, classified both chronologically and in terms of design categories (in addition to graphic and industrial design, they include art, architecture, interiors, exhibitions and exhibition design, publication design, articles in the press, varied). This thematic limitation was set to enrich the current debate based on materials that largely have yet to be studied or even released, reconstructing Sottsass' experimentation and production in each case: from his private and biographical data to the collaborations and relations with partners, collaborators, clients and companies.

Consequently, indispensable sources to consult, along with the publications and catalogues of the exhibitions that have updated the landscape of available studies and resources [23], were first and foremost the Bibliothèque Kandinsky at the Centre Pompidou in Paris and the Centro Studi e Archivio della Comunicazione (CSAC) of the Università di Parma – recipients of donations made by the designer himself and his heirs at different points in time – and the collections of institutions, manufacturers or collaborators, such as the National Archives in Florence, Museo Casa Mollino, Archivio Cardazzo, Archivio progetti Iuav, Archivio storico Olivetti, Archivio Aldo Londi, Archivio industriale Bitossi, Centro Studi Poltronova or the Archivio Italdisegno-Arazzeria Scassa.

The data sheet developed with XDAMS software carries the references to the materials contained in these fonds, in a digital format if they are available online, as in the case of those conserved at the CSAC in Parma, and will make it possible to publish the

summary of Sottsass' works in industrial and graphic design on the portal dedicated to the digital Archives of the Fondazione Cini [24].

Based on a historical perspective [25] and integrating the research with the expertise of the digital archivists, this study laid the foundations for the reinterpretation and reconstruction of a design method and the processes involved, to shed light on the elaboration of an expressive language in the many areas in which Sottsass conducted his visual and spatial experimentation, and at the same time, to construct a system of his personal and client relationships.

Obviously, the growth in the digitisation of the heritage conserved by various archives and the connections offered by technologies such as LOD would make it possible to "animate" the archive far more productively, and to channel the focus of many "stories", deriving from the query of the materials, more specifically on the reconstruction of the process inherent to design.

4 Case Study 2: The Typeline Project

The second case study involves a research study developed within the project titled *Editorial processes and innovation 4.0: recreating value through the synergy between analogical and digital.* This project, which ended in 2019, was a collaboration between the Università Iuav and Ca' Foscari in Venice, and involved five research fellows, one short-term research fellow, two visiting professors, twelve companies and seven institutions [26]. The general aim was to re-establish the cultural, social and economic value of the book by integrating the practices of design and digital production with those deriving from the rediscovery of letterpress printing and the revival of historical typefaces [27].

Within this framework, one of the themes developed in the project was to determine appropriate ways to access, publish and exhibit typographic materials and processes, and typefaces in particular, artefacts that, together with printing, are recognized by historiography as an accomplished form of design *ante litteram* with respect to the onset of the industrial revolution [28].

The study involved the Fondazione Tipoteca Italiana as a partner. This is a private institution, founded in Cornuda (Treviso) in 1995 by the Antiga family – owners of a major local printing establishment – and is the most important national museum of the art of printing and typographic design [29]. It features not only an exhibition for visitors, but a laboratory area as well in which to hold classes and workshops. Most importantly, it is sustained by a significant archive of types, machines, equipment and tools used to implement various printing processes, as well as design drawings and promotional documents, and a vast specialized library.

The research focused initially on an analysis of the Tipoteca's efforts since the 1990s to collect the wood or lead type discarded by printing shops as they adapted to the digital "revolution", and the relative design materials and specimens dedicated to the glyphs. This acknowledgment highlighted two aspects: on the one hand, the extent to which the current arrangement of the museum exhibition and the physical archive depended on such progressive acquisitions; on the other the lack of a structured classification system or catalogue of the materials, which was still incomplete and relied largely on printed material.

It thus became clear that all the documents conserved at the Tipoteca could only be cultivated, focusing the attention of design history and theory on original or long-neglected forms and sources, by "exhibiting" a historicised reading of the entire printing process through the elaboration of an online digital archiving system based on the digitisation of the materials that characterise each phase of the process.

And thus the project for a virtual archive of the typographic process was born.

To test the project, the Griffo typeface was selected as a case study, in the version cut in 1929 by the Parisian punchcutter Charles Malin for the Officina Bodoni operated by Giovanni (Hans) Mardersteig who, following a meticulous philological study, revived the lower case cut by Francesco Griffo and printed by Aldo Manuzio in 1496, of which the Tipoteca conserves a series of types. The search for documents to reconstruct this history involved the consultation of archives and fonds, such as Mardersteig's personal archive conserved in the Library of the Accademia di Agricoltura, Scienza e Lettere in Verona, or the Stanley Morison Archive at the Cambridge Library, and the digitisation of various documents [30].

The results were organized into a database that led to the creation of a timeline – named Typeline – conceived to establish relations between the various exemplars that contribute to the story of the typographic/printing process: from the historical or archival documentary traces to the design of the typeface (sketches, handwritten notes, letters, drawings, photographic reproductions, specimens, sample sets and more), to the matrices, and the individual pieces produced of both the typeface family and the printed editions that have used it over time.

This archive can be implemented *ad libitum*, for example, with some of the results of the research project itself, such as the "replicas" of the Griffo redesigned with digital technologies and plastic materials with the purpose of preserving the original copies, or the proofs printed on paper with contemporary inks formulated to be more environmentally sustainable.

The "exhibition" formats sustained by a digital archive can thus make it possible to bring together information and materials that would otherwise be dispersed across various entities, often geographically distant and sometimes accessible only to physical consultation, but above all to open the processes that narrate the history of design to "the world connected online". If the technologies were compatible the project, illustrated here briefly but obviously subject to further development, could become a model of "history" that could be constantly updated with newly discovered documents, uses of type or drawn revisitations derived from information found online on the same subject.

References

1. The proceedings of the conference were never completed. A short mention may be found inhttp://www.iuav.it/NEWS---SAL/comunicati/2007/memoria-3-racconto.doc_cvt-htm. Accessed 18 Oct 2022
2. From the exhibition panel
3. De Fusco, R.: Storia del design, pp. VII-X. Laterza, Rome-Bari (1985)
4. At the V national conference of Ais/Design – Associazioneitaliana storici del design, titled Design esposto: mostrare la storia/la storia delle mostre, the session titled Fra reale e virtuale presented certain cases comparable to this theme (Bulegato, F., Dalla Mura, M., Monti, G.

(eds.): Design esposto: mostrare la storia/la storia delle mostre. Proceedings of the V national conference Ais/Design, Università Iuav di Venezia, Venice (soon to be published)
5. Huppatz, D.: Introduction to methodology: virtual special issue for the journal of design history 2018. J. Des. Hist. **33**(1), 5–40 (2020)
6. Castelnuovo, E.: Per una storia del design. In: Idem (ed.) Storia del disegno industriale. 1750–1850. L'età della rivoluzione industrial, vol. I, p. 11. Electa, Milan (1989)
7. On the transformation of archives, among others, see Clement, T., Hagenmaier, W., Knies J.L.: Toward a notion of the archive of the future: impressions of practice by librarians, archivists, and digital humanities scholars. Libr. Q. **83**(2), 112–130 (2013); Lupano, M.: L'archivio in mostra: materialità documentaria e dispositivo visionario. In: Archivi e mostre. In: Proceedings of the International Conference, pp. 206–219. La Biennale di Venezia, Venezia (2013); Giannachi, G.: Archive Everything: Mapping the Everyday. The MIT Press, Cambridge (2016)
8. Schnapp, J.: Animating the Archive. First Monday **13**(8) (2008)
9. Cf. Irace, F. (ed.): Design & Cultural Heritage: immateriale, virtuale, interattivo. 3 vols. Electa, Milano (2013); Bonini Lessing, E., Bosco, A., Bulegato, F., Scodeller, D.: Il design come bene culturale. MD J. **8**, 6–15 (2019)
10. Reflections on archives dedicated to design in Italy are relatively recent. Among others: Bulegato, F., Dalla Mura, M. (eds.): Design italiano: storie da musei, mostre e archivi. AIS/Des. J. Storia e ricerche, **3** (2014); Dalla Mura, M.: Entering digital design history. In: Benincasa, A., Camuffo, G., Dalla Mura, M., Upmeier, C., Vinti, C. (eds.) Graphic Design: History and Practice, pp. 189–214. BU Press, Bolzano (2016); Scodeller, D.: Archivi digitali e fonti documentali del design: nuove prospettive storiche e storiografiche sul design? I casi Gio Ponti, Vinicio Vianello e Vico Magistretti. AIS/Des. J. Storia e Ricerche, **10**, 1–27 (2017)
11. Clement, T., Hagenmaier, W., Knies, J.L.: Toward a notion of the archive of the future: impressions of practice by librarians, archivists, and digital humanities scholars. Libr. Q.. Q. **83**(2), 112–130 (2013)
12. See, among others, Ghiraldini, A.: Archivi del design. Nuoveforme creative e di narrazione per la condivisione della memoria. Il caso Enzo Mari. Ph.D. thesis in Scienze Philological-Literary, Historical-Philosophical and Artistic Sciences. Università degli studi di Parma (2021)
13. Cf Bosco, A., Bulegato, F., Gasparotto, S.: The digital archive as an inclusive tool for knowledge construction through design practices. In: Proceedings for the 8th International Forum of Design as a Process Disrupting Geographies in the Design World, Bologna, 20–22 June 2022 (soon to be published)
14. Narrare con l'archivio. Fondazione Vico Magistretti, 19 November 2020. http://www.vicomagistretti.it/it/attivita/eventi?id=179. Accessed 30 Dec 2020
15. Listo, T.: Ramificazioni digitali del design come bene culturale. MD Journal **8**, 28–39 (2019)
16. Schnapp, J.: The permanent library of the now. Know. J. Format. Knowl. **2**, 303–320 (2018)
17. Ibidem
18. Irace, F. (ed.): Design&cultural heritage: immateriale, virtuale, interattivo. cit
19. In this regard one model is the project The Archive of Now, developed by the Harvard metalab in collaboration with Harvard Libraries and S.T.Lee Grant "to make Harvard library digital collections readily available for use and remix, and address conceptual questions about archives, digital search engines, and the use of recontextualization and appropriation in contemporary culture, particularly with regard to archival materials".https://mlml.io/p/the-archive-of-now/. Accessed 20 Oct 2022
20. In particular as the field of design is concerned, see The Bard Graduate Center Craft, Art and Design Oral History Project, an archive of interviews and oral sources dedicated to craftsmen, artists and designers. https://bgccraftartdesign.org. Accessed 20 Oct 2022
21. Schnapp, J.: Animating the Archive. Cit.

22. Università Iuav di Venezia, Department of Architecture and Arts, research fellow Marco Scotti, lead investigator Fiorella Bulegato, co-funded by the Fondazione Giorgio Cini, 2019–2021
23. For a more general overview of the figure of Sottsass, cf. Thomé, P.: Sottsass. Phaidon Press, London-New York (2014); Radice, B. (ed.): Ettore Sottsass. There is a Planet. Exhibition catalogue. Electa, Milano (2017); Zanella, F. (ed.): Ettore Sottsass. Catalogoragionato dell'archivio 1922–1978. CSAC Università di Parma-Silvana editoriale, Parma-Cinisello Balsamo (2018); Brayer, M.-A.: Ettore Sottsass. L'Objet magique. Centre Georges Pompidou, Paris (2021)
24. Expected within the year 2023
25. Bulegato, F., Scotti, M.: L'Archivio di Ettore Sottsass Jr. Ricostruire mondi. Magazén **3**(1), 39–60 (2022)
26. POR-FSE 2014–2020 Project financed by the Regione Veneto, lead investigators Fiorella Bulegato, Emanuela Bonini Lessing, Monica Calcagno; research fellows Rachele Cavara, Nunzia Coco, Maria D'Uonno, Nello Alfonso Marotta, Federico Rita; short term research fellow Isabella Collavizza; visiting professor Priscila Lena Farias (Universidade de Sao Paulo), Joerg Metelmann (University of St. Gallen)
27. Cf. the synthesis in Bonini Lessing, E., Bulegato, F., D'Uonno, M., Marotta, N.A., Rita, F.: Processieditoriali e innovazione 4.0. Recuperare valore coniugando pratiche analogiche e digitali. In: Di Bucchianico, G., Fagnoni, R., Pietroni, L., Piscitelli, D., Riccini, R. (eds.) 100 anni dal Bauhaus. Le prospettive della ricerca in design. Proceedings of the Annual Assembly of the Società Italiana di Design, pp. 251–259. SID (2020)
28. See, for example, the periodisation proposed by D'ambrosio, G., Grimaldi, P., Lenza, C.: E se Gutenberg fosse un designer?. Op. cit., 58, 8 (1983), cited by De Fusco, R.: Storia del design, pp. 1–16. Laterza, Rome-Bari (1985)
29. Berra, S. (ed.): Una storia di carattere. Dieci anni di Tipoteca Italiana. Tipoteca Italiana-Antiga edizioni, Cornuda-TV (2006)
30. Collavizza, I.: La vita di un carattere attraverso il racconto d'archivio: il Griffo. In: Bonini Lessing, E., Bulegato, F., D'Uonno, M., Marotta, N.A., Rita, F.: Editoria e innovazione tra analogico e digitale, pp. 13–36. Università Iuav di Venezia, Venice (2019)

Toward Paris! 45 Years of Domus for a Design à la Français

Elena Dellapiana(✉)

Politecnico di Torino, Turin, Italy
elena.dellapiana@polito.it

Abstract. Between 31 May and 23 September 1973, the exhibition *Domus: 45 ans d'architecture design, art,1928–1873* was held in Paris. It occupied an entire floor of the Pavillon Marsan in the Louvre, involving the entire editorial staff of the magazine. The exhibition, subdivided by decades, used panels, a collection of objects, and original artworks to illustrate the history of Ponti's magazine from its foundation to 1973.

It presents different levels of interpretation that are exemplary of the way of telling the Italian design in an international framework practised since the years of the first issues of "Domus". On the one hand, the placement of the magazine's interests in a temporal flow, in the form archive. On the other hand, the curatorial choice clearly privileges the cotè reserved for the visual arts, both in the reproduction of articles and reviews published over the years and thanks to the extraordinary contribution of exhibited artworks by Marino Marini, Max Bill, Renato Guttuso, Ben Sahan, Chillida, Tinguely, Armand among others.

The thesis of the paper is that this has been a mode of the Italian project that shapes its narrative code as a transformism calibrated to the culture and mood of the host countries with the aim of presenting a compact and coherent image (the Made in Italy, the Italian way or the Italian line depending on the situation) but also to adapt it to the foreign public, both the generalist -and possible buyer- and the specialist.

Keywords: "Domus" · Italian Design · France

In the spring of 1973, posters appeared on the streets of Paris announcing a new exhibition, hosted by the Musée des Arts Décoratifs, bearing the evocative and mysterious title: *1928–1973. Domus: 45 ans d'architecture, design, art*[1]. Here, the Latin word 'Domus' refers to the first Italian publication dedicated entirely to Italian architecture and design, founded by the architect Gio Ponti in 1928. This is not the first time that the Milan-based magazine had landed on the French scene. In 1967, the editorial board of Via Dezza organised and curated the exhibition cum trade show titled *Domus: Formes Italiennes* [1], which took up an entire floor of the Galeries Lafayette. The *kermesse* had once again presented Ponti's formula, the «trois expressions» that makes Italian design 'Italian': industrial production, as well as artisanal production (both in series and as one-off pieces) [2]. In short, the exhibition re-iterated the magazine's narrative that, since its

[1] The poster is on the cover of *Domus* n. 525 (August1973).

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 285–294, 2024.
https://doi.org/10.1007/978-3-031-49811-4_27

founding, had always emphasised the creativity and craftmanship of Italian products, through its dissemination in the Western World, to delineate the global success of the Made in Italy somehow as a brand.

In that same year (1967), almost as a counterpoint, *Domus*, still under the direction of Ponti, published an edition completely dedicated to France featuring on its cover a blurred image, veering towards the colour green, of Roger Tallon's furniture.[2] Inside, the magazine presented an in-depth analysis of the diverse production manufactured on the other side of the Alps: prefabricated architecture, industrial design, and interior design, but also the artistic research and atmosphere, with a sharp focus on the Nouveax Réalistes group. What emerged is a clear-cut image of French design, aligned with artistic rather than architectural research. The magazine's survey opened with the inevitable tribute to the noble father Jean Prouvé, point of contact with the tradition of the modern and ongoing research on quality prefabrication; a phenomenon also concerning Italian architects such as Gino Valle, Marco Zanuso and Angelo Mangiarotti [3]. The following articles focused on French Post-Avant-Garde themes. Ettore Sottsass proposed a *petit-tour* inside the homes of Parisian artists and creatives: from Lettrists Ben (Benjamin Vautier) and Stein, the gallerists Denise Renè and Michel Warren, Op art artists Vasarely and Le Parc (awarded the Grand Prix at the Venice Biennale in 1966), the Nouveaux Realistes Cèsar and the duo Niki e Tinguely, the representatives of kinetic art Boto and Vadranega, inflatable artists Emmanuelle and Quasar Khan, the super-minimalist Portuguese couple Lourdes Castro and René Bertolo, the actress and activist Delphine Seyrig, to the neo-surrealist painter Lucio Del Pezzo [4]. As usual Sottsass's tone is teasing, but his approach is not immune to the charm of the ultra-technological Parisian flats – or their *bric-à-brac* appeal – belonging to rich gallery owners or couples of aspiring artists who lived the bohemian life of the twentieth century.

In addition, *Domus's* 1967 French-devoted issue covered the opening of the new Olivetti showroom designed by Gae Aulenti in Faubourg Saint-Honoré, Paris. The dedicated showroom echoed a *mood* in line with the creativity of the capital. Although it should be recalled that Aulenti wanted to create a square (an Italian square), the aspect highlighted is the 'magical' atmosphere accentuated by large African wooden sculpture, closer to a return to primitivism, and rather distant from the image communicated by the other showrooms belonging to the Ivrea-based company [5]: imagination and creation as opposed to the precision of typewriters and calculating machines [6]. Tributes followed to the young *génial* Olivier Mourgue, designer, and creator of *futuristes* interiors with the incredible equipment of Airborne that would soon populate the lobby of the space station in Kubrik's film *2001: A Space Odyssey;* and to Roger Tallon, presented as the interpreter of performing and technologically advanced projects, and simultaneously, as an experimenter of shapes, concepts, and graphic layouts foreign to the commercial realm. Eventually, the thesis that this issue of *Domus* intends to project is made explicit in the closing article of the French portfolio signed by the critic Pierre Restany, the founder of the *Nouveaux Réalistes* group and a regular contributor to the Italian magazine since the early years of the 60s and in the many to follow. *Paris bouge!* [7] is the slogan that attempts to put an end to the cold war between the *Ville lumiere* and New

[2] *Domus* n. 452 (July 1967) with contributions by Jean Prouvé, Sottsass, Aulenti, Mourgue, Tallon, Restany.

York City, mediated by the young French artists belonging to a second wave of artists following the generation of the School of Paris. The Nouveaux Realistes are, in fact, split between Paris and New York: they are free from post-war, abstract, and post-avant-garde orthodoxies, and ready to take on the new challenges set by galleries and museums: «*un fait en tout cas est certain: en contradiction avec les prévisions les plus pessimistes et dans une période cruciale pour l'avenir de la culture française, Paris, enfin, bouge*». Yes, Paris was on the move as far as artistic research is concerned, but despite the host magazine's orientation towards design culture – albeit its boundaries were not always clearly defined – Restany's closing piece was all centered on visual languages.

A similar direction also seems to underlie one of the first events promoted by the CCI. The Centre de Creation Industrielle, a state body established in 1969 [8] – and consequently merged into the nascent Centre Georges Pompidou in 1972 – commenced its work by questioning the design discipline with the exhibition, held in the premises of the Louvre's Musée des Arts Décoratifs, *Qu'est-ce que le design?*. The promoter of the centre, François Mathey, was a long-standing curator of French museums who, in 1960 and in 1962 respectively, had put on two exhibitions: *Antagonisme* and *Antagonisme 2: l'objet* [9, 10][3]. In particular, the second exhibition brought together one hundred and fifty artists invited to respond to the theme of the decorative and the everyday object, and its making. Extreme responses, such as the ones by Klein o Takis, were presented together with those orientated towards the decorative arts – Pomodoro, Consagra – or closer to industrial design as per Isamu Noguci or Harry Bertoia's work. The *fil rouge* that connected the nearly 500 objects displayed was the type of – artistic – training shared by the all the authors.

A similar approach was also taken when questions around design were promoted and communicated in *Qu'est-ce que le design?*. The exhibition introduced five designers: Joe Colombo together with Charles Eames, Fritz Eichler, Verner Panton and Roger Tallon were the authors of the work exhibited and curated accordingly in five different sections. In the exhibition catalogue, the five designers answer a series of questions concerning their respective projects, and the subject of design more broadly. Panton presented the lighting system used in the restaurant of the publishing house Spiegel in Hamburg (1969), and edited by Poulsen (Fig. 1), the informal chairs *Living Tower* (Herman Miller, 1968) and the rugs designed for Mira-X. The room dedicated to the Eames, titled *Three Clients,* showed works for Herman Miller, IBM, and several government offices, as well as one version of the GEM slide show on three screens and panels, sharing the interview given by Charles to the museum.[4] Eichler displayed projects, and processes for Braun while Tallon's exhibition space presented the lathe/threader and the television *Tèléavia* alongside his responses to the interview. Lastly, Joe Colombo put on view the *programmable system for living* designed for 'La Rinascente' (1968).

The attempt to bring order to the definition of design by interviewing five personalities that represented as many 'national' (or presumed as such) approaches to design,

[3] 485 objects were commissioned for the exhibition which included artefacts by Jean Arp, Jean Dubuffet, Max Ernst, Giacometti, Ipousteguy, Meret Oppenheim, Man Ray, Dorothea Tanning, etc.

[4] In 1972, the Eames studio produced the short documentary *Design. Q&A;* https://www.youtube.com/watch?v=bmgxDCujTUw.

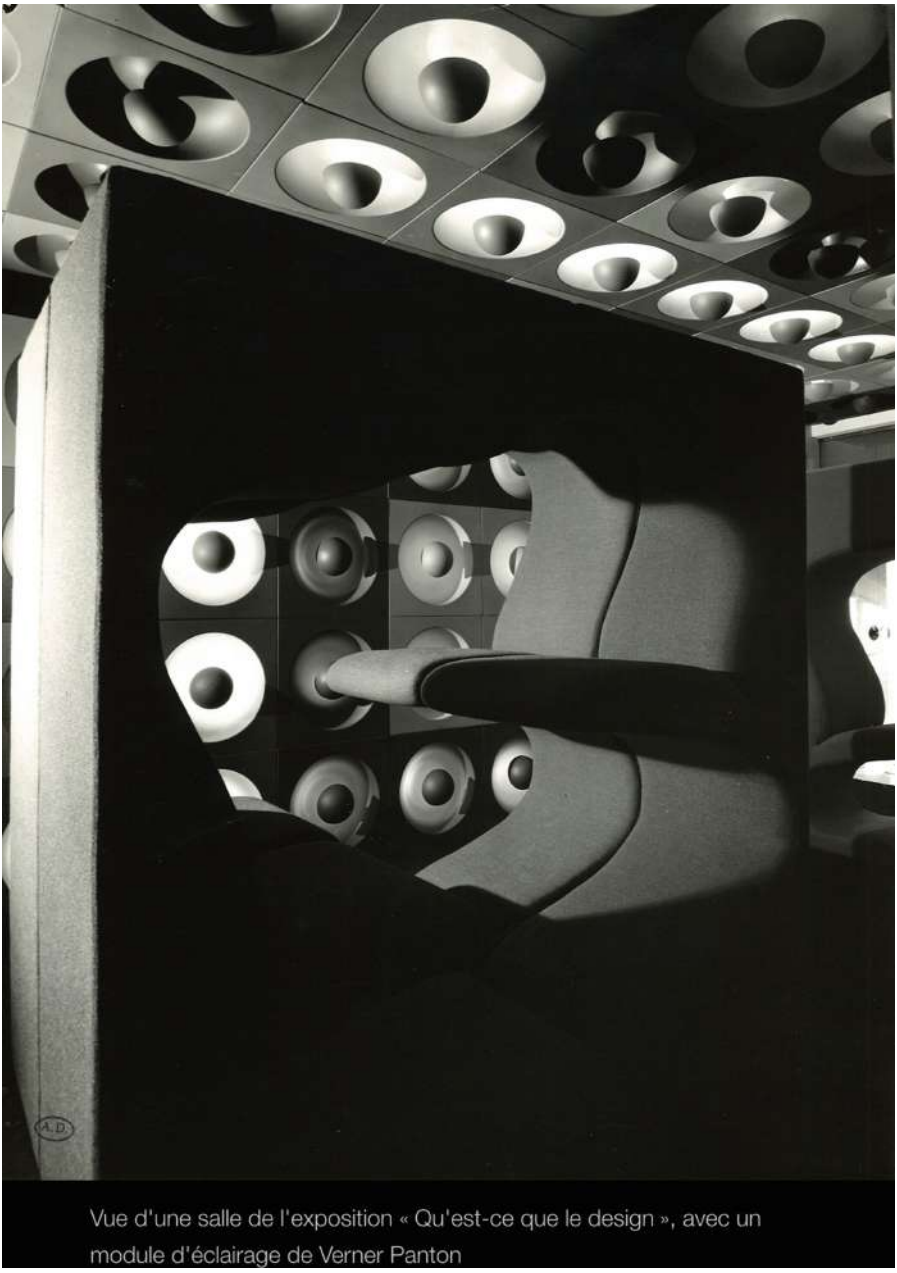

Fig. 1. One of the halls of the exhibition *Qu'est-ce que le design?* With the lighting system by Verner Panton; CCI 1969 Bibliothèque MAD, Album Maciet 309 bis 41 bis. ph Pierre Jahan. Courtesy Pierre Jahan Archives

constitutes, in all likelihood, the theoretical basis on which to lay the foundation of the emerging CCI organisation. It was also a response to what had been displayed at the Milano Triennale[5], the previous year, in terms of French manufacturing: objects of current industrial production, but above all, futuristic solutions designed by artists/architects, synthetic fabrics chosen by Paco Rabanne for his collections, the pauperistic clothes of Schreiber and Hollington, as well as graphic and multiple arts over which dominated César's enormous installation: a sixteen meters long seat made of a two-tone polyurethane foam which creates an «exciting off-scale, and at the same time conceptual and dimensional» [11], all ensembled together in the spirit of the «libre créativité»: in short, the French slogan for creativity orientated towards visual languages.

The pronouncements of the five designers reflected the 'form follows function' debate, in accordance with what had already emerged within the counter-cultures movements in the previous years. More specifically, Colombo suggested a definition of design as an ensemble of actions or of small interventions carried out by the designer that, in turn, can become levers for producing changes at all scales, including the urban dimension[6] [12]. Here, the bond between 'form' and 'function' was re-interpreted: form became a direct consequence of the designer's role who acted as a sort of epistemologist. Additionally, the idea that design was not subjected to fashions was fully formulated. On the contrary, it was argued, it was the designer – and the design system – that guided fashion and the public's taste. The nature of these affirmations, that included allusions to semiotics, philosophy, and advanced technology ('we live in the heart of the technology era') brought Colombo closer to the Anti-Design thought shared with his French colleagues, and further away from his Italian counterparts.

The choices of the French continued with a very targeted selection. In 1970, the CCI organised a subsequent exhibition in collaboration with the Italian firms Cassina and B&B. Set once again in the Louvre and titled *Nouveaux espaces,* the exhibition included two spaces designed by Gaetano Pesce and Quasar Khanh. Pesce proposed elements made of synthetic materials including the series *Up*: « un rito di derisione in cui l'oggetto divinizzato, posto su un altare, incensato, inserito in una colonna sonora, illuminato come un'icona, appare nel suo fasto, venerato e invitante» [13]. His piece 'Yeti song'[7] was played in the *pneu* (or inflatable) room to complement the *Aerospace* furniture series designed by his French-Vietnamese colleague Quasar Khanh [14]. Two portraits complementing each other: the French designer was unconventional, in search of new materials, and close to the fashion world (his wife Emmanuelle is a well-established fashion designer) while the Italian designer was already immersed in an artistic and individualist approach that will be fully applied to his post-apocalyptic work *Environment* at the 1972 MOMA's exhibition *Italy.The new domestic landscape,* and in line with the transalpine *mainstream* [15].

[5] Archivi della Triennale di Milano, TRN_14_04_0178–0205.

[6] In 1964, the magazine *Edilizia Moderna* (n. 85) edited by Vittorio Gregotti and entirely dedicated to design, the same interview questions are directed to 12 Italian designers. Their conclusion was that architecture can and must be run by designers as 'traditional' architects and planners had failed at their task.

[7] The song was released on LP by Gaetano Pesce and produced by RCA; http://boxes-of-toys.blogspot.com/2019/12/la-canzone-dello-yeti-toy-2332.html.

This was the context in which the exhibition for the forty-five years anniversary of the magazine *Domus* took shape in the rooms of the Pavillon de Marsan. *1928–1973. Domus: 45 ans d'architecture, design, art* occupied the whole floor of the museum's wing dedicated to decorative arts, and it involved the entire editorial staff and other professionals from Italy throughout its run – the 31st of May to the 23rd of September. The exhibition's lighting and sound effects bore the names of two excellent protagonists of the Italian design scene: Livio and Piero Castiglioni, while the visual identity saw panels and plinths covered in the chequered plastic laminate produced by Abet Laminati and designed by Superstudio – the same material that was being used for the *quaderna* furniture series produced by Zanotta (1969–72).

These were also the years in which *Domus,* still under the direction of Gio Ponti, saw Pierre Restany and Germano Celant as members of its editorial board. The effects of their orientations and research that identified France as a privileged field of comparison, could certainly be felt. Of Restany (at *Domus* since 1969) we recall his already mentioned involvement with the Nouveaux Realistes, and of Celant (on the editorial board since 1971) the action initiated in 1967 to bring together artists working around the notion of *Arte Povera* [16]. An endeavour that will lead, thanks to his continuous dialogue with Pontus Hulten – who, at the time, was developing the artistic programme for the future Centre Pompidou –, to the realisation of major French exhibitions such as *Identitè Italienne* at the Beaubourg in 1981 [17]. *Domus*, in the early 70s, thus, reflected also through its signatures, the Parisian atmosphere of the *engagées* artists. Indeed, in the magazine's articles, a wide variety of languages can be identified: a legacy of the counter-culture years of the sixties that could be, however, easily mended together with the magazine's original approach that exhorted artists to 'leave the museums' and engage with designers.

The overall exhibition was designed by Cesare Casati and it resembled a large library filled with a dense sequence of photo panels, enlargements from the magazine, objects, models, and original artworks. The audience was welcomed by a luminous installation designed by the Castiglioni – father & son – who had been experimenting for years, especially Livio, with early electrotechnical and electronic devices [18]. In Paris, however, an analogical solution was preferred: sixty halogen bulbs (a novelty on the market), with a concentrated light beam, were mounted on boxes hidden in the balustrades of the entry staircase projecting the word *domus* on the vault of the vestibule. Nothing 'kinetic', no filters or convex lens: the light glow was simply a result of the patient-empirical-work of calculating the distance and the angles of directions of the bulbs projecting the letters[8] [19, 20]. The techno soul of the exhibition – whose layout simply consisted of full-scale boxes, covered by an over-lit canopy, leaning against a dark central spine that guided the visitors through the magazine's five decades indicated by illuminated signs – was centred around the futurist machinery *Page Search 500*. Introduced by Livio Castiglioni and placed at the entrance of the exhibition surrounded by floor lamps *Toio*, *Page Search 500* was a microfilm reader-printer produced by 3M that 'allows visitors to consult an

[8] The exhibition was repeatedly advertised in the magazine since the beginning of the year, and a preview was given in the April issue. The May issue (522) included most of the texts published in the official exhibition catalogue.

index of 9000 names that corresponds to 100.000 punch cards' with the option to read the articles on the screen, but also to print them off and take them at home[9] [21].

The exhibition layout followed two parallel ways of recounting the history of the magazine: themes and chronology. In both cases, the curatorial and 'biased' approach that has always defined *Domus* and that 'reflects the situation according to legitimately discriminatory limitations and angles' was retaliated [22] (Fig. 2).

Fig. 2. Gio Ponti presenting the exhibition at Louvre, Courtesy Piero Castiglioni

The decades *1928 – 1940, l'avant-guerre; 1941–1945, la guerre; 1946–1955, l'apres-guerre; 1956–1965, le siecle dans sa maturité; 1966–1973, notre époque dans sa pleine virtualitè*, converged in a small room dedicated to the Plateau Beaubourg – the allocated space for the CCI's design exhibitions and still under construction – to then resume the representation of its history, almost in a genealogy, through the *objets d'utilisation courante*: cars, chairs, espresso coffee machine and radios. The parade of objects – from Breuer's *Cesca,* FIAT 126 to the Castiglionis' radios –[10] were surrounded by four-dimension wallpaper picturing over four hundred posters featured in the magazine from 1928 to 1973 tracing the evolution of graphic design and advertising (*les insertions du 1928 a 1973*).

[9] The exhibition catalogue was edited by *Domus* as an off-series double issue, edited by Cesare Maria Casati, Agnoldomenico Pica, Emanuele Ponzio, Gianni Ratto and Pierre Restany.

[10] Images from the exhibition can be found © Bibliothèque Kandinsky, MNAM/CCI, Centre Pompidou - Dist. RMN-Grand Palais: Domus, 45 ans d'architecture, design, art: 1928/1973. - Exposition au Musée des Arts Décoratifs (31 mai - 23 septembre 1973): vues de salles.

Blow-ups, reproductions of articles, and images published in the 45 years of life of *Domus* were animated by a considerable number of original artworks. Drawings by Sant'Elia, Terragni, Figini e Pollini, Le Corbusier, Ponti-Fornaroli-Rosselli and Superstudio; and objects – especially prominent in the first decade as to point out the origins of industrial design – by Aalto, Pietro Chiesa, Richard Ginori, Krupp, Lobmeyr, Nizzoli, Wirkkala, Peressutti, Zanuso, Bellini, Colombo. But the most striking – and valuable – artefacts were the paintings belonging to De Chirico, Morandi, Carrà, Fontana, Campigli, Sironi, Marini, Matisse, Leger, Guttuso, Klee, Shahn, Vedova, Santomaso, Rothko, Kline, Klein, Raushemberg, Oldemburg; and the sculpture–installations by Fazzini, Marini, Bill, Munari, Chillida, Tinguely, Manzoni, Cèsar, Gilardi, Armand, Raysse. In summary, the *crème de la crème* of the visual art world originating from each decade covered by the exhibition, with a rich group representing the French Nouveaux Realistes, the Italian post-Conceptual, and the Pop avant-garde.

The articles selected, expressly translated into French, and reproduced for the exhibition as well as the catalogue – published as a large format in two volumes, with a curious binding in *pluriball;* the graphic bore the name of Ennio Lucini – also reveal a strong tendency towards visual arts. Since the beginning of the publication, alongside the well-known essay by Persico *Punto e a capo per l'architettura* [23], articles were published covering Leger, realist painters, and the fate of Italian fine arts more generally. However, in the last few years, Germano Celant and Pierre Restany had moved the magazine's editorial line even closer to the visual arts claiming 'the prevalence of the irrational, of delusional excess, and that is, of the Dionysian principle' [24]. Reportages such as the one covering the fourth edition of *Documenta* in Kassel (1968), where the protagonist was Joseph Beuys; the Christo's *land art* mega-structures; the performance of the Nouveaux Realistes in Milan for their 10th anniversary (1970); and the wondering of Mertz's igloo at the Venice Biennale in 1972 dominated the exhibition's narrative. The articles' texts were almost all chosen by Restany and Celant, and the first pieces written for the opening of the exhibition to 'congratulate' *Domus,* were entrusted to art critics and historians, curators, and museum's directors. This way *Domus* presented itself, and by extension Italian design too, as a place where to observe and confirm the idea that the magazine had always privileged an artistic and creative *cotè* within the design process. A belief that was clearly forced upon the magazine and its founding director that, however attentive to the things of art and to pursue an all-around definition of Italian design, had never moved the goalpost thus far (Fig. 3).

The French 'turn', that resonates with colleagues operating on the other side of the Alps, is a clear example of the Italian project's ability to shape its narrative to the culture and mood of its host countries with the aim of presenting a compact and coherent image of what Italian design is (the *Made in Italy*, the *Italian way* or the *Italian line* depending on the situation) while appealing to a foreign public, both the generalist – the possible buyer – and the specialist [25]. This way the Italian narrative follows the 'Dolce Vita' slogan in the USA, the 'primitive-rural' in the Scandinavian, the techno in the post-Bauhaus nations and the 'artistic' in the Nouveaux Realistes countries.

Fig. 3. One of the halls of the section "L'Apres-guerre" with artworks by Bill, Guttuso, Shahn, Klee; Centre Pompidou, Biblioteque Kandinsky/Fonds Muséologie, CCI8. RMN-Grand Palais/Dist. Photo SCALA, Florence

References

1. Dellapiana, E.: Les Cousins. Les échanges entre la France et l'Italie: pour une définition du design français in Laurent, S. (ed.) Une émergence du design France, 20e siècle, pp. 165–187, HiCDA Editions- Univ. Paris1-Sorbonne, Paris (2019)
2. Ponti, G., red.: A Parigi Domus Formes Italiennes, in «Domus» n. 450 (May 1967), pp. 11–91
3. Bulegato, F., Dellapiana, E.: Il design degli architetti italiani 1920–2000, Electa Milano (2014)
4. Sottsass jr., E.: From France with love. Case d'artista a Parigi , in «Domus» n. 452 (August 1967), pp. 10–31
5. Scodeller, D.: Negozi. L'architetto nello spazio della merce, pp. 104–139, Electa, Milano (2007)
6. Aulenti, G.: Un ambiente di apparenza magica, in «Domus» n. 452, (August 1967), pp. 32–37
7. Restany, P.: Paris bouge!, ibid., pp. 51–52
8. C.C.I.: Qu'est-ce que le centre de création industrielle?. in Qu'est-ce que le design?, s.p., CCI, Paris (1969)
9. Mathey, F. (ed.): Antagonisme 2: l'objet. Musée des Arts Decoratifs, Paris (1962)
10. Millet, C.: Art et design, ratages et chassés croisés. In: Rouard, M., Jollant-Kneebone, F. (eds.) Design français 1960–1990, Trois décennies, pp. 54–63. Centre George Pompidou, Paris (1988)
11. Red., Le Nazioni, in «Domus» n. 466, (September 1968), pp. 28–29
12. Savorra, M.: Milano 1964. Vittorio Gregotti, Umberto Eco e la storiografia del design come «opera aperta», in «Studi e ricerche di Storia dell'Architettura», n. 5, pp. 40–59 (2019)
13. Red.: La C&B Italia e Cassina al Louvre, in «Domus» n. 492 (November 1970), p. 26

14. Red.: Clearly 1970, in «Vogue», n. 155 (January 1970), p. 134 (Ph. Maurice Hogenboom)
15. Ambatz, E. (ed.): Italy: the New Domestic Landscape. Achievements and Problem of Italian Design, pp. 212–222, New York, MoMA (1972)
16. Tisdall, C.: Materia: il contesto dell'arte povera. In: Rosenthal, N., Celant, G. (eds.) Arte italiana del XX secolo. Pittura e scultura 1900–1988, pp. 363–368. Leonardo, Milano (1989)
17. Cammarata, S.M.: Identité Italienne: une histoire à reconstruire, in "Histoire des expositions", 16/10/2014, (https://histoiredesexpos.hypotheses.org/author/silviacammarata); Ead., Convergenze parallele. L'Arte povera e l'identità italiana nelle mostre di Germano Celant degli anni ottanta e novanta, tesi di dottorato in in Storia, territorio e patrimonio culturale, XXXIV, Università degli Studi Roma Tre, tutor Laura Iamurri
18. Scodeller, D. (ed.): Il design dei Castiglioni. Ricerca. Sperimentazione. Metodo, pp. 121–136. Corraini, Mantova (2019)
19. Red.: in «Domus» n. 525 (August 1973), pp. 29–30
20. Red.: 1928–1873. Domus: 45 ansd'architecture design, art, in «Domus» n. 521 (April 1973), s. p.
21. 1928–1873. Domus: 45 ansd'architecture design, art, Editoriale Domus, Milano (1973)
22. A.P. (Pica, A.): Introduzione alla mostra, ibid. s.p.
23. «Domus», n. 83 (November 1938), pp. 32–33
24. A.P. (Pica, A.): 1966–1973, Notre epoque dans sa pleine virtualitè, in 1928–1873. Domus, cit. s.p.
25. Dellapiana, E.: Il design e l'invenzione del Made in Italy. Einaudi, Torino (2022)

Archival Projects. Tools and Methods for Promoting the Corporate Culture Starting from Historical Brand

Elena Dellapiana(✉), Ali Filippini, Chiara L. Remondino, and Paolo Tamborrini

Department of Architecture and Design, Politecnico di Torino, Turin, Italy
{elena.dellapiana,ali.filippini,chiara.remondino,
paolo.tamborrini}@polito.it

Abstract. In the contemporary informational/digital landscape, the attention dedicated to data analysis has necessarily place the accent on the impact they have on design process. We no longer speak only of formal design, but of its communication, or even more about the way in which this good will reach the final consumer. In this scenario, the need to manage the methodological/design process by virtuously involving both the material and immaterial aspects, connecting, evaluating and re-evaluating existing knowledge, research and business in the best possible way, is clearly evident.

The proposal intends to present and discuss the research "MaToSto - Communicating and promoting entrepreneurship starting from the historical brands of the territory" which has seen a precise methodological structure aimed at promoting and qualifying the heritage of the historic Turin brands, to define criteria, tools, and project outcomes aimed at their enhancement also from an entrepreneurial point of view.

From the set of 25.000 company trademarks, registered from 1927 to 1970 at the Turin Chamber of Commerce, the researchers started a project using the organizational, creative and visual tools typical of big data analysis, including: a quantitative research on defined product categories, the implementation of a processing method, data filtering and selection for visualization purposes, a taxonomic analysis on figurativity to hypothesize a classification based on tags useful for archival research, and – nevertheless – useful to drive impactful heritage marketing actions.

Keywords: Historical brands · Digital humanities · Big data · Storytelling · Cultural heritage

1 Introduction

With the growing pervasiveness of information and communication technologies, we now live immersed in a new environment, which some define as infosphere [1], consisting of a continuous offset between the real and virtual dimension, between the online and the offline. A situation in which coexist the physical world of objects, documents, devices and the digital one that allows and guarantees the accessibility and the extended use of these "cultural objects".

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 295–303, 2024.
https://doi.org/10.1007/978-3-031-49811-4_28

The exploitation of new information technologies applied to cultural heritage is concretized on the one hand in an increase in the ease of use of resources, and in a consequent ease of learning, but even before it responds to the logic of social inclusion, allowing increased accessibility (mainly in quantitative terms) and the use of archives and museums, as well as all those places dedicated to cultural conservation.

History, a privileged discipline in the environment of archives, and the history of design as regards the subject of this contribution, has - therefore - a special opportunity in the redefinition of a general intellectual framework. Special occasion in being, itself, the subject of new interpretations, in returning to assume a central role as a relational, social, communicative and shared good.

With a view to revitalizing cultural heritage, transcending mere conservation, digital archives thus become essential tools for the narration of the culture of design and, through the potential of digital networking, also for its dissemination.

The large number of archives available online today, including those dedicated to design and its protagonists (company and/or designer archives), highlights a panorama of profoundly different methodological approaches which must correspond to different objectives and results calibrated on the target audience, and on the wishes of users.

In other words, by acting within the complex contemporary stratification of digital reality, the issue of enhancing sources as objects to design new research paths and new relationships becomes central.

The archive, traditionally repository of historical tales, is in fact made up of the relationships between its parts - more than individual objects - potentially capable, by intertwining, of stimulating the construction of original stories [2, 3]. It is also important to remember how the recent debate on the role of research requires the latter to be able to speak to an ever wider audience in order to regain a central position in the cultural and scientific debate. An objective that can be reached through a profound methodological change that includes the use of big data, the enhancement of the opportunities offered by digital humanities or topic-modeling software, able - among other things - to automatically read huge quantities of documents. From this point of view, the new trends in historiography speak of the need for new narratives capable of being read and understood by an audience of non-experts [4]. And again, the attention to visualization, to IT tools, and the fusion between large and small - between "micro" and "macro" - which combines the best that can be drawn from archival work with large overviews on issues of common interest.

The affirmation of historians David Armitage and Jo Guldi that "*in the world of digital university there are now tools that can consolidate and synthesize written texts (or information) in distinct views, imitating economists in creating and returning simple and immediate images of topics covered*" [5] should push scholars and researchers to innovate the way of analyzing the chronological change of the events treated, using various forms of visualization of time lines, thanks to the different tools for calculating the terminological occurrences and quantitative analysis.

Therefore, the work of micro-history in the archives and the macro-historical frames - result of the intertwining of a wider range of sources - can offer a new horizon in the study of the flow of events. Because "*responding to the call for a public future also means*

writing and talking about the past and the future in public, so that the ideas proposed can be easily shared" [5].

2 The project

2.1 MaToSto.it - Marchi Torinesi nella Storia

MaToSto® is the acronym of Marchi Torinesi nella Storia – Turin Trademarks in History – and is the database that the Camera Commercio Torino – Turin Chamber of Commerce – has created to make available to the public the minutes of the applications for registration of national and international trademarks that are part of the institution historical archive. Starting from this, the research entitled "*Enterprises Historical Brands and Communication Design*", illustrated and detailed below, finds its place in the need, shared between the disciplines of design and history, to pursuit a research in the field of design and visual communication in relation to the Piedmont area. The partnership with two local entities such as the Turin Chamber of Commerce and the archival-librarian center for documentation and research, the Institute for the Memory and Culture of Work (ISMEL) – founded in 2008 in Turin – was decisive.

The first (Turin Chamber of Commerce) provided access to its archive, also available online, with the digitalization of the immense historical heritage linked to the trademarks filed between 1926 and 1991, as well as following the researchers in the data retrieval phase and their consultation; the second (ISMEL), as a research institute, talked with the researchers in focusing on socio-cultural contexts, linked to the history of the company in the Piedmont area, to isolate the case studies resulting from in-depth studies that converged on the chamber site http://matosto.it/. "*Enterprises Historical Brands and Communication Design*" therefore constituted a first opportunity, as a case study with all the aforementioned characteristics, to scientifically and practically put to the test a multidisciplinary collaboration that has seen as an expected result the enhancement of a strongly cultural and productive heritage anchored in the territory, whose recognizability is to be maintained thanks to the introjection of cultural values rather than mandatory regulatory interventions [6]. The aim is to promote the historical culture of a brand, through grouping by product type, isolating some brands that could potentially be the object of interest by a new business and therefore also the object of redesign in their communication, starting from the logo or logotype. The research is also aimed at facilitating the Chamber of Commerce in the actions/policies to promote the Piedmontese business culture and to provide some tools (taxonomy, classification) useful in the future to guide the planning phase for those wishing to take over a historic brand.

2.2 The Developed and Adopted Methodology

"*The new design challenge is to use data for the same humanistic results we have in mind when we shape products through the user interface or their physical form*" says M. Rolston, titling his work *The next era of designers will use data as a means of communication* [7]. In fact, if analysis offers a promise aimed at understanding reality on a global level, design is able to offer the right framework to understand human behavior

at a granular level of detail, with the hope of creating better experiences. Experiences more efficient and engaging at the product, service and process level [8].

In the contemporary informational/digital landscape, the attention dedicated to data analysis has necessarily place the accent on the impact they have on design process. We no longer speak only of formal design, but of its communication, or even more about the way in which this good will reach the final consumer, defining an increasingly targeted, dynamic and complex product system [9]. By doing so, it is possible to manage the methodological/design process by virtuously involving both material and immaterial aspects, knowing what is present in the area, connecting and re-evaluating existing knowledge, research and business in the best possible way [10].

Therefore, starting from the data as a fundamental tool for the project, the research has seen a precise methodological structure aimed to promote and qualify the historical culture of the brand.

Sports, construction, clothing, food, drinks are just some of the product macro-categories present within the rich documentation of historical brands archived at the Turin Chamber of Commerce. A documentation that today boasts about 25.000 registrations between the 1920s and 1970s, of which about 15.000 verbal marks (primarly words) and 10.000 figurative marks (icons). For the research in question, however, it was decided to focus only on the figurative brands of two specific sectors that are particularly relevant and strategic for the reference context and some related sub-categories: agro-food with eggnog, candies, flours and jams, and clothing, with hats, raincoats, suspenders, belts and shoes. Once the areas of interest were defined, the methodological process was fundamentally divided into three sequential but closely related phases: research and quantitative analysis, qualitative analysis, exploratory analysis and definition of project outputs.

2.3 Research and Quantitative Analysis

The first phase of the methodological path, also defined as the research and preliminary/quantitative analysis phase, saw a real continuous exploration of the information material, constantly bringing out new questions and points of view on the dataset and at the same time on the focus of the research, and on final goals. This phase was mainly concentrated in two moments that will be illustrated in detail: the identification of filters and tags useful for categorization and the consequent organization and classification of the dataset. The first moment saw the definition, in fact, of the filters useful for skimming the data.

Starting from the sectors of interest, we tried to understand what terminology was used to describe the product under analysis; terminology that, given the span of time, has inevitably followed the evolution of the language, enriching the archive of synonyms, names and nomenclatures. In the case of candies, for example, terms such as: *caramell*, pastigl*, pasticca* and *pasticche*, or hats are added to *berrett** and *copricap**.

Upon the first screening, it was noted that some registrations remained active even if they did not belong to the chosen category. See the example of the belts product: a recurring term in the product categories of clothing such as construction and automotive. For this reason it was necessary to proceed with a second manual skimming which saw the cleaning of the archive from the records relating to categories not subject to analysis

and from the records that reported typologies and descriptions that were too generic or clearly referring to other products. Finally, the third and final sorting saw, thanks to the information received from the Turin Chamber of Commerce, the identification of orphaned trademarks or those no longer bound by rights of use. Finally, about the categorization and finalization of the dataset, as many documents have been created as the number of categories was, and inside they have been ordered chronologically, divided by year and correlated with the reference iconography: that is logos (190 for sweets, 28 for jam, 24 for flour, 4 for eggnog, 179 for shoes, 44 for raincoats, 30 for hats, 8 for suspenders and belts).

The investigation then continued with an exploratory analysis and the aim to identify particular correlations between different categories or any temporal recurrences. To meet this need, a taxonomy was structured and drafted starting from the iconographic elements: historical period, typology (figurative, figurative and word, figurative with repeated elements), basic elements, color, style (functional or decorative), decorative imprint (late Romanesque, Art Nouveau, modern, patriotic, heraldic, etc.), typography (Gothic, Serif or Sans Serif, original, etc.), language and categories (e.g. celestial bodies, animals, plants, landscapes, objects).

The compilation of this categorization has allowed the transition from the exploration and quantum/qualitative analysis of the data to the actual design action.

2.4 Qualitative Analysis

The data-driven approach that guided the first part of the research also instructed its part of qualitative analysis, which began with a phase of research and systematization of content through timelines and thematic insights based on evidence [11] (Fig. 1).

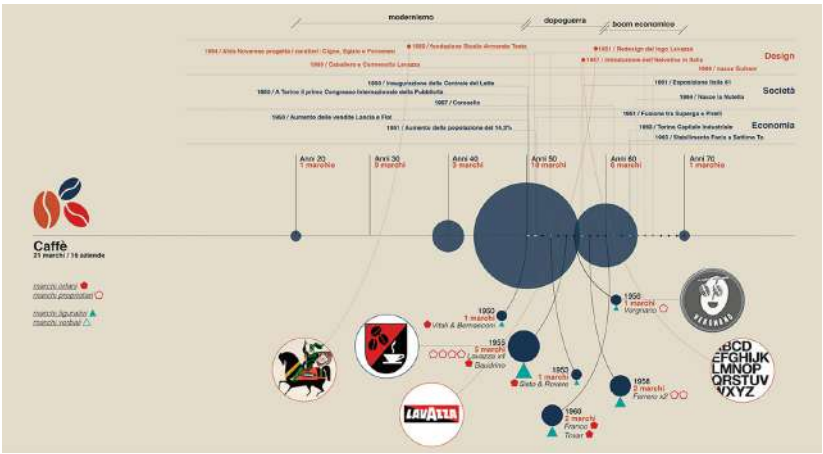

Fig. 1. Systematization of information and contents, as well as visual rendering through timeline and other visual models.

All the information collected has flowed into the creation of cultural content prepared for the digital archive site of the Turin Chamber of Commerce MaToSto.it and to suppose further research hypotheses (output).

This second phase of the process, first of all, involved a wide-ranging investigation into the socio-economic, cultural and political context relating to registered trademarks and categories of interest for research. From a historical point of view, great events, particular innovations, patents, more or less passing fashions have been researched and systematized, to name a few.

The data, divided by category, year and decade, also allowed a first consideration of the graphic-iconographic typologies recurring in the registered trademarks. Among the discriminating factors, we took into account how many companies were operating in a particular sector in a historical period and the results of that commercial and technological sector over the years. In this phase, the comparison with ISMEL was useful, the consultation of local historical magazines such as: Municipal monthly magazine and Economic Chronicles (chamber magazine), the digital database of the brands of the Central State Archives, for the purpose of a cross-comparison between patents, trademarks and products [12].

Equally important was the identification of "families" of products, companies, communication campaigns relevant to the restitution of the history of the city and the region in relation to the production and design sectors. In this case, the qualitative analysis made it possible to relate the collected data to the socio-economic and cultural context (events, fairs, innovations) relating to the registered trademarks, taking into account in particular those that were proving to be more interesting by recurrence in the investigated chronology and for their notoriety in the area.

2.5 Exploratory Analysis and Definition of Project Outputs

From the process illustrated above, some insights, or archival storytelling, were drawn up, functional to heritage marketing actions, with the aim of reconstructing company stories by crossing the data on the product sector to the supply chains to which they belong, according to a narrative that continually refers to the research tags: the brands identified, the reference brands and their renewal over time, the relationships with the socio-economic context (Fig. 2).

Two thematic in-depth studies are dedicated, respectively, to the history of raincoat manufacturers and confectionery companies specialized in the production and packaging of sweets. For raincoats were investigated the relations with the Piedmontese textile industry linked to rubber processing and its product sub-categories. For candies, the focus was on the relationship with the packaging industry: metal boxes, labels, wrapping paper with its decorations. The respective product/process/communication innovations are highlighted in the reconstructions.

Another study, transversal to all categories, examines the aspects related to the history of communication and brands, highlighting for some companies the presence of a coordinated image along the chronology investigated.

The research work carried out so far, as well as the relationships activated, have provided a structured basis on which to continue the study and dissemination of the archival

Fig. 2. Archive storytelling: an example of thematic analysis for the MaToSto.it website (theme: Raincoats in Turin).

system linked to the history of brands, in the circularity between design, aesthetic, socio-economic and of the territorial business culture.

In order to improve and enhance the consultation of the digital archive and contribute to the dissemination of its wealth of images, it was assumed to apply a search filter to the database based on the keywords used in the taxonomic analysis used (illustrated above). The hypothesis is to implement archival research based on the characteristics of the figuration of the marks (geometry, decoration, style…) to ask questions based on visual keys translated into textual keys, as a possible alternative to sophisticated visual selection algorithms (image system). Linked to this is also the study of a model of analysis of a figurative trademark, useful for the Chamber of Commerce for the registration of new trademarks, especially taking into account the changed technological conditions and the mediums that the transition from analogue to digital has introduced.

Among the possible future design outputs, a series of texts (each with the characteristics of a "catalog raisonné"), dedicated to the individual production sectors where to collect and describe a selection of historical brands (so-called "orphans") available for entrepreneurs interested in undertaking enhancement and investment actions commercial.

3 Conclusions

With a view to revitalizing cultural heritage that transcends mere conservation, digital archives thus become essential tools for the narration of the design culture and, through the potential of digital networking, also for its dissemination.

The history of design has indeed a multidisciplinary nature, "it is made up of many stories", allows intertwining and promotes complex investigations, as well as lends itself to technologically multifaceted returns: from communications on a social basis, to online training activities such as videos and workshops aimed at an extended audience. In the

digital treatment of archival sources, therefore, the three actions of cultural selection, technological strengthening and above all the ability to create networking which is equivalent to the creation of new meanings play a fundamental role.

Emerges the idea of a digital heritage and an archive as a relational asset capable of creating narratives and instructing possible design actions with connotations of "knowledge design", advanced by the designer and historian Jeffrey Schnapp, director of the Harvard metaLAB, which combine the digital dimension to the most advanced and innovative profile of design.

A digital archive, such as MaToSto, by its definition can dialogue with other archives: of historical associations, foundations, designers and corporate image studios and company archives, but also industrial and local history museums. The editorial proposals favor the "relational aspects" between the various actors for the purpose of promoting the historical and economic culture of the brands, especially if they still belong to the original companies, possibly in possession of the historical documentation relating to the corporate image.

The process initiated with this research therefore aims to enable attitudes of resilience, proactivity and exploration of the territorial heritage, where the design component is based not only on a purely intuitive but also pragmatic logic.

References

1. Floridi, L.: La quarta rivoluzione: come l'infosfera sta trasformando il mondo. Raffaello Cortina Editore (2017)
2. Felton, N.: Nicholas Felton: Design With Data. Webdagene 2016 (2016). Disponibile in: https://2016.webdagene.no/foredrag/design-med-data.html. Accessed 21 settembre 2018
3. Di Salvo, A.: La costruzione dell'interazione. Il ruolo della narrazione nel processo dell'interaction design. Franco Angeli (2020)
4. Lupi, G.: Data Humanism, The Revolution will be Visualized (2017). Disponibile in: http://giorgialupi.com/data-humanism-my-manifesto-for-a-new-data-wold/. Accessed 21 settembre 2018
5. Armitage, D., Guldi, J.: Manifesto per la storia. Il ruolo del passato nel mondo di oggi. Donzelli, Roma (2016)
6. Camera di Commercio, Industria, Artigianato e agricoltura di Torino. Il valore del brand. Esperienze d'eccellenza delle aziende di Torino e Provincia. Torino: Priuli & Verlucca (2007)
7. Rolston, M.: The Next Era of Designers Will Use Data as Their Medium (2014). Disponibile in: https://www.wired.com/2014/11/rise-of-data-artists/
8. Pietrobono, A.: Design Thinking love data: an emerging relationships (2016). Disponibile in: https://ibmcai.com/2016/02/04/design-thinking-3-data-an-emerging-relationship/
9. Rosling, H.: Let my dataset change your mindset. TED Talks (2009). Disponibile in: https://www.ted.com/talks/hans_rosling_at_state
10. Gaiardo, A., Remondino, C., Stabellini, B., Tamborrini, P.: Il design è innovazione sistemica. Metodi e strumenti per gestire in modo sostenibile la complessità contemporanea: il caso Torino. LetteraVentidue Edizioni (2022)
11. Dellapiana, E., Tamborrini, P.: Which Came First, the Chicken or the Egg? Sequences and Genealogies in between Architecture and Design for a Global History. In: ICDHS 10th. Barcellona (Spain), 29–31 ottobre 2018 (2018)
12. Amatori, F., Riccini, R. (a cura di): Copyright Italia, Brevetti/Marchi/Prodotti 1948–1970. Pordenone: GFP Edizioni (2011)

Working in Regress and Beyond, with Rural Material Culture [1]

Elisabetta Rattalino(✉)

Libera Università di Bolzano – Bozen, Bolzano, Italy
elisabetta.rattalino@unibz.it

Abstract. This contribution brings together and compares selected works by artist Claudio Costa, architects collective Superstudio, and photographer and designer Mario Cresci. It discussed the way in which they engaged with rural material culture in 1970s, a time when Italy was rehabilitating its pre-industrial heritage. Despite their respective differences, these works adopted multiple media to make rural artefacts talk and provide existential, educational, socio-political, and cultural models.

Keywords: Rural Material Culture · Anthropological Art · Radical Design · Anthropology · 1970s Italy · Craftsmanship

1 Introduction

Whilst becoming an industrial and soon after a post-industrial country, Italy saw the material heritage of its rural world either abandoned or sold in antiquity shops and flea markets or displayed in private or public museums. In 1978, over a hundred such collections were counted across the country [2]. The post-war period saw not only an extraordinary rise in the number of local museums of vernacular culture to accommodate these objects; studies around the history of things and material culture, adopting different theoretical frameworks [3] especially in relation to folkloric culture, also proliferated. Commenting on this phenomenon, historian Carlo Ginzburg wrote in his introduction to the Italian edition of Peter Burke's *Popular Culture in Early Modern Europe*: "Cultural fashions sometimes burst suddenly in Italy; they burn rapidly and then fade without leaving traces. However, it is easy to foresee that the studies (historical and not historical) about folklore will survive the trend that currently surrounds them" [4]. This interest spanned from the early 1970s well into the 1980s and, in Italy, it unfolded in a dialogue with history, semiotics and anthropology [5] – all pivotal disciplines in the cultural and political discourse of the time [6].

Several architects, artists and photographers also engaged with the material and immaterial living heritage of the countryside beyond the neo-realist paradigm of the 1950s [7]. This contribution briefly presents three of these works: *Indagine su una Cultura – Monteghirfo* by artist Claudio Costa; Alessandro Poli's and Christiano Toraldo di Francia's contribution, *Zeno Fiaschi*, to Superstudio' *Cultura Materiale Extraurbana*;

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 304–312, 2024.
https://doi.org/10.1007/978-3-031-49811-4_29

and Mario Cresci's book *Misurazioni. Oggetti, Segni e analogie fotografiche in Basilicata* (Matera, 1979). Despite their respective practices differing substantially, the artist, the architects and the designer each examined rural artifacts with and within the local culture and community. They mobilized consolidated hierarchies between high and low art, architecture and design elevating these artefacts to existential, educational, and cultural models and giving voice to these mute objects.

1.1 Claudio Costa's *Indagine su una cultura*

Initially exploring material metamorphosis and then intrigued by paleontology's study of human features, artist Claudio Costa (Tirana, 1942 - Genoa, 1995) developed an artistic practice connected to cultural anthropology (1974–1977) [11]. Participating in the international artistic trend of "Arte Antropologica" [12], his work embraced suggestions from Levy-Strauss's cultural anthropology and heterogenous practices of handmaking to delve into the cultural relevance of artefacts and rituals [13]. *Indagine su una cultura – Monteghirfo*, conducted in the autumn of 1975 with painter Aurelio Caminati (Genoa, 1924–2012), epitomizes Costa's practice as developed within the context of Monteghirfo, a small village in Valle Fontanabuona in the hinterland of Genoa [14].

As part of *Indagine su una cultura*, Costa created several pieces, such as: an artist's book collecting photographs of "Uomini, Oggetti, Abitazioni, Paesaggi" ("men, objects, dwellings, landscapes") taken by the artist himself, Aurelio Caminati and photographer Cesare Ferrari in September 1975 [15], and several assemblages later displayed in galleries and museums (i.e. *Analisi su un oggetto di Monteghirfo* [hook*;* hammer*,* or chestnut pan]; the *Natura naturata* series). In Monteghirfo, the artist set up the *Museo di Antropologia Attiva di Monteghirfo.* Later integrated in a 1978 government-led survey of folkloric (in Italian: *demoetnoantropologico*) heritage [16], the *Museo* was a conceptual artistic intervention that pursued the idea of moving museums' *dispositive* to a place of anthropological relevance. Openly overturning Marcel Duchamp notion of art coefficient, the key principle underpinning Costa's artistic enquiry in Monteghirfo was the "Statuto Antropologico" [17]. Costa defined it as "the ancient trace left by the gesture of making" that is able to "suggest the natural movements it was created for and that are the reason for its survival" [18].

In his several *Analisi su di un oggetto di Monteghirfo*, Costa adopted mechanical reproduction – photocopies on paper – or the process of casting in different materials, using wax and clay, displaying these different representations together, either loose or aligned, on a wood panel. Reasoning with conceptual works where multiple visible languages coexist to unveil the limits of representation itself [19], these artworks testify to his research, one that constantly sought to recover their silent connection between artefacts, their human makers, and their environment. Art historian Enrico Pedrini commented on Costa's practice: "Reconstructing the forms of the past by means of supports other than the original object, thus operating both a displacement of forms and cultural models, indicates the remaking of the structures of these civilisations, and does not mean restoring them to their original state by means of mere restoration techniques alone, but emphasises the metaphor of art aimed at a reinterpretation of the entire profound and enigmatic culture encapsulated in these forms" [20].

Costa's artistic research primarily appeared to have had an existential and an ethical purpose. It was grounded in a criticism of contemporary society's fetishization of "an abstract reality" and of its "material-scapes" of mass-produced objects, furnishing and appliances that have lost "the sense of contact" [21]. In 1975, the artist wrote that "the only trace that brings the existential data of a non-alienating human situation remains the narrative that these simple manufactured objects tell in their mute language, linked to the earth and nature, but free from the impositions and false tasks of a civilisation that is operating, by its own means, its complete obliteration" [22]. Practicing and reproducing these tools allowed for the possibility to reconnect with their essence. According to archaeologist André Leroi-Gourhan, objects could function as holders of a social memory: "when man cannot speak, when archives are lacking, two witnesses continue to survive: art and techniques" [23]. Through his artistic processes, the artist could apprehend the culture that these artefacts retained, not as one of an obsolete and forgotten civilization, but as the "matrix and the origin of our time" [24].

1.2 Superstudio's *Cultura Materiale Extraurbana*

In 1974 the architects collective Superstudio (1966–1978) began a research project that appears far from their most known checkered surfaces and radical provocations [25]: titled *Cultura Materiale Extraurbana*, it was elaborated as part of the seminar Adolfo Natalini was running within the module of "Plastica Ornamentale C" at the Faculty of Architecture, University of Florence [26]. This didactic activity was the new route taken by the collective following what was perceived as the end of "radical architecture" and the impasse following the controversies at the Triennale in 1973 [27], but also a response to changes academic institutions were undergoing since the previous decade [28].

As part of their practice-based module, the architects invited their students to focus on pre-industrial or rural material culture, possibly going back to their families roots to do so. Cristiano Toraldo di Francia and Alessandro Poli – who was briefly a member of Superstudio between 1970 and 1972 – were particularly involved in teaching of the seminar. Parallel to their academic commitment, they researched the material culture of farmer Zeno Fiaschi, Alessandro Poli's neighbour in Riparbella, near Florence [29]. The outcome of their project was presented at the Venice Biennale in 1978 as *La coscienza di Zeno* [30]. It was also published with the title "Zeno Fiaschi" in *Cultura materiale extraurbana* (Florence, 1983), the book presenting results of the seminar and a catalogue of tools curated by Michele de Lucchi [31]. In Venice, *La coscienza di Zeno* was presented with *La Moglie di Lot.* Commenting on the two projects in the catalogue, Natalini wrote: "On the one hand, the pessimistic crisis of architecture's mechanisms and destiny; on the other hand, an optimistic analysis of new foundations of design, construction and use practices, through collective creativity" [32], therefore suggesting how this research into rural material culture related to Superstudio's previous practice.

The architects' project was grounded in the criticism of the contemporary city expressed in previous works, such as, for instance, Piero Frassinelli's 1972 visual tale titled *Le dodici città ideali*. Embued with Marxist cultural analysis, the city was conceived as an expanding hegemonic mode of production and cultural model, that fragments labour as much as our apprehension of reality, and where creativity has become a marginal tool confined to amatorial activities and leisurely time [33]. *Cultura materiale extraurbana*

also acknowledges the social and cultural transformation the city-countryside relationship was undergoing at the time and its effects on the latter. Yet, instead of focusing on elements of this transformation, they led their enquiry into pre-industrial and rural tools, as Fiaschi's. Spared from the urbanisation, the work tools, domestic appliances, and the living environment under their scrutiny were questioned as testimonies of creativity and of a non-alienated way of life and appreciated for their intrinsic use value [34].

To study these artefacts first and then to present the results of their research, the architects and their students adopted architectural drawings and tools as well as communication strategies pertaining to other disciplines, such as visual communication and advertising [35]. They also enriched their analytical and interpretative method with ethnographic research tools to understand the meanings and values of these objects [36]. Together the diverse yet cohesive materials delineated the interconnected galaxy of objects constituting the living, working and cultural environments of their makers. For the publication, these objects were also organised into systems and "inventari critici" (critical inventories) based on their processes of making, their uses and successive improvements, and the possible activities they allowed [37].

All these documentary materials, however, were only envisaged as traces of a deeper and transformative educational activity: engaging these artefacts was not only meant for the sake of documentation, but – as they wrote at the time – it aimed to develop processes of reappropriation of the collective creativity these pre-industrial and rural tools embodied [38] and to be a "research work [..] not preparatory to a design practice as currently understood, but [one that] prefigures a different activity in which design, construction, use and recycling ought to coincide" [39]. Possibly drawing on the experiments conducted with the informal educational platform "Global Tools" of whom Superstudio was a member [40], their educational activity focused on practices of direct experimentation and making, inviting students to use, remake and reinvent rural tools.

"By referring to this reality, we can correctly analyse the direct relationship between man and nature, between man and the objects that serve to satisfy his real needs using cognition, intelligence and creativity that the division of labour has made useless for the production of goods… it is in this enormous wealth of knowledge that we can trace not only the roots of our science, but also the possibility of a different science" they wrote highlighting the additional potential of the project [41]. In *Cultura Materiale Extraurbana*, the countryside and the surviving pre-industrial cultures were conceived as a huge "encyclopaedia" and body of knowledge excluded by the high official culture, and an environment where to find remains of a pre-urban non-alienated society and to learn from it to imagine a different way to design and to live.

1.3 Mario Cresci's *Misurazioni*

In 1979 photographer and designer Mario Cresci (Chiavari, 1942) published *Misurazioni. Fotografia e territorio. Oggetti, Segni e Analogie Fotografiche in Basilicata,* a book coalescing elements of his research about peasants' material culture in Basilicata [42]. Following work experiences in Rome and Paris, in 1967 Cresci moved Tricarico, a small Southern Italian town near Matera, to join the Venice-born interdisciplinary research team Polis, with sociologist Aldo Musacchio and urban planners Raffaele Panella

and Ferruccio Orioli. At the time, Polis (later renamed "Politecnico" in 1970) was commissioned the Piano Regolatore for the town [43].

In the immediate post-war period, Basilicata's peasant culture had been considered an element that held back the modernisation of the region [44]. In the 1960s it was disappearing due to the failure of the Agrarian Reform [45] and the heavy migrations to Northern industrial cities fuelling the so-called "Economic Miracle" [46]. As Nicoletta Leonardi underlines, Polis worked with no nostalgia for this rural past on the verge of disappearing but aimed at giving a contemporary form and identity to the town whilst respecting its traditional values [47]. They did so by developing a long-term participatory process with and within the local community. Cresci's visual and photographic work had manifold uses in this process. It documented the complex socio-cultural and economic stratifications of the town for research purposes. It played a crucial role in public engagement activities, facilitating communication with locals in public meetings, supporting didactic activities connected to the urban planning intervention and disseminating results of the research via exhibition making.

Although it appeared few years after this experience was over in 1974, *Misurazioni* stems from over a decade of visual design and photographic work in Basilicata developed alongside this interdisciplinary initiative. The book, which had a soft cover and was small in format, is essentially organized in two parts. Following a brief introduction setting forward the contents of the book and delineating the geomorphological and geographical features of Basilicata, the first part provides examples of Cresci's photographic enquiry into the region since 1967. Specifically, the designer's visual research mainly focuses on toys reproducing traditional ways of life in small-scale olive-wood figurines crafted by local elderly for their grandchildren. To depict these objects, he adopted photography in different ways, demonstrating an understanding of this medium as a language with its own grammar and power of alteration but also moving beyond both traditional neo-realist and folkloric photography [48].

Cresci depicts the wooden figurines both in their original context and in his studio. He portrays the objects from different perspectives, provides their measurements, selects and magnifies details, and records their essential shape through photograms. Adopting visual analogy as a research method, the designer also includes photographs depicting the real-life tools and activities that the toys replicated, and series of images that retrace visual motifs into the local environment and in different crafts. In the book, this constellation of images narrates these toys at the intersection within the complex entanglement of vernacular culture, affection, collective identity, cultural memory and local natural environment to whom they belong.

Despite testifying to the past and present socio-cultural landscapes of the area and their materiality, *Misurazioni* does not aim to provide a comprehensive inventory of these objects, but examples of an analytical method conducted through photography and illustrations. Drawing on the methodology that emerges in the first section, the second part of the book consists of a selection of visual materials referring to the informal educational program Cresci conducted with the "Cooperativa Uno" s.r.l. in Matera between 1978 and 1979 [49]. In the educational programme, Cresci's visual enquiry methodology became the guiding principle for an education programme aiming at the rehabilitation of local craftsmanship. In 1982, Cresci wrote in the magazine *Campo*: "In southern Italy,

material culture is wrongly understood as the production of the 'subaltern culture' of the peasant world. […] The *Mezzogiorno* has expressed: rituals, festivals and popular traditions, indigenous objects and languages that are collective expressions of a deep historical memory and that, in my opinion, should have long since become reference systems for design culture and in the analysis of new behaviours and working methodologies" [50]. Not only *Misurazioni* experiments with photography at the intersection of material culture, territorial cultural identity, design and crafts making, it also lays the groundwork for alternative models of socio-economic and cultural development of the South rooted in its material culture.

2 To Conclude

At a time when rural tools and artefacts were finding their way into museums, Costa, Superstudio, and Cresci embraced them in their creative practice. Anthropology provided not only a field of enquiry (Costa), but also an analytical practice that could either complement their methodologies (Superstudio) or be adopted and reconfigured (Costa, Cresci). By engaging with rural material culture, Costa, Superstudio and Cresci proposed alternative practices of making and of making sense of the material heritage left behind or still surviving the industrialization and modernization of the country. From their perspectives, these objects retained an essential connection – lost to mass production and to the urbanization of the country – with their function, their cultural context of origin, and the creative potential they embed. Costa's works sought to capture and restore this connection. Despite their different practices, Superstudio's and Cresci's works allowed for the mute language of rural artifacts speak again, not only about the past but about alternative futures and practices of design.

References

1. In 1978, Claudio Costa spoke of Working in Regress referring to his artistic approach [Costa, C.: Materiale e Metaforico. Sintomatologia sul work in regress. Unimedia, Genoa (1979)], one that sought to deep into the collective symbolism of things. This contribution adopts this formula to indicate processes that attempted to reconnect to a supposedly past embedded in things
2. Silvestrini, E.: La Cultura Materiale, in Ricerca e Catalogazione della Cultura Popolare, in: Biagiola, S. et al. (eds.) Ricerca e Catalogazione della Cultura Popolare, pp. 6–17. Museo Nazionale delle Arti e Tradizioni Popolari, Istituto Centrale per il Catalogo e la Documentazione, Rome (1978)
3. Ibidem, pp. 6–7
4. Ginzburg, C.: Introduzione, to: Burke, P., CulturaPopolare nell'Europa Moderna, p. I. Arnoldo Mondadori Editore S.p.A, Milan (1980)
5. Giacomarra, M.G.: Una sociologia della cultura popolare, pp. 17–60. Sellerio editore, Palermo (2003)
6. Eco, U.: Introduzione. In: Fagone, V.: Il momentoartigiano, aspetti della cultura materiale in Italia, pp. 7–12. Silvana Editoriale d'Arte, Cinisello Balsamo (1976). Francesco Faeta's contribution to: "convegno Rete Fotografia. La fotografia in Italia negli anni Sessanta" (Milan, Palazzo Reale, 19/10/2018): https://www.youtube.com/watch?v=ghAK3X9jTfE. Accessed 26 Sept 2018

7. De Micheli, M.: Arte e Mondo Contadino. Vengelistaeditore, Milan (1980). Sabatino, M.: Pride in Modesty. Modernist architecture and the Vernacular Tradition in Italy. University of Toronto Press, Toronto (2010)
8. Eco, U.: Introduzione, op. cit, pp 10–12
9. Ibidem, pp. 11–12
10. Ibidem, p. 12
11. Solimano, S. (ed.): Claudio Costa. L'ordine rovesciato delle cose. Silvana Editoriale, Cinisello Balsamo, (2001); Gualdoni, F.: Claudio Costa nei materiali dell'umano. Il Canneto Editore s.r.l., Genoa (2014); Fontana, S.: Arte e antropologia in Italia negli anni Settanta, pp. 35–87. Postmedia Srl, Milan (2018)
12. Crispolti, E.: Riflessione antropologica e "ripetizione differente". In: Pirovano, C. (ed.) Storia della pittura italiana. Ultime ricerche, vol. III, pp. 72–75. Electa, Milan (1994)
13. Paradiso, A. (ed.). Autodocumentazione. Istituto di Storia dell'arte e di Sociologiadell'Università di Salerno. Seminario per un'antropologia dell'arte. 20 aprile 1978. Apolito, d'Avossa, Cascavilla, Costa, De Rosa, Paradiso, Nele, Trimarco, [Gualco]. In: Paradiso, A. (ed.) Teatro Antropologico, pp. 25–29. 2nd edn. Fabbrica di Comunicazione e Galleria Apollinaire, Milan (1983); Pedrini, E.: Testo antropologico teorico. In: Costa, C., Paradiso, A. (eds.) Situazione antropologica dall'uomo al paesaggio 1977, pp. 9–12. Edizioni P.S.P Matera, Matera (2003)
14. Costa, C.: Indagine su una cultura: Monteghirfo. In: Costa, C., Paradiso, A. (eds.) Situazione antropologica dall'uomo al paesaggio, pp. 37–49. Edizioni Apollinaire, Milan (1977)
15. Costa, C., Paradiso, A. (eds.) Situazioneantropologica dall'uomo al paesaggio, pp. 15–57. Edizioni P.S.P Matera, Matera (2003)
16. Silvestrini, E.: La cultura materiale, op. cit., p. 13
17. Sanouillet, M., Peterson, E.: The Essential Writings of Marcel Duchamp, pp. 138–141. Thames and Hudson, London (1975)
18. Costa, C.: L'uomo e l'oggetto come fenomenisolidali nella struttura mobile del Museo Antropologico di Monteghirfo. In: Costa, C., Paradiso, A. (eds.) Situazione antropologica, op. cit., p. 4
19. Menna, F.: La linea analitica dell'arte moderna. Le figure e le icone [1975], 44–63. Giulio Einaudi editore S.p.A, Turin (1983)
20. Enrico Pedrini cited in: Gualdoni, F., Claudio Costa, op. cit., p. 75
21. Costa, C.: L'uomo e l'oggetto come fenomenisolidali nella struttura mobile del Museo Antropologico di Monteghirfo. In: Costa, C., Paradiso, A. (eds.) Situazione antropologica (1977), op. cit., p. 4
22. Costa, C.: La praticadell'oggetto antico. In: Cortenova, G., La creazione volgeva alla fine, pp. 32–33. Genoa, Unimedia (1978)
23. Quoted in: Giacomarra, Sociologia della cultura materiale, op. cit., p. 43
24. Costa, C.: La praticadell'oggetto antico, op. cit., p. 32
25. For a contextualization of the project within Superstudio's practice, see: Mastrigli, G.: Oggetti come specchi. L'utopiacritica del Superstudio. In: Mastrigli, G. (ed.) Superstudio. Opere 1966–1978, X-LXXXIV. Macerata, Quodlibet (2016)
26. Natalini, A., et al. (eds.) Cultura materiale extraurbana, p. 7. Alinea, Florence (1983)
27. Branzi, A.: The Hot House. Italian New Wave Design, p. 83. Thames and Hudson Ltd, London (1984)
28. Natalini wrote: "The process of transformation of the university, its transition into the university of the masses through proletarianization, its growth into a place for struggle and refinement of strategy (political survival) render it one of the key positions - with the factory, the countryside, the city, being other examples." See: Lang, P. and Menking, W. Superstudio: Life without Objects, p. 222. Skira, Milan – New York (2003)

29. Poli owned a countryside house in Riparbella. Proximity and, later, friendship allowed for the possibility to enter spaces and places of Fiaschi's everyday life and learning about objects of use and his habits. Conversation with arch. Alessandro Poli in 2018
30. Natalini, A.: "La moglie di Lot e La coscienza di Zeno". In La biennale di Venezia 1978: Utopia e crisi dell'antinatura. Intenzioni architettoniche in Italia, pp. 34–37. Exhibition Catalogue. Venice, La Biennale di Venezia (1978)
31. Natalini, A., et al. (eds.): Cultura materiale extraurbana, pp.28–35
32. Natalini, A.: La moglie di Lot e La Coscienza di Zeno. In: Vinca Masini, L.: Utopia e crisi dell'antinatura. Momenti delle intenzioni architettoniche in Italia. Topologia e Morfogenesi, p. 35. Biennale di Venezia, Venice (1978)
33. Ibidem, pp. 534–536
34. Selecting rural material culture as its object of study, Catharine Rossi discussed this research as a telling example of a more generalised pastoral attitude in 1970s Italian radical design. Rossi, C.: "Crafting a Design Counterculture: the Pastoral and the Primitive in Italian Radical Design, 1972–1976". In: Lees-Maffei, G., Fallan, K. (eds.) Made in Italy. Rethinking a Century of Italian Design, pp. 145–160. Bloomsbury, London – New York (2014)
35. Natalini et al. (eds.): p. 10–27
36. Superstudio soon endorsed the cataloguing form and guidelines elaborated by the "Comitato per le Ricerche sulla Cultura Materiale in Toscana" set up by Giovanni Caselli and Silvano Guerrini in 1971 in Antella, near Florence. Natalini et al. (eds.): Cultura Materiale Extraurbana, p. 24
37. Natalini, Poli, Toraldo di Francia, Viaggio a matita, op. cit. 542
38. Ibidem, 530
39. Natalini et al.: Cultura Materiale Extraurbana, op. cit, 9 (1983)
40. Borgonovo and Franceschini mention Cultura materiale extraurbana as a relative to the activities of the informal educational platform. Borgonuovo, V., and Franceschini, S.: "Global Tools: Gli strumenti di una scuola possibile". In: Borgonuovo, V., Franceschini, S. (eds.) Global Tools: quando l'educazione coinciderà con la vita: 1973–1975, pp. 24–25; 27. Produzioni Nero, Rome (2018)
41. Natalini, A., Alessandro, P., Toraldo di Francia, C.: Viaggio a matita negli artefatti del mondo contadino. In: Superstudio. Opere 1966–1978, a cura di Gabriele Mastrigli, p. 530, Quodlibet, Macera (2016)
42. Cresci, M.: Misurazioni. Fotografia e territorio. Oggetti, Segni e Analogie Fotografiche in Basilicata. Edizoni META, Matera (1979)
43. Leonardi, N.: Fotografia e materialità in Italia. Franco Vaccari, Mario Cresci, Guido Guidi, Luigi Ghirri, pp. 61–77. Postmedia Books, Milan (2013)
44. Toxey Materan, A.P.: Contraddictions: Architecture, Preservation and Politics, pp. 85–91. Routledge, London (2011)
45. Ginsborg, P.: A history of contemporary Italy. Society and Politics 1943–1988, pp. 121–140. Penguin Books, London (1990); Bevilacqua, P.: L'agricoltura meridionale nel secondo dopoguerra. In: Bonelli, F., Crainz, G., Rossi-Doria, A. (eds.) La fine dei contadini e l'industrializzazione in Italia, 69–90. Rubbettino editore, Sovveria Mannelli (1999); Bernardi, E.: La Riforma Agraria in Italia e gli Stati Uniti. Guerra Fredda, il Piano Marshall e interventi per il Mezzogiorno negli anni del centrismo degasperiano. Il Mulino, Bologna (2006)
46. Gabaccia, D.R.: Italy's Many Diasporas, pp. 161–164. Taylor and Francis, London (2003)
47. Leonardi, Fotografia e materialità in Italia, op. cit., p. 65
48. Cresci, M.: Dall'antropologia al design. La fotografia come progetto e documento creativo. La Ricerca Folklorica, 2 "Antropologia visiva. La fotografia", pp. 81–89, October 1980

49. Carullo, R., Pagliarulo, R.: Matera anni Settanta: Cooperativa Laboratorio Uno S.r.l. Design e formazione nel mezzogiorno d'Italia. AIS/Des. J. **1**(2), 59–70 (2013)
50. Cresci, M.: Cronistoria tra nord e sud [1982]. In: Mario Cresci. Segni Migranti, op. cit. p. 587

PROCESSES. Design Methodological Processes

Air as a Design Tool: Raw Material, Infra-material Space, and Transformative Matter

Francesca Ambrogio(✉)

Università Iuav di Venezia, 30135 Venezia, Italy
fambrogio@iuav.it

Abstract. The paper highlights some issues in relation to air and how it is used in different forms of project planning. Air, a protagonist to be explored in the multitude of possibilities it offers to design, is initially analysed as a primary element by determining its role within the strategic processes activated by nature. Secondly, defining it as a material having its own entities and specific autonomy capable of expanding and enriching contemporary design possibilities.

The goal is to define possibilities, potentialities and characteristics of air by investigating it through the use of three specific lenses: air as raw material; air as infra-material space –material among materials–; air as transformative matter –air that gives form–.

The methodology used presupposes a specific literature review and a critical analysis of case studies, in order to be able to cluster them into thematic areas useful for interpretive reconstruction.

From these premises, the interactions with air-related design are investigated through sensory perceptions. The path, steeped in suggestions, lays foundations for defining role and possibilities of air within design culture through the relationship between case studies, objectives, and the identified areas of intervention.

Keywords: Material Studies · Air as Process Trigger · Air as Expressive Medium

1 Introduction

1.1 The Expansion of Senses in the Air

Air is the medium through which the sensory perceptions, belonging to human being, take the form of smell, hearing, taste, touch, and sight. Five senses are the tools through which humans get in touch and establish relationships with the environment. These connections are of varied nature and frequently have to do with designed spaces. Often these connections are shown in human-designed spaces.

The frames in which sensory perceptions manifest themselves, fascinating and unequivocal, are multiple. Interesting is Nikola Bašić's "Sea Organ" project located in Zadar, Croatia, from 2005, in which Bašić involved composer Ivan Stamać in the

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 315–324, 2024.
https://doi.org/10.1007/978-3-031-49811-4_30

project to harness the waves of the sea to make a real sea organ. The organ's thirty-five pipes, with a width of seventy meters, are inserted into the staircase so as to resonate to the crashing of the waves at the front, in this way "the water pushes columns of air through openings facing the sea and the sound escapes from a row of holes arranged along the pavement, reproducing the harmonies typical of the local musical tradition of klapa choirs" [1].

If Bašić evokes listening, as a privileged sensory perception, Herb Ritts works with observation. Herb Ritts' photographic projects, developed for the Versace advertising campaign, use air and light as tools in the photography project entitled "Versace Dress Back View, El Mirage 1990". Air is used for its inherent expressive power, dense with sociological and semiotic references, to give form to matter [2]. The air gives shape to the fabric, inflating it, making a context and background for the models. Drawing the eye to move on is one of the fundamental elements of artistic forms that find in the air an expressive mediums of the storytelling.

Air is also a bearer of information and content, as well as an ambassador of meanings and memories. Therefore, content can also manifest itself through the sense of smell, which is densely stimulated by the scents emanating from restaurants, inns and bistros. The case of the Swedish pastry shop Sluka, which had to move its laboratory to the peri-urban area of the city because of complaints from neighbours about the constant and continuous spread of scents in the air, is well known [3].

Contemporary life is characterised by a tendency towards deodorisation that attempts to establish a monosensory and odorless civilization shaped by oculocentrism. Against this trend, authors studied by Jonas Rosenbrück –Friedrich Hölderlin, Friedrich Nietzsche, and Francis Ponge– show that, in fact, humans have never been deodorized and that the unique logic of the creation of the sense of smell contains significant philosophical, aesthetic, and cultural potential [4] that uses the air as a vector through which to expand and promote itself.

1.2 The Breath and Air

Breathing is the most natural act that exists, the most automatic and spontaneous. Breathing is the first physiological act necessary for human survival, and perhaps for this very reason it is also the most undervalued.

Breathing can be distinguished into two macro categories: internal breathing and external breathing. Internal breathing is characterized by the exchange of oxygen and carbon dioxide between tissues and arterial blood; external breathing is based on the same mechanism but the gases exchange takes place between atmospheric air and alveolar air, and between alveolar air and pulmonary capillaries.

Air is composed of 76% nitrogen (N2) and 22% oxygen (O2), the remaining 2% is composed of other gases including argon and carbon dioxide (CO2), and any change, even the smallest, within this delicate balance is able to produce significant changes.

For example, the variation in the concentration of aqueous vapour (H2O), within the air, causes humidity levels to increase or decrease and the consequent tarnishing of transparent surfaces.

Diller Scofidio + Renfro (DS + R) works on this aspect in particular, focusing on the act of visualizing the invisible. In 2020, the DS + R studio, commissioned by Fondazione

Prada, realizes "Exhaustion" [5]. This is a visual essay with which the pandemic crisis of 2020 is made tangible. Exhaustion quantifies and spatializes the intersection between a delicate environmental condition and the complexity of scientific research, using breath –and its visual-auditory manifestations– in the form of fogging.

Addressing a shift in scale, it is possible to see how changes in the concentrations of other gases, found in air, such as nitrous oxide (N2O) and methane (CH4) have led over time, to an aggravation of the greenhouse effect on the Planet [6].

The purpose of the chemical-physical analysis of air and its implication on the Earth is functional to understanding the complexity of air and its use in the project.

Aiming to outline a parallelism between breathing and air, multiple analogies are highlighted, from the perpetual movement of human's inhaling-exhaling translatable into flating-inflating in the project, to the immateriality of both processes.

Tobias Becker's 2016 "Breathing Skins Project" is an attempt to transfer the human breathing method to a building facade. The experimental facade project is inspired by nature and organic skins. Adapting to climate change, it increases user comfort and the connection of interior spaces with their natural surroundings and raises awareness of preserving a functioning ecosystem [7].

Functioning similarly to the external respiration of humans, 140 pneumatic muscles have been placed on each square meter of the facade that function as air channels that inflate and deflate in relation to the hygrometric needs of the interior room.

The pneumatic muscles engineered by Becker behave like the pores of the skin during the process of external breathing, peculiar to human beings.

The paper aims to investigate air, as a design material, using three different modes of analysis. From spatial scale to material scale, from process scale to transformative scale.

2 Perspective of the Project

The overview on the possibilities, research and project-related, of air [8] highlights the relevance of its role and allows us to explore its sustainable uses.

The purpose of the exploration is the historical-critical reconstruction of case studies in order to identify clusters with which to define the role of air and sketch future project limits and possibilities.

Project analysis with air combines methodological innovation and thinking, social, environmental, and economic sustainability with design possibilities.

Design is thus identified as the discipline able to qualifying products on the aesthetic-formal level, but more importantly as a tool able to enhancing the air as an activator of processes of redefining spaces and products on different scales.

Air, meaning in its material status, able to giving shape to objects and spaces, was one of the central themes of Bruno Munari's 1969 performance entitled "Far Vedere l'Aria".

During the performance, Munari, thanks to the use of an instruction leaflet, invited the inhabitants to climb the tower of Como Cathedral and build shapes with sheets of paper that, when dropped into the void, would reveal its essence, or rather the consistency of air [9].

The concept is enhanced by the narrative of the exhibition "Munari. Air – Earth" of 2017 realized by Palazzo Pretorio's Foundation in Cittadella, Padova, in which air is not defined as absence or emptiness, as in Yves Klein's "The Leap", but is etheric substance, part of the sky, and cosy space.

In fact, the two elements that polarize the pool of experiments are air and earth. The first is light, space, and lightness, the latter is gravity and matter where everyday life and industrial design happens.

Giving value to the invisible, to that which has no physical consistency and which does not meet the contingent need of a society principally aimed at satisfying the sense of sight, is well illustrated by Antoine de Saint-Exupéry when he wrote "what is essential is invisible to the eyes" [10].

References above give to the contribution a double function. On the one side they allow understanding the articulated and diversified design culture related to air and its role, and on the other side they equip the observer interpretive lenses.

2.1 Interpretive Lenses

The research adopts three lenses, three filters with which to observe and systematize the selected case studies. The three lenses differ from each other in the adopted project languages and scalar paradigms.

The lenses are air as raw material, air as infra-material space –matter among materials–, air as transformative matter –air gives form–.

Air as Raw-Material. With reference to the workshop led by Bruno Munari "Far Vedere L'aria", it is possible to claim that air is one of the cornerstones of architectural project because it is through it that the concept of living space can be conceived.

At the center of Gaston Bachelard's reflection, published in 2006 in "The Poetics of Space" [12], is the concept of space intended as the focus of daily life. This because air fills up dwellings in which the most intimate human acts take place.

In this overview, the concept is intertwined with Bruno Zevi's 1948 vision expressed in "Saper vedere l'architettura" [13] in relation to the idea that space is composed, as raw material, of air and therefore this can be the embedded value of architectural project.

Francisco and Manuel Aires Mateus, presenting their work "Voids", exhibited in 2010 at the Venice Architecture Biennale, writing: "Space is a void, a handful of air enclosed by matter that defines its limit. Its precision matches with the necessary existence of its surroundings, which gives it identity. Drawing spaces is drawing possibilities of life, materializing the limit" [14].

Aires Mateus' design process presupposes advancing in space definition by adding subtractions –advancing therefore, through material or conceptual eliminations–.

Tomas Saraceno in his works, particularly in "Poetic Cosmos of the Breath" [15] installation of 2007, conceives air as a subject with a double valence; on the one side it is material with which he co-designs, and on the other side it is raw material, that which allows his imagined spaces to materialize and manifest themselves in the world. When the sun rises, the air inside the installation heats up, lifting and elevating the iridescent foil in a reflective and refractive "cascade".

The irradiating surface of the foil glows in harmony with the natural environment of London's Gunpowder Park, directing and expanding reflections from the sky and weather changes.

The two case studies are expressions of a conscious use of air as an expressive tool capable of providing physical texture to air and evoking sensory perceptions.

The two works lead to a critical reflection with air as raw material of the space, interpreted as adding subtractions on the one side and as poetic scenarios on the other.

The two declinations converge in the relationship, triggered by the projects, between absence and mass [16].

This pair is made particularly evident in Saraceno's projects by the use of the dynamicity of the works in the environment, made possible through co-design with the users and the environment itself.

Aires Mateus, on the other hand, makes the void visible by proposing two types of models for each work produced. The first model transform the void into mass and the second one excavates the space around voids, making them stand out as full.

Air as Infra-material Space, Matter Among Materials. Gaetano Pesce's "Serie UP" [17], from 1968, is one of the earliest examples of products having their focus on the use of air as an infra-material. The product makes evident an integral design that domains as much the specificities of the material as its potential and possibilities.

The project recall at first the concept of amazement activated at the moment of extracting the product from its packaging. This because air, thanks to atmospheric pressure, returning into the polyurethane cells and caused the object to inflate and take on the designed shape.

Later, the project talks about technical and productive skill in knowing how to exploit the behaviour of air inside the shape of cold-formed flexible polyurethane. In this way we can define air as an infra-material.

Cassina & Busnelli's (C&B) 1972 product, "Le Bambole" [18] by Mario Bellini, tells of a design poetics not far away from Pesce's "Serie UP".

Le Bambole is a upholstered furniture without an internal structure in which vertical edges and elastic membranes define, with a fabric covering, the formal aspect. In fact they "are constructed of fabric, not covered in fabric" as Bellini's claims.

The result is made possible by the knowledge of the materials used: cold flexible polyurethane foam padding, polyester fiber lining.

So the air becomes part of the content of the upholstery; projected as other elements that make up the polyurethane. In this way air gain a declared "visible" function in allowing the formal modification of the seat and its adaptation to the human body.

The definition of infra-material is enriched because, if in the "Serie UP" the air was matter that appeared at the opening of the product and then stabilized in a given form, with "Le Bambole" the differentiated density of the polyurethane allows the sofa to adapt to the user.

Thus, the presence of air within the material allows for the continuous reconfiguration and adaptation of the product in relation to the user's behaviours.

More than 30 years later, in 2008, Matteo Borghi and Riccardo Blumer for Poliform, designed "BB" [19]. A seat, with a leather esoskeleton, injected with polyurethane foam which gives it its recognizable shape.

Unlike "Le Bambole" –differentiated density polyurethane–, the polyurethane foam used for "BB" is rigid; its low density is due to the low presence of air within the material, which, while providing a high level of structural rigidity, also imparts limited adaptation to the human body. The infra-material space occupied by air is variable but controllable.

Variations in amounts of air within the polyurethane result in its infinite configurations and application possibilities.

History of design that admits significant examples of products in which air is used as an infra-material is not exclusively authorial. Belonging to anonymous design [20], for example, are products such as Pluriball, in which small air bubbles are encased and retained within a double sheet of transparent polyethylene.

Another example are vacuum pouches for garments and foods which, constructed of polyamide and polyethylene –reusable polymeric materials–, interpret and use the absence of air.

In clothing, air determines volume; in food, it causes deterioration; in both cases, air as infra-material that is removed to obtain better logistics or storage.

Infra-materials is used to define the matter existing between the materials that constitute the projects.

Air, with this meaning, is the interstice projected that is placed in the space between the other materials of the product.

The role of air intended as infra-material changes in relation to the project goals of the product itself but its spatial location "within" and not "in form of" remains constant. In opposition to products and spaces where air directly shapes matter.

Air as Transformative Matter –Air Gives Form–. "Blow Chair", produced in 1968 by Zanotta and designed by Jonathan De Pas, Donato D'Urbino and Paolo Lomazzi, is one of the first furniture components to use air as structural element.

The transparent PVC is inflated by air, allowing it to assume the configuration projected by the designers. Air thus becomes the main material of the product, remaining invisible but constituting the very essence of the armchair.

Another way of using air while keeping it invisible is to give it the role of a trigger in the production process. A relevant example both in theory and in terms of the industry concerns air-moulding technology.

In 2000, Magis launched "Air Chair" [21], designed by Jasper Morris, inaugurating air-moulding technology.

This industrial technology makes it possible to create highly resistant yet superlightweight products made by polypropylene added with glass fiber. "Air Chair" will be followed by many other furniture items produced with this technology.

Air is not only used in the production of seats but also in other industrial sectors; Lino Dainese's Wearable Technology is an example of this.

The airbag for personal protection aims to identify new applications for D-air® technology. It is a protection system for the body that 'activates' only when necessary, covering the areas of the body considered most delicate and exposed to danger.

In 2018, the first prototype of "WorkAir" [22], an airbag waistcoat for protecting back and chest of workers at height, has been tested and certified as Personal Protective Equipment.

The product is equipped with a sensor capable of activating the pneumatic system integrated within it in 40 ms, starting from the moment of recognition of the accident and the consequent loss of stability of the user.

This product makes it possible to widen and define the last lens of investigation of the project with air: the air that gives form to the object, a form that is only defined at the moment of recognition of the dangerous situation.

In 1998, the designer Michael Kowitz, reasoning about the life-limiting situations of many people, presented "ParaSITE" [23]: inflatable shelters built for the homeless that have to be connected to the external outlets of a building's heating, ventilation and air-conditioning system.

The warm air coming out of the building inflates, and simultaneously heats, the double membrane structure. "ParaSITE" is a nomadic architecture, focused on the study of minimal spaces and with the intention to democratise design.

A further area of experimentation with the material air concerns architectural projects. Use of air in this context mainly concerns studies in the field of pneumatics and the first studies and prototypes date back to the late 1960s by Haus-Rucker-Co and Coop Himme(l)blau.

In both cases, it is a question of minimum, habitable and transformable living spaces which can adapt to the human body through the conscious use of the potential of air.

With their 1968 project "Yellow Heart" [24], Haus-Rucker-Co imagined an out-of-time environment, built of steel tubes to support the pneumatic PVC cell.

The interior space expands and shrinks at a rate controlled by a pressure valve. The aim is to guide the users in experiencing audio-visual impressions that lead to a way of relaxing out of ordinary time.

The soft pulsating movement of the cabin produces a general disaggregation of the user's perceptions, reminiscent of breathing movement.

"The Cloud" [25] by Coop Himme(l)blau was developed in 1968 as part of a research commission of the City of Vienna. The project aimed to expand existing living experiences by introducing mobile and changeable spaces.

The interior space is projected by imagining that visitors' heartbeats can be amplified and translated into optical and acoustic signals.

The aim is to establish a contact between the space and the people, with visitors altering within the 10 mt diameter, PVC-clad pneumatic environment.

At last, in 1972, Jonathan De Pas, Donato D'Urbino, Paolo Lomazzi (DDL) projected the pavilion of the BBB Bonacina company on the occasion of Eurodomus 4. The project consists of a "Self-supporting Pressostatic Dome" [26], a housing proposal for a temporary or nomadic architecture.

The project is the outcome of the group's pressostatic experimentation during the 1960s. Air inflates a series of cylindrical modules that make up the shape of the dome, so that the external and internal spaces can be communicated without the need for depressurisation rooms.

The narrative of air as transforming and informing matter was verified on case studies of different scales.

The dimensional variation made it possible to analyse at the same time the contexts and technologies used in projects.

But whatever scale is referred to, it is clear how air is mainly used to shape objects or architectural structures.

3 Conclusions

The contribution discusses the historical-critical reconstruction of space and product projects in relation to air, analysing and interpreting their goals.

The value of the air projects takes on different meanings and multiple derivations. Air is a material used to make the invisible visible, just think of the work "Poetic Cosmos of the Breath" by Tomas Saraceno or the visual experiments of Diller Scofidio + Renfro with "Exhaustion".

Fluidity, configurability and vividness are key characteristics of air that are highlighted in products such as Jasper Morris's "Air Chair" or Micheal Kowitz's "ParaSITE".

Some of these projects highlight another characteristic of air: reversibility.

When air informs and transforms the material, it enters into a reversible process, because while on the one side, inflating, allows for the visualisation of the projected form, on the other side its absence, deflation, returns it to its original state.

The role that air has played in history and design culture is primarily social and political, oriented towards a democratisation of design that has focused on environmental, social and economic sustainability at different factors of scale.

In fact, air can be an activator in processes of redefining spaces and products on different scales: from wearable products for the protection of workers at heights to seating, or upholstered furniture, or even the definition of pavilions for events and exhibitions. From experiments in visualising air to iridescent installations that change their shape as the weather changes.

The narration and clustering of the case studies brings out, with opportunities and potentialities given by the utilisation of the air material properties, also possible criticalities.

Through the use of contemporary tools and knowledge, one of the limits identified could be the consolidated air/plastic coupling, also considering the fact that plastic, in order to have the degree of elasticity and the mechanical performance found, must be virgin and not second-generation or recycled material.

It is therefore possible to argue that current materials research could identify in some bioplastics new horizons of meaning and project, as well as the prerequisite for a process of transformation of values, objectives and tools, being the promoter of innovation "through the introduction of elements endowed with ontological and not chronological novelty, new elements, therefore, or novel connections between existing elements" [27].

Air is therefore one of the centres on which design culture has gravitated and still gravitates, as are the sensorial perceptions that are amplified through it.

Always at the centre of many spectacularisation phenomena such as the "Museum of Dreamers" or the more recent "Baloon Museum" in Milan [28], air is as much the subject of works imagined to service the contemporary industry as of installations resulting from specific research.

Air is sometimes interpreted as a constructive and tangible element –such as a sculpture with an unexpected and monumental form– or as a metaphysical and suspended atmosphere.

Despite the uncritical spectacularisation of certain concepts, it is nevertheless well known how art can also be an anticipator of projectual directions. In Pelagius Palagi's

work [29] of 1827, Isaac Newton is depicted intuiting the phenomenon of light refraction through the observation of a child playing with soap bubbles. In this way an artistic expression –a poetic work showing a playful action– becomes a revelation of a revolutionary scientific discovery that opens up new design possibilities.

References

1. Belgiojoso, R.: Arte pubblica e spazio urbano. Lo Squaderno **49**, 27–29 (2018)
2. Iuffrida, L.: From the drawer to the public eye. In: Fashion: Culture, Commerce, Craft, and Identity, vol. 135, pp. 44–60 (2021)
3. Chimera, M.: Vienna, chiudepasticceria per le proteste dei vicini. Dissapore online (2022)
4. Rosenbrück, J.: Senses of Smell: The Differentiation of Air in Hölderlin, Nietzsche, and Ponge. Northwestern University, Illinois (2020)
5. Diller Scofidio + Renfro: Exhaustion, per Fondazione Prada (2020). https://dsrny.com/project/exhaustion
6. European Environment Agency: Revealing the cost of air pollution from industrial facilities in Europe, No.15/2011:14–15 (2011)
7. Becker, T.: Breathing Skin Project (2016). https://www.tebe.berlin/innovation/
8. Quinz, E.: Aereodream, the Spectacular History of Inflatables. Domus Online (2021)
9. Paolis, R.: Campo Urbano 1969: Interventi estetici nella dimensione collettiva urbana. Nani editrice. AIS/Design Storia e Ricerche **7**, 179–204 (2020)
10. De Saint-Exupéry, A.: Il piccolo principe. Newton Compton Editori, Roma (2015)
11. Mancini, D.: Campi Urbani. Azioni, Performances, Happenings, Installazioni di Urban Fields nella Dimensione Pubblica e Sociale. ExhibitionDesignLab (2012)
12. Bachelard, G.: La poetica dello spazio. Dedalo, Bari (2006)
13. Zevi, B.: Saper Vedere l'architettura. Piccola Biblioteca Einaudi, Torino (1948)
14. Rasenti, F.: Aires Mateus Associados. Domus Online (2021)
15. Saraceno, T.: On the Poetic Cosmos of the Breath (2007). https://studiotomassaraceno.org/on-the-poetic-cosmos-of-the-breath/
16. Zucchi, G.: La densità del vuoto. Clean Editore, Napoli (2018)
17. Branzi, A.: Il design italiano 1964-2000. La Triennale di Milano Electa, Milano (2008)
18. Fiorani, E.: Leggere i materiali con l'antropologia, con la semiotica. Lupetti. Milano (2000)
19. Borghi, M., Blumer, R.: BB, per Poliform (2008). https://www.archiproducts.com/it/prodotti/poliform/sedia-in-cuoio-bb-sedia_56511
20. Bassi, A.: Design Anonimo in Italia. Electa, Milano (2007)
21. Morris, J.: Air Chair, per Magis (2000). https://www.magisdesign.com/product/air-chair/
22. Oppenheimer, V.: Nuovefrontiere della moda, le tecnologie indossabili di D-Air Lab. Artribune online (2022)
23. Kowitz, M.: ParaSITE (1998). http://www.michaelrakowitz.com/parasite
24. Haus-Rucker-Co: Yellow Heart (1968). https://www.zamp-kelp.com/yellow-heart/
25. Coop Himme(l)blau: The Cloud (1972). https://coop-himmelblau.at/projects/the-cloud/
26. De Pas, J., D'Urbino, D., Lomazzi, P.: Cupola PressostaticaAutoportante, per BBB Bonacina (1972). https://www.paololomazzistudio.it/Gonfiabili.pdf
27. Tamborrini, P.: Design sostenibile. Oggetti, sistemi e comportamenti. Electa, Milano (2009)
28. Giaume, G.: Apre a Milano il Baloon Museum. Artribune online (2022)
29. Palagi, P. [Autore]: Newton scopre la teoriadella rifrazione della luce [Olio su tela]. Musei Civici d'Arte e Storia, Brescia (1827)

Evasion Design for the Novacene Era Design and Production of Cultural Imaginaries

Mario Ciaramitaro and Pietro Costa(✉)

Università Iuav di Venezia, Venice, Italy
{mciaramitaro,pcosta}@iuav.it

Abstract. In this paper we discuss the use of evasion design, an overlooked expression from Superstudio, as a tool for shaping the future and understanding the Novacene Era. We propose evasion design as a tool to orient RTD (Research Through Design) activities for future exploration in educational and business environments, where a team not only needs to understand what a future scenario might be, but also needs to create a public discussion around its inherent values. Evasion design is here presented and explained in its differences from speculative design, but also in its sharing qualities and purposes in expanding the design practice. The result is a framework that combines both the potential of an alternative visual-based imagery and a guiding conceptual approach in rethinking the narrative of the future. By hybridizing codified methodologies of speculative design and the approach of evasion design, the paper shows the results of several workshops, conducted at institutions and universities, where the hybrid process is implemented through a specific methodology.

Keywords: Design theory · Speculative design · Evasion design · Imaginary production · Scenarios

1 Introduction

This study is supported by the ESF research grant of the Veneto region entitled 'Scenari per progettare il futuro' ('Scenarios for designing the future'), which involved three universities - IUAV University of Venice, Ca' Foscari University of Venice and University of Padua - between 2020 and 2021. The research grant was aimed at investigating the crossroads between business scenarios and design scenarios in different sectors over a ten-year perspective, through market analysis and collaborations with companies by developing artefacts and prototypes.

Alongside this research project we chose to develop a parallel study about the possibility of translating speculative design methods to generate relevant questions within the field of investigation.

Since the 1990s, in the field of Management Science [1] a culture and literature has developed on how to explore new business possibilities through processes that transform what is identified as tacit knowledge of the present into useful knowledge that becomes meaningful. Using this approach, we worked on how to develop cultural imaginaries,

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 325–333, 2024.
https://doi.org/10.1007/978-3-031-49811-4_31

selecting James Lovelock [2], Patrice Flichy [3] and Luciano Floridi [4] as reference authors.

Lovelock, after his research on the Gaia theory in the 1970s, once again introduced a new paradigm for rethinking our society. With the term 'Novacene', he identifies a new era in which humans will not be able to understand the future and only autonomous agents will be able to design society: "What is revolutionary about this moment is that the understanders of the future will not be humans but what I choose to call 'cyborgs' that will have designed and built themselves from the artificial intelligence systems we have already constructed" [2].

The quickest way to respond to this provocation might be to address the explicit agents of change such as AI, neural technologies, biohacks and their implications. But there might be an opportunity to predict possible research values and keywords before entering the Novacene Era completely. The objective of our research is therefore the exploration of these potential values.

This outlook is also supported by the approach suggested in 'The Internet Imaginaire' by Patrice Flichy, that says that the glue holding together the technical objects and the processes of collective construction of their social meaning would be the creation of a common purpose, a shared vision, or rather an imaginary: "What we witness is a collective vision or imaginaire. This vision is common to an entire profession or sector, rather than to a team or work collective. It concerns not only designers but also users, which is one of the strong points linking these two types of actors of technical activity" [3].

The collective vision steers biases towards certain forms rather than others and guides the processes of attribution of meaning and recognition. At the same time, Luciano Floridi underlines how we do not only create a shared imaginary, but we also adapt to it in order to make it happen: "ICTs are not becoming more intelligent while making us more stupid. Instead, the world is becoming an infosphere increasingly well adapted to ICTs' limited capacities. […] In a comparable way, we are adapting the environment to our smart technologies to make sure the latter can interact with it successfully" [4].

Lastly, we can add that this happens as an adaptive process where design, technology ideologies and imaginaries are interwoven in a specific context that carries its own set of values.

2 Speculative Design Vs Evasion Design

Given that machines can design future scenarios based on our current social constructions, how can we identify the Novacene's determining values?

To navigate such a complex scenario in search of its values, we used the tools of speculative design and combined them with "design d'evasione" ("evasive design") as defined by Superstudio [5].

The boundaries of speculative design are often difficult to define because they include both tools and conceptual approaches also shared with critical design, future studies, science fiction and many other perspectives: "The complexity that accompanies a critical examination of values coupled with the will to impact the world is a problem that needs to be carefully negotiated by both practitioners and audiences. The line that separates the

actual and the possible is a thin one, and speculative designs thrive in the ambiguous, the artificial, the contradictory and the disputed" [6]. Speculative design offers a toolset for inquiry, which in addition acts as a mirror reflecting the role that a specific technology plays in our lives, stimulating thinking and discussion [7].

Anthony Dunne and Fiona Raby's famous A/B manifesto [8], summarises the critical and oppositional approach to design, which in short consists of design artefacts that show us the implications of the decisions we can still make towards a preferable future. In defining speculative design, Anthony Dunne and Fiona Raby stated that they looked to the radical architecture and design movements of the 1960s for their imaginative capacity, but they also contextualised them in the political fervour that fuelled those years. They also distanced themselves from an excessively utopian vision by opting for a more practical and codified approach: "Design became fully integrated into the neoliberal model of capitalism that emerged during the 1980s, and all other possibilities for design were soon viewed as economically unviable and therefore irrelevant" [8]. The two authors also argue that in capitalist society, there is no room for a shared social imagination, and that individualism has atomised the collective dream of progress, leaving only personal utopias. Finally, they rejected the thinking of the radical avant-gardes by emphasising once again the current context where resources appear fragile and limited and hopes replace dreams in the younger generations.

Dunne and Raby's criticism of a radical utopian approach is oriented towards the impossibility of using this perspective in the world of capital.

However, it can be observed that this radical utopian approach did not foresee any functionality within the society that generated it in the 1960s, and that the critical and antagonistic impulse was recognised as its main component, more by its being historicised than by its actual purpose, which proposed instead to expand the project dimension [9].

Furthermore, it can be argued that perhaps it was Dunne & Raby's choice not to cultivate a radical approach that led speculative design to become a tool for future scenarios in the service of societal development and management. Indeed, two decades after the introduction of the seminal work of Dunne & Raby Design Noir [10], speculative practices aren't focused on the same exploration of the limits of the discipline: "Speculative Design in 2020 is almost exclusively dystopian or openly market-oriented, and fails to rigorously and radically champion alternative futures outside closed circles, predictably begging to be accepted by a canon popularised at the Royal College of Art 15 years ago" [11].

At the same time, more general criticism is made of the innovative role of design itself [12], which struggles to create a space for collective discussion but instead fuels the unsustainable growth of society: "Then there has been the arrival of a whole host of what gets variously presented as quasi-progressive, innovatory, vangardist or radical 'advanced' modes of design theory and practice (sustainable design, speculative design, plus emotional design, experience design and so on). But in the end, they all fold back into extending the scope and services of a design industry predicated upon supporting the continual extension and regeneration of the structurally multidimensional unsustainable status quo" [13].

Further developing this point, we suggest adopting Superstudio's perspective of evasion design. Superstudio's work was characterized by a strong critical stance [14] towards the modernist tradition in architecture, attempting to challenge the functionalist and rationalist approach to design that had dominated the field in the post-war period. Its members believed that architecture had become too focused on the needs of the individual and the functional requirements of the building, while losing sight of the larger social and cultural contexts in which it was embedded. To challenge these dominant paradigms, Superstudio developed several provocative and experimental projects that explored alternative visions for the built environment [15]. Even though Superstudio's practice was devoted to architecture, it developed such a broad perspective that it has repeatedly allowed design practices to regenerate themselves through their antagonistic perspective.

In this regard, as we have already mentioned, the expression that could guide reasoning on the Novacene project is evasion design. First, it should be made clear that evasion design is more than a method, it is an approach. Described in Domus issue 475 in 1969, a charge of antagonism to society and dominant narratives of technological innovation can still be found in Superstudio's words. The first characteristic is that each artefact has not just a practical function but a contemplative function: "Every object has a practical function and a contemplative one: and it is the latter that design d'evasione seeks to potentiate. Thus, there is an end to the nineteenth-century myths of reason as the explanation of everything, the thousand variations on the theme of the four-legged chair, aerodynamic shapes and the sterilisation of dreams" [5].

This contemplative characteristic, which is surely also easily traceable within speculative design, is the source of Superstudio's reasoning: design is not just a set of rules to produce objects, but also the ignition of an alternative imaginary, which not only addresses the present, but also how to imagine the future. Evasion design aims to work on introducing foreign bodies into the system: objects laden with symbolism and images with the purpose of attracting attention, or arousing interest, to inspire further actions and behaviour. This conveys the idea that reality is nothing more than an object to be continually modelled and designed beyond current technical possibilities: "If on the contrary we face the problem of making our reckonings with reality at every moment, if we face the problem of living creatively, living truly that is, regular breathing is no longer enough and we must invent on each occasion the utensils for «doing things» and find the answer imposed by the big monopolies of truth" [5].

On the basis of these characteristics, we hypothesised that the introduction of a methodology for a contemplative gaze and a defuturing perspective may be relevant for the production of cultural imagery: "Every evasion of what-is is therefore also an evasion of what-could-be" [13] thus providing access to a suspended dimension of design, charged with antagonism but not necessarily future-oriented.

Of course, talking about evasion design today could imply many directions of research: one strand of research could be the idealisation of radical design as a fundamental movement and yearning for a return of the same energies of rupture in line with the aesthetics that accompanied them; at the same time, a more conceptual and theoretical perspective can avoid emulation by using these energies to ask how to act in design without becoming entangled in dominant methodologies and narratives, using

the doubts about the shape of the future as a compass. The latter perspective is the one we find most effective in moving towards the Novacene.

3 A Compass for the Novacene Era

To develop cultural imaginaries for the Novacene, we combined the two perspectives of speculative and evasive design. We added the speculative design value of having a formalised critical design approach to the original design tension of evasion design, where the specific quality of the imagery becomes the key to reprogram discourse about the future. Speculative design is a codified process often based on narrative evocation as a function of a preferable future; evasive design is an invitation to an imaginative process. It does not address a specific preferable future but produces a divergent vision.

To test this approach combining speculative design and evasive design, we asked ourselves how a methodological design scheme such as the Double Diamond design process model [16] would transform.

In fact, if the design process was synthesised with a Double Diamond consisting of moments of divergence and convergence, the process of producing imagery generates a methodological change.

In the methodological diagram of Fig. 1, the process of divergence and convergence is interrupted by moments of deepening and development as a function reaching a final divergent moment that does not provide answers but leads to a discussion and definition of questions. Two phases are solely devoted to the exploration of visual language and its development, to preserve a charge of evasive imagination. The inherent quality of the images and concepts produced is what fuels the divergence from the contemporary narrative of what the future will be.

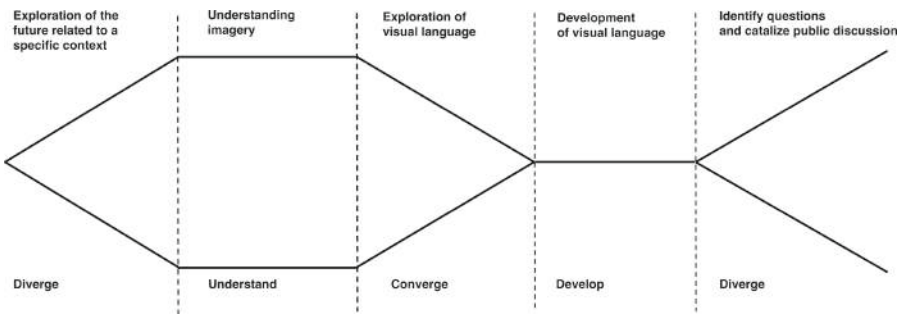

Fig. 1. Methodological framework designed to guide an evasive approach.

We tried to test this methodological pattern with different categories of people who question the future in different ways.

Designers are quite familiar with this type of methodology, as it is slightly different from a double diamond process. Instead, it was rather challenging to imagine business managers and brand ambassadors understand the approach of an evasive future. The

latent question was how to translate such an image-oriented process to people who have a relationship with innovation through other, non-visual channels.

Figure 2 shows the results of the application of this methodology, which enhances the imagination before the design solution, within two workshops offered to design students at the Iuav University of Venice and dedicated to the design of future domestic spaces. In this case, both groups sought to problematise the same theme of how we will experience our digital memories within the home.

Fig. 2. Two different designs for a device managing digital memories. Università Iuav di Venezia, design workshops 2020-2021.

The image on the left shows a device that attempts to technologically create a possible engagement with our personal digital memories and allows them to be explored through a graphical interface.

On the other hand, the image is not immediately interpretable, as the emphasis is not on functionality or a preferable future but on a possible complex relationship or sensation with memories through digital media. The project thus becomes vaporous, atomised, not reflected in the presence or form of an object. At the same time, it is not a matter of activating a particularly complex narrative, as in the case of speculative scenarios that imagine a complex world, but only the basic elements that activate an imaginative process: it is not necessary to reach complexity to communicate the challenge identified by the project, nor is there any need to activate solution-oriented or object-oriented thinking.

4 Acting on the Shared Imaginary

The hypothesised methodological diagram acted as a guide to highlight the working phases of designers confronted with the problem of constructing cultural imagery. However, the diagram also offers the possibility of being adapted to situations where qualitative analysis is not immediately translated into a series of images, but instead into

activities such as project brief creation and graphical facilitation [17]. In this sense, the imaginative quality found in the evasive approach is translated to existing formats in management and marketing practice.

The result tends to be close to the same reconfiguration of the innovation narrative, obviously adapted to the context of a more applied research, based on the company's values, and introducing a more evocative and, once again, contemplative narrative of the future.

The most effective method we have achieved, in our various attempts to translate the evasive approach to corporate managers and marketing agents has been the Future Pavilion format. Starting once again from a pre-existing cultural phenomenon such as the World Fairs, which also marked the imaginative roots of speculative design [18], we understood its value as a complex cultural device: an expo pavilion is a repository of the future, a promise, a compensation for current times, it helps us understand what we today define as the unknown. In this way, exhibitions provide the latent dimension of the future and determine "both patterns yet to be realised and comprehended (by future generations) and near futures that, as will be shown, become prescient simply by the fact of their being staged" [19].

The Future Pavillion is an exercise that guides one to imagine the values that a brand or company wants to uphold for the future of society, imagining that it does not present a product but a general idea of the future, choosing which aspects of today's society it wants to evolve and allowing it to emphasise the values that define the brand. The questions guiding this exercise can be summarised as: What values and visions of the future does the brand want to propose? What ideologies of the present is it based on?; What sensations should the pavilion convey?; Which objects that are not products of the brand could amplify this narrative of the future?

The result is a highly evocative project brief, which becomes a potential document to commission an experiential pavilion for a design studio. By drawing the managers' attention to the values and the possible scope for intervention that a brand might have in defining the technological future, a space of evasion from the brand's own product narrative is nurtured by constructing, albeit marketing-oriented, a public space for discussion. Once again, the idea is conveyed that reality is nothing more than an object to be continuously modelled and designed beyond the technical possibilities of today.

5 Conclusion

Tackling Dunne & Raby's opposition to radical design, we decided to create a thinking environment on top of Superstudio's evasive design. Evasive design and speculative design share many qualities and intentions: today speculative design is a codified process that has a clear position and role in the design world, looking for ways to achieve a preferable future; evasion design is an invitation for an imaginative process that looks outside the already established variations.

It doesn't address a preferable future, nor does it employ a linear evolution of time. It acts in the present moment, addressing design as capable of both changing our imagination of the future and our relationship with it.

A great challenge is certainly to bring these creative processes, which are very comprehensible within the design world, outside the design community. Opening to

processes that are not solution- or product-oriented requires a dialogical situation and a space for confrontation. This assumption is what can unhinge the narrative of the present, qualitatively transforming the relationship with the imaginary.

When in 2019 Lovelock envisioned a society strongly focused on Artificial Intelligence and its impact over culture, the extraordinary effects of the democratisation of artificial intelligences in the production of images were not yet visible. Instead, today, in 2022, we are on the threshold of an epochal change: images of objects, products, and environments are easily synthesised through tools such as Dall-E and Midjourney, that can convert texts and keywords into images that mirror the databases they have been trained with. These powerful tools will undoubtedly enter into the design and production of cultural imagery by posing questions not only about the aesthetics of the future, but also about the possibility of divergence from its dominant narratives.

References

1. Van der Heijden, K.: Scenarios, Strategies and the Strategy Process. Nijenrode Research Paper Series - No. 1997-01 (1997)
2. Lovelock, J.: Novacene: The Coming age of Hyperintelligence. MIT Press, Cambridge, MA & London (2019)
3. Flichy, P.: The Internet Imaginaire. MIT Press, Cambridge, MA & London (2007)
4. Floridi, L.: The Fourth Revolution: How the Infosphere is Reshaping Human Reality. Oxford University Press, Oxford (2014)
5. Superstudio: Invention design and evasion design. Domus, 475 (1969)
6. Encinas, E., Božanić, S., Šuran, O.: Methods, approaches and tools: ambiguity, tensions and scopes. In: Auger, J., Hanna, J., Mitrović, I., Helgason, I. (eds.) Beyond Speculative Design: Past – Present – Future, pp. 94–165. University of Split, SpeculativeEdu; Arts Academy (2021)
7. Auger, J.: Why Robot: Speculative Design, the Domestication of Technology and the Considered Future. Ph.D. dissertation, Royal College of Art, London (2012)
8. Dunne, A., Raby, F.: Speculative everything: design, fiction, and social dreaming. MIT Press, Cambridge, MA & London (2013)
9. Brugellis, P., Pettena, G., Salvadori, A. (eds.): Utopie radicali: Archizoom, Remo Buti, 9999, Gianni Pettena, Superstudio, UFO, Zziggurat. Quodlibet, Macerata (2017)
10. Dunne, A., Raby, F.: Design noir: The secret life of electronic objects. Birkhäuser Verlag, Berlin (2001)
11. Laranjo, F.: We don't need Speculative Design education, just better design education. https://speculativeedu.eu/interview-francisco-laranjo. Accessed 14 Sept 2022
12. Wizinsky, M.: Design after Capitalism: Transforming Design Today for an Equitable Tomorrow. MIT Press, Cambridge, MA & London (2022)
13. Fry, T.: Defuturing: A New Design Philosophy. Bloomsbury Visual Arts, London & New York (2020)
14. Lang, P., Menking, W. (eds.): Superstudio: Life without Objects. Skira, Milan (2003)
15. Didero, M.C. (ed.): SuperDesign: Italian Radical Design 1965–75. Monacelli Press, New York (2017)
16. The Double Diamond: A universally accepted depiction of the design process. https://www.designcouncil.org.uk/our-work/news-opinion/double-diamond-universally-accepted-depiction-design-process. Accessed 14 Sept 2022

17. Hautopp, H., Ørngreen, R.: A review of graphic facilitation in organisational and educational contexts. In: Designs for Learning, 10(1), pp. 53–62 (2018)
18. Lopez-Galviz, C., Nordin, A., Dunn, N.: Latent fictions: the anticipation of world fairs. In: Poli, R. (ed.) Handbook of anticipation, pp. 1–22. Springer, Cham. (2017)
19. Auger, J., Hanna, J., Mitrović, I.: Future paths. In: Auger, J., Hanna, J., Mitrović, I., Helgason, I. (eds.) Beyond Speculative Design: Past – Present – Future, pp. 202–211. SpeculativeEdu; Arts Academy, University of Split (2021)

The Physical Model as an Evolution of the Design Process: From the "Capostipite" to the Finished Product

Alessandro Di Stefano(✉) and Davide Paciotti

University of Camerino, School of Architecture and Design, Ascoli Piceno, Italy
{alessandro.distefano,davide.paciotti}@unicam.it

Abstract. The physical contact with the material, the giving of form while simultaneously verifying material consistency, curvature, and three-dimensionality, is an indispensable component of the designer's personal process in shaping the object to be produced. The physical model is the tool that has enabled designers to develop and validate their projects for successful industrial production. The paper explores the role of the physical model as a design tool and its contemporary evolution. It has, through the influence of increasingly advanced digital tools, acquired various functionalities, radically transforming the prototyping process. The model has increasingly become virtual from physical by means of more computational parametric and generative modelling software. With the evolution of rapid prototyping technologies into rapid additive manufacturing technologies, there is a shift from verification model to finished product, with performance characteristics comparable to an industrially manufactured object. This investigation made it possible to explain the main stages of change in the prototyping process in three graphics, where the constant shift from physical to digital can be seen. From a time-consuming process caused by making physical models mainly by manual work, to a short and digital process, making the main verification steps virtual.

Keywords: physical model · prototype · rapid production · additive processes · capostipite

1 Introduction

The industrial design project must be able to be told in a universal language, also beyond the defined systems of representation, such as technical drawing and representation, that would normally be used by the different players involved. For this reason, from the earliest evolutionary phases of the design process and throughout its realisation, the need arises to have a tangible, manipulable verification tool capable of similarly synthesising as broad a set of variables [1].

This tool is the physical model, diversified in relation to the design verifications made and to be made to the design project, which first consists of a series of formal and volumetric maquettes and then moves on to functional analysis models up to a final product prototype. Investigating the contemporary, compared to increasingly widespread

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 334–343, 2024.
https://doi.org/10.1007/978-3-031-49811-4_32

digital implementation, it is interesting to discuss how the physical model has evolved, from its use to its meaning, within a process of innovation to support design by the designer. In the past, the design was mainly defined by the optimisation of geometries derived from manual work on the physical model, starting from an initial draft and arriving at its final form.

Today, the use of the physical model for design, realised through rapid additive manufacturing techniques, acquires a different value than in the past. It implements it function in support of the project from the aspect of optimising production within the design development process, decreasing verification phases and reducing production costs. In addition, the constant and rapid evolution of digital technologies is facilitating in industrial design, and in the role that the designer plays today, the transition from prototyping to rapid production in which the analysis prototype takes on a finished product configuration, thanks to more efficient rapid additive manufacturing technology and the development of increasingly high-performance materials.

Supporting this digital evolution, which is enabling a new way of producing objects, is the increasing computational efficiency of parametric and generative modelling software, through which the virtual model is defined with an increasing amount of data managed by the designer, transforming the model from physical to virtual and the "capostipite" from type model to finished product.

To better understand the role and evolution of the physical model in the design development phases, one must isolate the model. An iterative process that alternates between production and analytical phases until the final prototype is achieved, with optimal characteristics depending on the materials and production technologies assumed during design development. The phases were defined through a time chart, diversified by order of succession and execution time. Developing a single cycle in a linear fashion, the process starts with the choice of the type of material and the most suitable technique or technology, then moves on to the phase of realising the model, testing and refining, and finally to the phase of evaluating and analysing the characteristics. The graph serves as an element of investigation to understand how the process of making physical models has transformed and evolved through the influence of digital technologies.

First, the research investigated what role the physical model played in the product design process. From a tangible, manipulatable and updateable verification tool, capable of synthesising an ever-increasing set of variables and characterised by its own evolutionary timeline comprising a series of different types of models such as formal and volumetric maquettes, to a typology of functional analysis models useful for creating the prototype/model type defined by Dorfles as the "capostipite" for industrial production purposes. From Piero Polato's 1991 interview with Achille Castiglioni, it is possible to understand how the physical model played a fundamental role for the designer and how it contributed to the creation of the greatest products of design. In fact, when asked about the importance of the process of making physical models Achille Castiglioni replies: «I have always considered modelling as a fundamental moment in the process of an object project. Drawings, even the most sophisticated, are not enough: the creation of the model, often of several models, is an indispensable moment of verification of the first design hypothesis, it is the moment that allows you to establish a material, physical relationship with the object, continually intervening to correct details on a living reality

that is tangibly modified. […] is also the moment in which the hypotheses for the use of materials find their match or highlight processing difficulties, possible inconsistencies in the designed solutions». The same thought emerges in Giovanni Sacchi, an undisputed master among model makers, who created models of objects that made Italian design history. When asked by Polato what kind of designer he liked to work with, Sacchi replied: «I prefer those who work manually, on the model, on the reality of the object. If one imposes the model based on the design, I find that wrong. [..] The model has a sensitivity, you can see it. Almost everyone now works on the model, and less on the design: the drawing is a sketch of the idea […] With the model you have the reality of the project.» [2]. The prototype can be defined as an artefact that approximates a characteristic (or several characteristics) of a product, service or system [3], or more specifically as a first specimen, an original model of a series of successive realisations built, mostly by hand, in its normal dimensions and susceptible to testing and refinement, on which series construction is then based. There are general trends in the way prototyping is approached. Some are driven by achieving specifications, while others focus on prototyping to explore and develop a new concept [4]. Every prototype requires a strategy to solve a problem. This strategy influences the nature of the information that can be explored and learned from the prototype [5]. Therefore, the prototyping strategy must be carefully planned [6]. Designers can explicitly consider the type of tests to be performed with the prototype [3]. A first typical taxonomic division is that between prototypes concerning form and those concerning function [3, 7, 8]. Another common distinction is the variable level of fidelity of a prototype to the final model [9,10]. A distinction is also made between virtual models (simulations, visualisations or computational approximations of behaviour) and physical models [10]. Thus, in the design development of an industrial product, prototypes and models can be grouped within a generalised prototyping process into five common categories: test prototype; form study prototype; user experience prototype; visual prototype; functional prototype.

In a first phase, the designer would make a "test prototype" to render the volume of the design and understand its actual three-dimensionality. In a second phase, a "form study prototype" was made to explore the dimensions and appearance of the product without simulating the actual function, implementing key details such as parts and components.

Its main purpose was to analytically validate its ergonomics and return the visual and formal aspects of the product. Another typology useful to designers was the "user experience prototype", where its function was to investigate the relationship between the product and the user. While intentionally not addressing possible aesthetic treatments, this type of model more accurately represents the overall dimensions, proportions, interfaces and conceptual articulation of the product.

Next, a "visual prototype" was made, intended as a means of verifying all those characteristics that we now call "soft qualities": simulating surface finishes; colours; textures and materials that characterise the product. It is a sample or model of a product built to test a concept or process or to serve as a visual aid to be replicated, improved and learnt from. The "visual prototyping" serves to provide an aesthetic vision of the product. The prototyping process ended with the realisation of the functional prototype in which all the features necessary to validate the design before it could be put into production were incorporated. The prototype conveys to a greater extent the practical attempt to simulate

the final design, aesthetics, materials and functionality of the project. The construction of a fully functional full-scale prototype is the final test of the conceptual phase and is usually the final check for any design flaws. Analysis of the functional prototype allows improvements to be made before production. This prototype is referred to by Dorfles as the "capostipite" or "type model" because its role was to verify and compare against the products to be made, which had to be faithfully repeated. From the descriptions of these categories, a prototype can be defined as a verification product created for demonstration purposes and to test products before they are put into production. In fact, many of the advantages of prototyping relate to product refinement. Prototyping is used to validate requirements, reveal critical design issues [11], reduce errors [12], identify design changes that improve performance [13], optimise design features through sequential testing [14], design refinement through simulated use through individual or multiple tests [3] and at the same time as a time to establish a material/physical relationship with the object. The work on the physical model gave the opportunity to correct details or any inconsistencies in the solutions drawn on a living reality that was tangibly changing. To support this inherent analysis of the role the physical model played within the design process, an iterative time chart (Fig. 1a) was created that shows how the design phases varied in order of time and development. The development of physical models and prototypes took up a large part of the time allocated to product development, as once the first prototypes had been developed, they moved on to an analytical and testing phase to fine-tune their design and selection, which could either go back for a further design and prototyping cycle or move on to a production phase for the model type destined for series production.

2 The Physical Model and the Relationship with Designers

The evolution of manufacturing processes, with a focus on rapid prototyping processes, lead to substantial changes in form and result in important functional transformations and formal variations of the industrial product. The innovation process, driven by technological implementation and the evolution of prototyping processes, has been linked to incremental improvements in process and product quality achieved through an intuitive [15], very often unplanned and mostly practical path through the development of a series of physical study models. With the introduction of digital design tools, the classification of previously expressed types of prototypes and models undergoes a transformation. The "trial prototype" and "study of form", which until then were physical models made by manual or human-assisted machining techniques, become virtual prototypes using three-dimensional modelling software. 3D modelling is a process that defines any three-dimensional shape in a virtual space generated on a computer; these objects, called 3D models, are created using special software programmes, called 3D modellers. In computer graphics, three-dimensional modelling is the process of developing a coordinate-based mathematical representation of any surface of an object in three dimensions using specialised software by manipulating edges, vertices and polygons in a simulated 3D space. Three-dimensional models represent a physical body using a set of points in 3D space, connected by various geometric entities such as triangles, lines and curved surfaces. The opportunity to create three-dimensional models in virtual

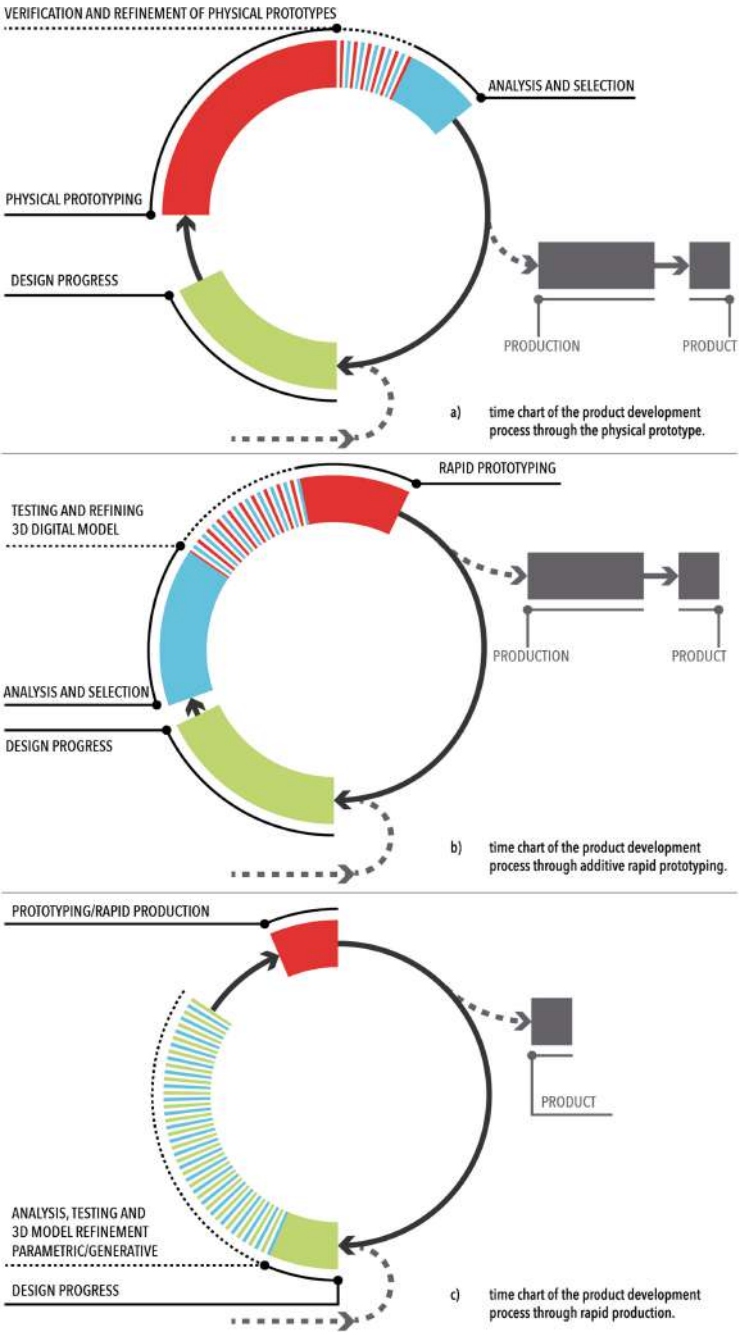

Fig. 1. Graphical elaboration of the evolution of the prototyping to production process

environments brings the digital modeller an advantage: that of being able to implement, analyse and refine all design features by formulating a series of design variations. In addition, digital tools offer the possibility to go into the details of the project, evaluating surface finishes, fillets and chamfers, before producing the physical model through rapid prototyping.

With the development and introduction of rapid prototyping technologies, both the "user experience prototype", the "visual prototype" and the "functional prototype" achieve greater detail in their parts and greater surface definition, significantly reducing lead times. Rapid prototyping is a set of technologies used to rapidly produce a physical model of a product in its parts and components using three-dimensional CAD (Computer Aided Design) data. The production of a part or assembly of product parts is usually performed using 3D printing technology or "additive layer production". Through the rapid prototyping technologies of additive printing in all its technological and material variants (powder sintering printing, photopolymerization of liquid resins, etc.), the prototype acquires greater definition of details such as joints, movement of components, joints and hollow parts. In addition to significantly speeding up the prototyping process, the possibility of working in a virtual environment and the use of 3D printing as a manufacturing process leads to complex three-dimensional geometries. Furthermore, the materials that are used in rapid prototyping technologies take on a fundamental importance, namely that of prefiguring the performance characteristics of the materials chosen for industrial production. Resuming the time chart of the prototype development process, with the implementation of three-dimensional modelling and rapid prototyping – utilising the layer-by-layer construction potential of additive printing technologies – there is a shift in the phase of analysis and selection of virtual models (Fig. 1b) and a consequent reduction in the time required to produce the physical prototype. Although new technologies and prototyping techniques have made it possible to change the development processes of a prototype into the realisation of a physical, tangible model, it still plays a fundamental role as a tool for analysis and comparison, on which the designer can assess which modifications can be implemented to continue in the subsequent design phases.

3 From Prototype to Product

The evolution of digital prototyping and production technologies has changed the concept of the physical model. It went from "study model and functional analysis", useful in the design phase, to "functional prototype" to finished product.

What changes in the contemporary world compared to the past? Today, the designer has new tools and software for generating virtual models, which, through the implementation of tools and algorithms in information management, make modelling parametric and generative. Parametric modelling is a type of three-dimensional modelling that is based on relating components and parts of the model to each other through numerical values and construction constraints that are referred to as parameters. The parametric approach to modelling constitutes an innovation in the realisation and setting up of virtual 3D models, as it allows a series of modifications to be concatenated and modelling processes to be automated by acting on a given parameter to make a change. Generative

modelling is an iterative design analysis process using a series of computational calculations that, using algorithms, generates a range of design solutions that satisfy a set of constraints and parameters.

At the same time, rapid prototyping technologies are evolving into "rapid manufacturing" technologies. Also known as "direct manufacturing", "direct fabrication", "digital manufacturing", it is defined as: "the use of an additive manufacturing process to build parts that are used directly as finished products or components". Rapid manufacturing can also be expressed as a branch of "additive manufacturing", which refers to technologies used to create physical models, prototypes, tools or finished parts. All those phases and types of prototyping are totally managed in a virtual environment and the phase of making physical models is transformed into a rapid production process that returns the finished product. The use of parametric and generative modelling makes it possible to simultaneously study a series of possibilities or formal alternatives through algorithms and numerical data, replacing the analytical and modification phase that used to be carried out on different types of physical models. This, due to the possibility of writing the parametric definition (i.e., the 'rules' guiding its formal genesis) which, after specifying a series of dimensional, quantitative and topological optimisation parameters, will generate a virtually infinite number of design solutions.

The designer can then assess which design solutions returned by the generative software will be useful for the development of the project. The shift from rapid prototyping towards rapid additive manufacturing, an increase in the performance of the materials used, the continuous evolution of digital technologies and a relative reduction in time, has made it possible to increase the performance level of models, as expressed in Polato's interview with Ettore Sottsass "[…] drawing cannot give an exact idea: we need models that are as perfect as possible, as close as possible to the object, to its tactile, sensorial qualities." [2]. Advanced tools (rapid production and advanced modelling) can cancel out those differences that previously characterised the quality and technical/physical performance of prototypes compared to products. Thus, the model made by additive manufacturing has, potentially, the same performance characteristics as a product made by an established productive technique (injection moulding, rotational moulding, etc.).

Within a few years, the technological development mentioned above allowed designers, through early experimentation, to understand the potential of rapid production tools and generative parametric modelling by producing the first experimental products (Fig. 2).

Early research into the study of form, where the prototype begins to take on the value of the finished product, can be found in Nendo's Diamond Chair for the 2008 Milan Design Week exhibition. Product made in rapid prototyping to highlight the positive aspects of the prototyping process. A few years earlier, the Finnish designer Janne Kyttänen, with his company 'Freedom of Creation', developed 'manifesto products' of a possible and desirable future, where objects would be manufactured through rapid prototyping processes. Ammar Eloueini's CoReFab product collection also epitomises the power of technological innovation in the field of rapid prototyping. The next step was, for the designer, to design using rapid production processes. The progressive advancement of technology has led to more affordable additive manufacturing processes, an increase in

Fig. 2. Example of a timeline synthesizing the evolution from prototype to product

buildable volume in a single process and increasingly high-performance printable materials. Joris Laarmann's design methodology and products produced in rapid production in recent years are an example of this. A design development that utilises the potential of generative modelling, as for example in the 'Aluminium Gradient Chair', where the designer experiments with the use of a gradient map arranged over the entire structure of the seat to distribute, according to the areas that undergo different intensities of stress, a greater or lesser density of material from a solid starting volume. Features that limit the production of the product to rapid production technologies only. Similar principles can be found when analysing the production of the Mhox research group, where through projects and research they explore new production processes and technologies for design, with a focus on generative design and 3D printing for the innovation of wearable products. Manufacturers of additive manufacturing technologies, motivated by designers through early experimentation and the subsequent consolidation of rapid prototyping processes, have in recent years developed new types of materials for 3D printing. Performance materials that can withstand end-use applications, with performance comparable to the usual materials used in industrial production. The most significant example is the recent production of the companies Adidas and New Balance with their footwear collection. Soles or parts thereof are designed with complex, elastic and resilient lattice structures with energy return to increase walking comfort. Performance characteristics predicted and verified within the design process using digital generative modelling tools.

4 Conclusions

In the time chart of Fig. 1c, which defines the product development process through the implementation of generative parametric modelling and rapid production, there is an overlapping and merging of the phase of analysis and model selection with project progress, which are exclusively managed in the virtual environment. In addition, there is a possible shift from prototyping to rapid production, which will significantly shorten product development times. After analysing the role that the physical model has played in the past, as a tool to support the designer in the design process, and how today, thanks to new technologies, it has evolved, it is essential to highlight the transition that has taken the model or prototype from physical to virtual through a digitised prototyping process and simultaneously, through more efficient rapid additive manufacturing technology and the development of increasingly high-performance materials, to a transition of the 'master model' from model type to finished product. Furthermore, the "computational designer", understood as the designer who governs the new digital technologies, will still need to be able to use the evolved physical model as a tool for tangible comparison and verification.

References

1. Ceccarelli, N., Elementi, C.: Progettare nell'era digitale. Il nuovo rapporto tra design e modello. 2nd edn. Marsilio, Venezia (2003)
2. Polato, P.: Il modello nel design, la bottega di Giovanni Sacchi. Hoepli, Milano (1991)
3. Otto, K., Wood, K.: Product design: techniques in reverse engineering and new product design. Prentice-Hall, Location (2001)
4. Schrage, M.: The culture(s) of prototyping. Design Manage. J. (Former Ser.) **4**, 55–65 (1993)
5. Gero, J.S.: Design prototypes: a knowledge representation schema for design. AI Magazine **11**(4), 26 (1990)
6. Drezner, J.A.: The nature and role of prototyping in Weapon System Development. RAND Corp, Santa Monica (1992)
7. Michaelraj, A.: Taxonomy of Physical Prototypes: Structure and Validation. Mechanical Engineering, Clemson University, Master of Science (2009)
8. Pei, E., Campbell, I., Evans, M.: A taxonomic classification of visual design representations used by industrial designers and engineering designers. Des. J. **14**, 64–91 (2011)
9. Lim, Y. K., Stolterman, E., Tenenberg, J.: The anatomy of prototypes: prototypes as filters, prototypes as manifestations of design ideas. ACM Trans. Comput.-Hum. Inter. (TOCHI) **15**, 7 (2008)
10. Stowe, D.T.: Investigating the role of prototyping in mechanical design using case study validation. Clemson University, Master of Science (2008)
11. Gordon, V.S., Bieman, J.M.: Rapid prototyping: lessons learned. IEEE Softw. **12**, 85–95 (1995)
12. Viswanathan, V.K.: Cognitive effects of physical models in engineering idea generation. Ph.D. thesis, Texas A&M University (2012)
13. Viswanathan, V., Linsey, J.: Understanding physical models in design cognition: a triangulation of qualitative and laboratory studies. In: Frontiers in Education Conference (FIE) (2011)
14. Anderl, R., Mecke, K., Klug, L.: Advanced prototyping with parametric prototypes. Digital Enterprise Technology, pp. 503–510. Springer (2007)

15. Dorfles, G.: Introduzione al disegno industriale. Einaudi, Torino (2001)
16. Alessi, C.: Dopo gli anni Zero: Il nuovo design italiano. Laterza, Bari (2014)
17. Alessi, C.: Design senza designer. Laterza, Bari (2016)
18. Cafarelli, M.: Didesign: ovvero niente. Strumenti critici e criticabili per leggere la produzione degli anni zero. Espress Edizioni, Torino (2011)
19. Camburn, B., et al.: Design prototyping methods: state of the art in strategies, techniques, and guidelines. Design Sci. **3**, E13 (2017)
20. Colabella, S., Pone, S.: Maker. La fabbricazione digitale per l'architettura e il design. Progedit, Bari (2017)
21. Dorfles, G., Carmagnola, F.: Design. Percorsi e trascorsi. Cinquant'anni di riflessioni sul progetto contemporaneo. Lupetti, Bologna (2010)
22. Micelli, S.: Fare è innovare. Il nuovo lavoro artigiano. Il Mulino, Bologna (2016)
23. Sennett, R.: L'uomo artigiano. Feltrinelli, Milano (2013)
24. Trabucco, F.: Design. Bollati Boringhieri, Torino (2015)

The Felicitating Factor. Cinzia Ruggeri's Clothing Project

Elena Fava(✉)

Università Iuav di Venezia, Venice, Italy
efava@iuav.it

Abstract. This paper sets out to shed light on the process that guided Cinzia Ruggeri in the elaboration of a unique clothing project that was eccentric to the 1980s Italian and international fashion scene, a process that allowed this *stilista* to activate collaborations with exponents of the world of art, design, literature, and music without disavowing the specificities of the fashion design practice. Cinzia Ruggeri was an atypical player inside the fashion system, presenting her creations at the Milanese prêt-à-porter fashion shows of the late 1970s and throughout the 1980s, stating her autonomy from seasonal trends and her sincere interest for change. Far from considering fashion a reflection of social and cultural changes, Ruggeri understood the power of fashion in affecting and bringing about these changes. Fashion, so inextricably linked to the desire for novelty, and clothing design so intimately connected to the body, allowed her to address the gestures, behaviours and therefore the experience of reality in transformation. Over the years she experimented with shapes and materials, creating objects that could be intellectually and physically enjoyed, pervaded by a signature trait – the "felicitating factor" – stemming from her direct and shared experience in creating her fashion project.

Keywords: Fashion design · Cinzia Ruggeri · 1980s · performativity · felicitating factor

1 Introduction

The work of Cinzia Ruggeri (Milan, 1942–2019), although well-known among scholars, has enjoyed little critical acclaim. This artist-*stilista*-designer, often mentioned in literature dedicated to Italian fashion and design, as well as several of her works displayed in international exhibitions, have only recently enjoyed a new wave of attention coming especially from art critics, an attention matching the interpretation endorsed by those galleries with which Ruggeri began collaborating regularly in the 1990s.

A confirmation of this is the recent touring exhibition *Cinzia Ruggeri. Cinzia Says…* Curated by Luca Lo Pinto, artistic director of MACRO Museum of Contemporary Art, Rome (MACRO, 14 April – 28 August 2022; Goldsmiths Centre for Contemporary Art, London, 5 November 2022 – 12 February 2023). The exhibition and the monograph accompanying it [1] – the first dedicated to Cinzia Ruggeri – provides an overview of

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 344–353, 2024.
https://doi.org/10.1007/978-3-031-49811-4_33

the multifaceted production and collaborations that Ruggeri, from the 1970s until her death in 2019, established with some of the most significant Italian and international design, art, literature, and music experiences and personalities.

Art, fashion and design were the fields Cinzia Ruggeri uninterruptedly explored in her research. She made her debut at only eighteen with a solo painting exhibition at the Prisma Gallery in Milan (16–31 December 1960); the exhibition was reviewed by the author Dino Buzzati with a fable-presentation with somewhat of a surreal note since it anticipates the fashion design career the young artist would later undertake with an internship at the Carven atelier in Paris and then in her father Guido Ruggeri's dressmaking business. Ruggeri made a name for herself as a *stilista*, designing the Bloom and Cinzia Ruggeri lines in the late 1970s and throughout the following decade, the 1980s, when Made in Italy production reached the peak of the its international success. At the very beginning of the 1990s, she abandoned the fashion system and transferred the experimental practice she had been carrying out on clothing to stronger collaboration with forniture and interior design companies on a broader environtamental scale, while increasing her exhibition activity interacting with art galleries, including Bianca Pilat (Milan), Luisa delle Piane (Milan), Federico Vavassori (Milan), Campoli Presti (Paris) and Francesca Pia (Zurich) [2].

It was in the 1980s, when her work as a *stilista* had reached its highest level of visibility, that a first critical review of Ruggeri's projects was produced. This was the decade of the epiphany of the Italian fashion system in the world, of the triumph of the *stilisti*, the years when talking about fashion became fashionable. The analysis of this phenomenon came from different academic and non-academic ambits, stemming from the need to attribute a respectability to fashion by tracing its interactions with architecture, art, and industrial design. An approach that according to Giannino Malossi perpetuated that "modern annoyance for fashion" [3] which paid the price of its "ornamental crime," its offence to the principles of parsimony and function, an approach grafting onto cultural aspects preventing a true understanding of fashion's unique nature, its close bond with the body, erotic drive, fantasies, and – as art historian Richard Martin underlined in 1996 when curator of the Costume Institute of the Metropolitan Museum of Art [4] – its manifest commercial component.

With her work Cinzia Ruggeri fuelled this debate. The critical literature dedicated to her fashion project has highlighted the significant interconnections between the frayed asymmetrical clothes of her Bloom line and the post-modern architecture by Venturi, Hollein, Wewerka and SITE, [5] and the reactivation of the experiences developed by the early-twentieth-century avant-gardes through her experimental take on textile design [6] and the communication potential of the objects of Cinzia Ruggeri's brand. [7] Critical studies have also underlined the peculiarity of Ruggeri's research that never refrained from crossing disciplinary boundaries, detecting an affinity with the radical experiences of Archizoom, Nanni Strada's projects [8] and the activity of Alchimia. [9] [10] Critical literature about Ruggeri has also covered her graphic production as an expression of specific cultural models, those of 1920s- and 1930s-Austrian and French culture, [11] according to a line of interpretation of fashion drawings started in the 1980s by Gloria Bianchino in the framework of the research conducted by CSAC – Centro Studi e

Archivio della Comunicazione of the University of Parma. Lastly, key factors in understanding the peculiarity of Ruggeri's production via the comparison with the composite mosaic of Italian and international fashion, have been the exhibition *Excess. Fashion and underground in the 80s* (Florence, Stazione Leopolda, 8 January – 8 February 2004) and its catalogue, both curated by Maria Luisa Frisa and Stefano Tonchi [12].

Although considering the above-mentioned critical interpretations, this paper sets out to analyse the process that guided Cinzia Ruggeri in the development of a precise and peculiar fashion project against the backdrop of the 1980s. Ruggeri's was a project permeated by a concept she herself called the "fattore felicitante" (felicitating factor), that component of pleasure originating from the desire to experiment with shapes and materials through the designing of clothes; a factor necessarily requiring the performative action of wearing clothes in order to enjoy the beauty contained in these felicitating objects.

The consultation and analysis of the objects and of the documentation preserved in the Cinzia Ruggeri archive in Milan carried out by the author on the occasion of the exhibition held at MACRO last spring, were decisive in undertaking this study, which is a continuation and extension of an ongoing path of research [13].

2 The Felicitating Factor

2.1 For an Organic Way of Dressing

Per un vestire organico (For an organic way of dressing) is the title of a video conceptualised by Cinzia Ruggeri and directed by Metamorphosi, that was at the photographic workshop entitled *Nuove tendenze italiane nella creazione di immagini. Arte percezione, realtà, visione* (Venice, Centro di documentazione Palazzo Fortuny, 12–17 December 1983). [14].

Although this video was intended for a photographic workshop, it is useful to understand the design attitude that over the 1980s guided the designer in her definition of the concept of fashion, confirming her inclination to work using different languages, and the importance that her activity as a *stilista* has had in the definition of post-modern aesthetics, as Glenn Adamson and Jane Pavitt have clarified in the exhibition *Postmodernism. Style and Subversion, 1970–1990* at the Victoria and Albert Museum (24 September 2011 –15 January 2012) [15].

The protagonist of the video is the dancer Valeria Magli, who provides the voice and the body of this "*poesia ballerina*" (dancing poem).[16] The space in which the video is set is the workshop-showroom in Via Crocefisso in Milan, made aethereal by the pink walls and by the presence of an angel that looks like the one standing next to the Virgin Mary in Piero della Francesca's Brera Altarpiece, and that in the video we see looking down from a mock pulpit, a copy of the balcony of Palazzo Farnese in Rome. The costume worn by the protagonist is a light-blue skin-tight bodysuit with strings and suckers, which turns the dancer into a sea creature – an octopus – that crawls, clings to and remains stuck to the objects it discovers around her.

Clothes, which in this case is a stage costume, activate a connection with the environment and show a breathing, vibrating, wanting body. A body that amplifies its communicational capacities thanks to a second skin that makes it "wired".

The meaning of the video is clarified in the words with which Ruggeri accompanies this project, words that sound like a declaration of intent: "Getting dressed is the first thing we do every morning: shabby, polished, 'normal.' Whether we want it or not, clothes are an (always intentional) display of ourselves." [17].

A fashion project therefore becomes a tool to explore the everyday gesture of getting dressed and implies an act of self-staging, and a relationship with space and time.

In an interview at the presentation of the works developed during the photographic workshop, the fashion designer defined the "felicitating factor" as the coefficient of pleasure that guides us in doing what we really believe in: if this is the attitude pervading the creative process, then the result is a product that contains "beauty" and thus makes its user happy too. [18].

A systematic analysis of the documentation preserved in the Cinzia Ruggeri Archive allowed us to ascertain how this expression was intentionally used to indicate the outcome of a design process stemming from her fashion project. The designer was already using it in 1978 when describing to the international press the debut of the first complete collection distributed with the Bloom label and sold in the Cynthia Ruggeri boutique that had been opened in Washington at the Watergate Hotel the previous year. [19] The "felicitating factor" also appears in the handwritten notes that accompanied the drawings of her clothes and objects she made after her participation in the Venetian event such as the *Fontana dell'amore* project designed for the Municipality of Lamezia Terme in 2001 (ACR).

2.2 Shirts as a Manifesto

Shirts were the original core of Bloom, the womenswear company established in 1972 of which Cinzia Ruggeri was sole director. Shirts were the item that accompanied Ruggeri's research until the 1980s when she decided to retire from the Milanese prêt-à-porter fashion shows. Shirts were a manifesto representative of a fashion object requiring the constant complicity of its user, of the mind and the body of the wearer.

From the outset she endowed this item of clothing, generally used to complement an outfit, with character, transforming it into an autonomous object with a strong narrative energy.

She worked on its lines, alternating and overlapping sinuous profiles and sharp edges. She played with the sartorial conventions of menswear, shifting the dickey or rotating the collar and the bowtie to the shoulder. She worked with materials, with a predilection for linen and silk, painting them or fraying them as if they were canvases.

Ruggeri's clothing project contemplated the extraordinary in the ordinary and this can be inferred by observing her drawings and even more when touching her clothes. At times she insisted on a flow, on an embroidery turning into a sophisticated erosion, or on compulsions, like that of women always playing with their necklaces. Emblematic in this respect is the series of shirts with mobile elements, designed to give meaning to a meaningless gesture. Instead of jewels she sewed on those elements offering a pretext to tell short personal stories: a chicken's egg rolling along a line becoming, as indicated on the label, a "Chereghin," a fried egg that in Lombardy is traditionally cooked in butter, a Scottish Terrier (Ruggeri's pet dog called Scherzi) coming out of his basket to pee, or

an embroidered heart at the throat in a model called "Magone," an Italian expression for "a lump in your throat" (F/W 1981–82, ACR).

Sewn inside all her clothes are hidden labels with handwritten messages containing the name of the item and of the fabrics, which were especially made for every collection, and sometimes even quotes from a book, as in the small *Giorni felici* collection (S/S 1986, ACR), named after Samuel Beckett's play *Happy Days*. In the press release of the collection accompanying the presentation to buyers and journalists, the presented models are described as follows: "Sentimental clothing. Clothing for people who like this project. Its motivation does not lie in its practical efficiency, its 'beauty' consists in the love and magic with which it is presented, in the soul it contains." [20] These words are a reworking of an excerpt from the *Manifesto di Alchimia*, which sounds like a tribute to the research conducted in particular by Alessandro Guerriero and Alessandro Mendini, also testified by the collaboration that resulted in the design of six covers for the monthly magazine *Domus* in 1982, but in this case applied to fashion design. In fact, this is the field in which Ruggeri, the *stilista*-entrepreneur, publicly declared her fashion shows operated, safeguarding her design autonomy.

2.3 The Daily Ritual of Getting Dressed

The figurative potential that Cinzia Ruggeri recognized in clothes, and that she integrated in her sartorial production, translated into her way of showing and presenting her fashion proposals, in other words her communication style. The advertising campaigns and the collateral initiatives that accompanied the presentation of her clothing and accessory collections orchestrated by Ruggeri herself in the role of art director confirm this aspect.

An emblematic Bloom advertising campaign was the one created for the S/S 1978 collection, shot by Guido Cegani, and published on the pages of *Vogue Italia* in March 1978 with the model Pia Soreson in the role of the personification of nature or of the seasons. Apart from the clothes, the only element on the set is a black throne that, like a Proppian magical element, speaks of transformation.

Equally emblematic is the campaign shot by Occhiomagico launching the F/W 1981–82 collection of the new line called Cinzia Ruggeri – a line that from 1981 was produced alongside the Bloom line. Even in this case Ruggeri used a throne. This time the models ironically interpreting the collections are the owners of the boutiques that used to buy and sell Ruggeri's collections around the world. With their imperfect bodies these models confirm the wearability of the clothes and that "felicitating" factor that is activated when they are worn (Fig. 1, 2).

2.4 Clothes as a Scenic Object

For Cinzia Ruggeri the act of choosing our clothes is always an intentional gesture we perform in order to play our role. The performative component, sometimes brushed off by the fashion journalists of the time as a sign of extravagance, pervades all the projects of this *stilista* that go beyond the distinction between real clothes and costumes. The tactile quality of her clothes made them perfect as stage costumes, endowed with an expressive potential that was activated when they were worn. It is in fact the bodies that

Fig. 1. Cinzia Ruggeri, S/S 1982, advertising campaign. Najla Tabiat, boutique Bint El Ishrin, Kuwait.Photo credit: Occhiomagico

inhabited them that provided the real engine of this process leading to the creation of images and of their meanings.

Like other *stilisti*, Ruggeri designed theatre costumes. In an earlier joint study based on the analysis of a group of drawings preserved at the CSAC archives of the University of Parma, the author has investigated the collaboration that occurred at the Teatro di Porta Romana in Milan between Cinzia Ruggeri and Valeria Magli, the artist who paired different techniques and forms of expression such as dance, visual arts, and vocals. [21].

To accompany Magli's moves, Ruggeri designed costumes matching the atmosphere and the themes of the shows, conceiving them as stage props providing the trained body of the dancer new elements to shape her performance, becoming an active element of the creative project.

The steps, i.e. the element of the six-ply tunic designed to be assembled in front of the audience in a cerebral reverse-striptease performed by Magli in *Banana morbide*

Fig. 2. Cinzia Ruggeri, F/W 1982-83, advertising campaign. Annamaria Venzi Timpano, boutique St Tropez - Rome.Photo credit: Occhiomagico

(1980), and the kinetic decorations that in *Banana lumière* (1981) are activated by Piero Fogliati's "fantastic lights" transforming the dancer's body into a mobile, reappear in the lines and materials used by Ruggeri in the collections presented in the prêt-à-porter fashion shows and then produced.

The steps in particular, together with the cone, and the inclined plane are formal elements that recur in the designer's projects and with which she explored the deviation from the rule, which determined – as Ruggeri herself declared on multiple occasions – the "loss of balance."

They are archaic and at the same time recent forms, also explored in the sphere of new Italian design, indicating an unresolved coexistence of ancient and modern, the awareness of which matured in the aesthetics of the 1980s. These motifs tend towards infinity and combine with the idea of motion, inspiring a two-directional reading; these

shapes lend themselves to the transformation of the bodies wearing them and, moving in space, modify them in turn.

Already in the early Bloom collections, the designer interpreted these motifs on the two-dimensional surface of fabrics, inserting inlays and applications, and in the structure of the clothes and blouses, for example cutting the two sleeves differently with wave or geometric add-ons. She then transferred them to the three dimensions by playing with scales: from an earring, to a clutch bag, to the actual architectures for the body. Paradigmatic interpretations of the staircase motif are *Omaggio a Lévi-Strauss* (Homage to Lévi-Strauss, F/W 1983–84) – now preserved at the Victoria and Albert Museum in London – and the *Ziggurat* dress (F/W 1984–85, ACR), which express a proudly exhibited concept of femininity: the steps provide support and, in the game of courtship, offer an invitation to climb or descend them.

Textile research was a constant of Ruggeri's activity; it evolved in parallel with the need to charge her fashion proposals with emotional values and integrate technological elements. In the S/S 1982 collection the designer inserted LED lights connected to a battery and a switch on her clothes so that the wearer could turn them on to satisfy his or her wish to appear (*Abito di luci a 12 W*, ACR), while in the following collection she worked directly on the fabric. It was in fact in 1982 that she applied liquid crystals to the fabrics. Graduated on certain temperatures, these crystals changed colour depending on body heat. The result was mutant clothes that, once worn and moving in space, signalled the modifications of the body and the environment.

When she used traditional materials, such as silk and linen, she worked on the concept of emptiness with a sensitivity close to Japanese aesthetics; she endowed holes, openings and slits with meaning, sometimes embellishing them with the surprising presence of pearls or chains, to create interstices and favour an exchange between inside and outside, between body and space. Interviewed in 1984 by art critic Giorgio Verzotti, Ruggeri declared "I want my things to contain empty spaces, interstices, empty areas that are available to be loaded." [22].

Her creations were objects to be experienced with body and mind, that once worn turned into scenic devices with which the wearers could communicate or say something about themselves. They did not offer solutions, but opportunities.

3 Conclusions

Cinzia Ruggeri is presented in the pages of *Casa Vogue* as the creator of an "archi-moda" imbued with references to Postmodernism. [5] Alessandro Mendini, the theorist behind Alchimia, defined her as the creator of "neo-fashion" because of the proximity to the communicative demands of "neo-design", [23] while the dance critic Marinella Guatterini chose to use "art -stilista", as she considers Ruggeri's creations behavioural devices creating connections between the slow pace of thought and the immediate intelligence of the body. [24] These neologisms conceal the critics' efforts to define Ruggeri's approach to fashion, finding names related to the collaborations that she intertwined with exponents of the world of architecture, design and performing arts from the beginning of the 1980s. In a recent talk, the curator and contemporary art consultant Mariuccia Casadio used the adjective "irrestituibile" for Cinzia Ruggeri, [25] thus reaffirming the

inadequacy of any label to describe a multifaceted production and attitude transcending any disciplinary fields, while eroding their boundaries.

As a matter of fact, her practice was about adopting different languages without adhering to currents or movements, preferring to explore the specificities of the means of expression. She used clothing – a medium intimately close to the body and immersed in space – using the communicative power of fashion to first and foremost express her own story. Autobiographical elements can indeed be found in all of her projects, even those developed after her activity in fashion had come to an end. These traces are hidden in the puns with which she enjoyed naming her works, or in little word puzzles prompting a reaction from the observer. Her clothes required an active brain and heart.

A critical insider of the 1980s Italian fashion system, of which she publicly contested the progressive creative impoverishment and inflation of the *stilista*'s import, Cinzia Ruggeri presented her collections on the Milanese prêt-à-porter catwalks from the end of the 1970s and throughout the 1980s, proudly claiming her autonomy from seasonal trends, paired with her sincere interest in the concept of change. Far from considering fashion a reflection of social and cultural changes, Ruggeri, if anything, acknowledged its power to affect and bring about these changes, anticipating a critical position that later developed in the field of fashion studies. [26] Fashion, so connected to the desire for novelty, and the design of clothing so intimately connected to the body, allowed her to address the gestures, behaviours and therefore the experience of reality in transformation.

Understanding, through the analysis of archive records, the process that guided Cinzia Ruggeri in the definition of her clothing project, can assist us in interpreting her entire production, which circularly explored art, fashion and design, pervaded by that "felicitating factor," that pleasure of sharing and manifesting emotions she made clear in 1983.

Primary Sources. ACR: Archivio Cinzia Ruggeri, Milan.

References

1. Lo Pinto (ed.): Cinzia Ruggeri. Cinzia Says…, Mousse Publishing, Milan (2022)
2. Fava, E., Salvo, L.: Cinzia Ruggeri. 1942–2022. In: Lo Pinto (ed.) Cinzia Ruggeri. Cinzia Says…, pp. 22–321. Mousse Publishing, Milan (2022)
3. Malossi, G.: L'industria della moda. Rassegna **78**, 51–60 (1998)
4. Interview: Darryl Turner talks with Richard Martin. Artforum **34**(7), 15–17, 116 (1996)
5. L'archi-moda di Cinzia Ruggeri. Casa Vogue (116), 174–185 (1981)
6. Truant, M.N.: Il disegno di moda. In Amendola, E.P. (ed.) Vestire italiano. Quarant'anni di moda nelle immagini dei grandi fotografi, pp. 186–191. Oberon, Rome (1983)
7. Martin, R.: Fashion and Surrealism. Rizzoli, New York (1987)
8. Branzi, A.: Il dressing design. In La casa calda. Esperienze del nuovo design italiano, pp. 86–95. Idea Books, Milan (1984)
9. Mendini, A.: La "nuova moda" di Cinzia Ruggeri. Vogue Italia, (392/11), pp. 280–281 (1982)
10. Sato, K.: Architektenmode/Architectural Fashion. In Alchimia. Italienisches Design der Gegenwart/Contemporary Italian Design, pp. 150–157. Taco, Berlin (1988)
11. Danelli, I.: Cinzia Ruggeri. In: Bianchino, G., Quintavalle, A.C. (eds.) Il rosso e il nero. Figure e ideologie in Italia. 1945–1980 nelle raccolte CSAC, pp. 224–225. Electa, Milan (1999)

12. Frisa, M.L., Tonchi, S. (eds.): Excess. Fashion and underground in the 80s. Charta, Milan (2004)
13. Fava, E.: Cinzia Ruggeri. Vestire le emozioni. ZoneModa J. **9**(1), 1–19 (2019)
14. Per un vestire organico. Video di Cinzia Ruggeri, directed by Metamorphosi (ACR) (1983)
15. Adamson, G., Pavitt, J. (eds.): Postmodernism: Style and Subversion, 1970–1990. V&A Publishing, London (2011)
16. Garzarella, S.: Valeria Magli o la poesia ballerina. Mimesis, Milan–Udine (2021)
17. Nuove tendenze italiane nella creazione di immagini, Venice, Centro di documentazione Palazzo Fortuny, 12–17 December 1983, n.p., typewritten document. (ACR)
18. Nuove tendenze italiane nella creazione di immagini (1983). Documentary video directed by Metamorphosi. (ACR)
19. Hyde, N.S.: Fashion Notes. The Washington Post, March 12 (1978)
20. Cinzia Ruggeri. Summer 1986 collection. Printed document (ACR)
21. Fava, E., Franceschini, M.: The body: dress and gestures. cinzia ruggeri's design for Valeria Magli. In FADC Fashion and Design Conference: Creation & Research. Fashion and Design. An Interdisciplinary Approach, pp. 263–271. Universidade de Vigo (2020)
22. Verzotti, G.: Frammenti di gioia e di felicità creativa: così è la mia moda. Il Tirreno, 26 June (1984)
23. Mendini, A.: La "nuova moda" di Cinzia Ruggeri. Vogue Italia (392/11), 280–281 (1982)
24. Guatterini, M.: Cinzia Ruggeri per la tavola. La Gola (3), 27 (1982–1983)
25. Casadio, M.: Book presentation Cinzia Ruggeri. Cinzia Says…. Triennale di Milano, November 23 (2022). Speakers: Mariuccia Casadio, Elena Fava, Corrado Levi, Luca Lo Pinto, Nicoletta Morozzi, Marco Sammicheli, Antonio Scoccimaro
26. Barnard, M.: Fashion Theory. An Introduction. Routledge, London (2014)

Environmental Affordances: Some Meetings Between Artificial Aesthetics and Interior Design Theory

Fabrizio Gay[1(✉)] and Irene Cazzaro[2]

[1] University IUAV of Venezia, 191 Santa Croce, 30135 Venezia, Italy
fabrizio@iuav.it
[2] Alma Mater Studiorum University of Bologna, 2 Viale del Risorgimento, 40136 Bologna, Italy
irene.cazzaro2@unibo.it

Abstract. The contribution supports the following thesis: the use of semiotic methods of the structural school in applications of Artificial Intelligence allows to deal with aesthetic and historical-critical issues with greater documentation capability. In particular, the contribution concerns an actualisation of the axiology of spatial enhancement built by Jean Marie Floch assuming it as a fundamental semantic framework to construct an interior morphology valid in the various areas of interior design.

Floch's semiotic analysis allows us to better specify the notion of "environmental affordance" developed in James Gibson's phenomenology of ecological perception. Following Gibson, the authors indicate an 'environmental' specification of the "affordances" and pose the question of their objectification and measurement.

For the purpose of this objectification and measurement of environmental affordances, the contribution advances the hypothesis of using some Artificial Intelligence applications usually employed, nowadays, in the processing of large data sets of digital documents, to achieve creative, critical, historical-archival aims.

In conclusion, the contribution outlines some fundamental conditions of possibility of such an objective measurement by describing some initial characteristics of an artificial system of recognition of morphological categories of interior spaces starting from huge data sets of documents.

Keywords: Human Factors · Affordances · Deep Learning · Interior Design

1 Introduction

1.1 Rewriting Floch Today

If the great semiotician Jean-Marie Floch were still alive and could rewrite today his famous marketing study on the usage and consumption behaviour of Parisian metro users [1], would he use more advanced tools than those available forty years ago?

Perhaps he would! i) Floch today would use digital tools to acquire data in the field. ii) He would also assume a theoretical framework resulting from thirty years of

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 354–364, 2024.
https://doi.org/10.1007/978-3-031-49811-4_34

evolution of structural theory in the Greimassian tradition. He would perhaps use a kind of semiotics not limited to the analysis of the 'text' but, by acquiring the perspective of the "semiotics of practices" [2] that he developed, Floch would now have a model of the "generative process of the plane of expression" articulated in levels (figure, sign, text, object, practice, strategy, ethos).

i) In the study that he conducted in the 1980s, Floch had acquired information on the consumption and usage behaviour of the users of the Paris metro essentially by means of participant (ethnographic) observation supplemented by quick sketches from life; finally, he had collected quantitative and qualitative data by means of a systematic interview campaign and the collection of some narrative accounts.

Today, travellers in the capital's metro network are almost all equipped with wearable technologies and are therefore easily traceable in the speed and form of their spatial routes, as well as in their consumption choices in web channels; for some of them, it would be even possible to detect the values of biological parameters indicative of part of their emotional states. The data set collected with digital tracking could today be supplemented by interviews or tests in a more traditional format, constituting an immense data set of traces of gaits and trajectories, consumption preferences, narratives, photographic snapshots, etc. Moreover, today this huge data set could be variously visualised and mapped, synthetically interrogated according to parameters referring to different classes of qualitative factors.

Despite the current development of the means of observation, recording and analysis, it is probable that Floch today would not change the essential structure of his study at all. The on-site analysis of behaviour in the same place would still be necessary to directly compare the behaviour of users in the same places in order to highlight different ways of valorising spatial displacement and the use of time. The interest would not lie in forming a collection of "social types" or "psychological types" at all, but would always lie in constructing an axiology of different ways of valorising the same place.

ii) We believe that, despite the new theoretical acquisitions of Greimassian tradition semiotics, Floch would not at all change the four extreme terms indicating empirically detected behaviour: "explorers, sleepwalkers, professionists and *flâneurs*". These four terms derive from the projection onto the semiotic square (Fig. 1) of the semantic category of "continuity vs. discontinuity" of the given experienced space.

I. **[1, 1]** The term for the enhancement of "**discontinuity**" features in spatial perception is embodied by 'explorers': those who enjoy changing perceptual rhythms for cognitive purposes, wanting to identify, compare, correlate and map the places they pass through.
II. **[–1, 1]** The semantically opposite term is that of the "somnambulists": those who value pure spatial "**continuity**" and allow themselves to be carried away by the flux of the crowd and – often immersed in reading or listening – anaesthetise themselves in everyday continuity by appreciating the perception of a comfortable regularity and spatial fluidity.
III. **[–1,–1]** The contradictory term with respect to the adventurous space of the explorer is that of spatial "**non-discontinuity**"; it is embodied by the "professionals", i.e. those who consciously minimise the route, fluidly avoid obstacles, use the space of stations in the purely instrumental functionality of their equipment.

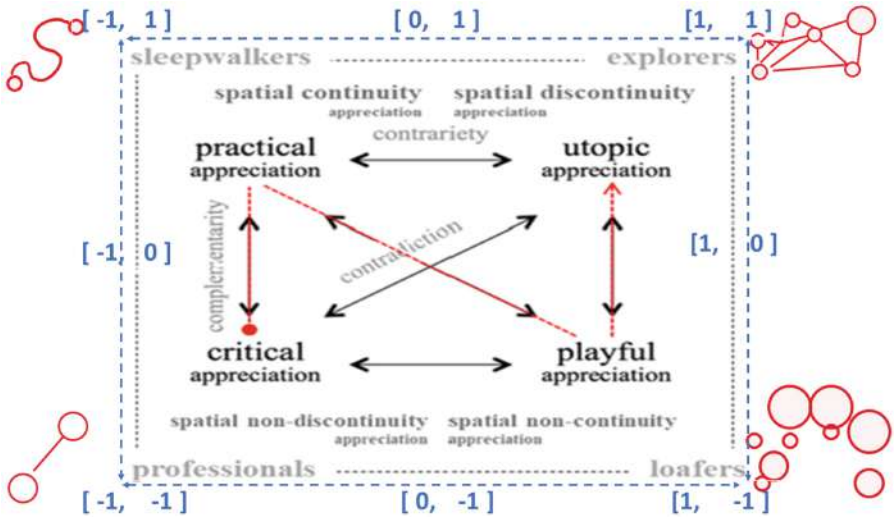

Fig. 1. The taxonomy of spatial enhancement modes used by Jean-Marie Floch in the analysis of the Paris metro users' behaviours, Interpretation made by the authors from the semiotic square of J-M. Floch [1].

IV. [1, –1] Finally, the semantically opposite term to "professionals" and which denies the space of "sleepwalkers" is the one that valorises the pure "**non-continuity**" of the local space; it is embodied by the figure of the "*flâneurs*" understood as those who stroll seeking the unexpected encounter, valorising the incidents of the route, undertaking deviant programmes that enrich the potential of the journey.

In these four terms Floch does not indicate 'social types' or psychological profiles, but moments and ways in which subjects grasp the given (morphological and mereological) affordances of a place in their course of action. Obviously, these four extreme cases are only the terms in which classification parameters are maximised and presuppose an infinity of intermediate cases between [–1, –1] and [1, 1]. Moreover, in the course of their experience, each traveller goes through a part of this constellation of states in exploiting different potentialities and virtualities of the same objective situation.

Whoever imputes the different ways of enhancing the same space to the contingent personal inclinations of each user must also admit that these subjective inclinations objectively encounter a different spatial resonance depending on the given situation. Thus, it is the environmental affordance itself that is more or less at the measure of "explorers, sleepwalkers, professionals or *flâneurs*". An entire environment can only be suitable in different and clear measure (expressed in conditional probability) to a given form of spatial enhancement; and only within certain limits can the subject adjust what he feels *in* and *of* the ambient space.

Assuming that these differences in valorisation possibilities can be measured, we propose to take Floch's four terms as four spatial types (morphological and mereological), all of which are possible to be felt in the same place, but to an objectively different extent.

An environmental affordance is a phenomenon emerging from a multitude of factors; to study it through a semiotic approach is to highlight which aspects of an object and a practical scene correlate significantly.

However, the concept of affordance arises in quite different, even opposite terms to any semiotic approach. "Affordance" is in fact a notion that originated in the psychological studies by James Gibson, swhose contribution is very different from the standard cognitive one and – as Costall and Morris [3] have documented – is still very much misunderstood from the most elementary psychology texts.

We would not add ourselves to the list of those who try to assimilate Gibson's dissidence with computational, inferential [4] or even semiotic cognitive models of the structural school. However, the importance currently acknowledged to the notion of affordance in design theories [5] requires some clarification.

1.2 Affordance or Factitiveness? Objects or Environments?

In the field of design studies and theories, the notion of 'affordance' formulated by psychologist James Gibson [6] has played an important role, especially in his latest book: *The ecological approach to visual perception* [7]. 'Affordance', according to Gibson, is what our lived body feels of its own possibilities of potentially interacting with objects in the surrounding environment: it is our bodily feeling of potential feasibility in relation to things and semi-things perceived in the moment; for instance, it is the feeling of being able to 'walk', 'grasp', 'embed', 'throw', 'climb', 'fall', 'shelter', 'sit', 'immerse', 'ingest', 'feed', 'warm up' and any other action that the parts of an environment can (potentially) allow a subject acting in it.

This was followed by the idea that the design of an object is understood as the prefiguration of its affordance, but in the field of design studies the notion of 'affordance' was initially incorporated [8] in ergonomic terms, it was understood as the (empirically measurable) ability of a physical object, or of a human-machine interface, to make the user perceive the right way to use it, without the need for the user to be instructed to do so. In functionalist design theories, the notion of the 'affordance of objects' objectively accounts for ergonomic properties of prostheses and tools: e.g. the seatability of a chair or the habitability of an interior.

The main idea that was retained from Gibson's notion is that we perceive our surroundings in a completely unreflective, automatic, synesthesic, pre-semiotic way, simply by grasping the 'affordances' offered to us by the actual surfaces of things plunged in the physico-chemical pregnancies of the atmosphere. However, in the applications to design, the concept of affordance has lost some features of its original meaning; for instance, [9, 10] affordances that could be real or fictitious, perceivable or non-perceivable, acquired as expertise by the user were admitted. To the ability of objects to suggest practicable actions with them was added the idea that perception can educate itself to grasp new affordances.

Thus the term 'affordance' also refers to the object's ability to teach its use, a concept that has found increasing popularity especially in digital interface design, contributing to the very notion of 'usability' established in standards such as ISO 9241-11 (1998) and 9241-210 (2010). However, conceiving affordance as emerging from an expressive process came to disavow its originally non-semiotic or pre-semiotic meaning.

Acknowledging the interactive character of affordance, one understands the fact that, even if a subject believes he is making an everyday object perform in a course of action, he realises that this course of action is bound not only by the object's operative functionality, but also by its active communicative functionality. It is thus admitted that the user acts on the tool in the terms in which the tool itself acts equally on the user, in a series of reciprocal manipulations and counter-manipulations. Thus Jacques Fontanille – as already exemplified by Jean-Marie Floch – proposes to replace the psychological notion of affordance with the semiotic notion of the "factitiveness of objects" since: «… Ce que l'affordance désigne sans le distinguer, le concept de 'factitivité' permet déja de le décliner au moins en trois types différents et complémentaires: 'faire-faire', 'faire-savoir', 'faire-croire'»[1]. [2, pp. 37-8].

In other words, affordance, when viewed through the modality theory of Greimassian semiotics [11, pp. 121 and 102-4] translates into 'factitiveness', i.e. a typology of possible reciprocal manipulations between user, objects and environment that concern both the virtual and potential use of an object, as well as its actualised or realised use in a course of action.

We believe that it is not acceptable to equate Gibson's phenomenological theory either with a kind of 'imprecise semiotics' or with an anti-semiotic fanaticism; rather, it should be better considered in its more recent version.

It should be made clear that throughout his latest book Gibson sketches a much more articulate definition of affordances for at least two essential and often overlooked points.

1°) Gibson clearly distinguishes, on the one hand, the direct perception (pre-intellective, not mediated by any processing) of the physical environment and, on the other hand, the understanding of objects that support representations on themselves and that are immersed in the environment, among which he also includes psycho-perceptual tests that highlight optical illusion phenomena. This gives rise to automatic environmental affordances in which, however, the perception of specific representational artefacts also comes into play, requiring the unfolding of clearly semiotic cognitive processes.

'Environmental affordances' are understood by Gibson as objective phenomenological properties because they are defined as emerging from the encounter of the objectivity of the percipient subject's lived body with the objective morphology of bodies in the shared environment. However, the distinction of representational parts in the natural environment entails a semiotic process for the subject, i.e. the generation of a plane of expression.

2°) According to Gibson, there is no direct visual perception of space itself; what we directly see is only the spatial deployment of surface textures; that is, we see in 2.5D. He – like Florensky [12] – conceives the spatial content in the consciousness of visual perception as a geometric construct, an abstraction resulting from cognitive processing that exceeds instantaneous perception. Thus, the transition from the direct vision of the surface of things to a consciousness of environmental space in its totality of presences does not happen in the same way.

[1] «What affordance designates without distinguishing it, the concept of 'factitiveness' already makes it possible to declare it in at least three different and complementary types: 'doing-doing', 'doing-knowing', 'doing-believing'» (authors' translation).

As an example: we cannot say that we see a painting and the room where it is exhibited in the same way, or the stage area and the stalls of the same theatrical space; there are thresholds and regions of space within which we carry out interpretative processes of an explicitly semiotic type, if not acts of actual coded reading of a merely depicted space.

This does not detract from the evidence that we all feel an overall, holistic and objective feeling of an environment anyway, even if this feeling is amended in the course of experience.

This fact is obviously of great practical importance in interior design and satisfactory answers are often sought from its theory.

When design is understood as the total planning of inhabitable environments, environmental affordances are more relevant than objectual ones, especially – as happened a century ago in the schools of the modernist avant-gardes, from the Vchutemas to the Bauhaus – in the creation of 'interior environments' organically configured to exert intense and sometimes radical aesthetic properties.

If the holistic feeling that an environment offers is fundamental, can we only rely on the poetic competence of the creator?

But if what counts above all is the semantic clarity of the parameters taken on by the project, then the priority of a fundamental structure of morphological categories is decisive.

In this second case, the question doubles:

i) Can the concept of environmental affordance account for this holistic, unreflected feeling?
ii) Can the concept of factitiveness semiotically refract the holistic feeling of a place into its signifying components?

2 Experimental Surveys in Artificial Interior Aesthetics

In order to attempt a documentable answer to the questions posed above, we undertook the study of the potential of Floch's axiology of spatial enhancement by testing it with current digital probing tools through platforms instructed with deep learning algorithms.

We believe that these tools of an artificial aesthetic can provide us with enormous and new possibilities of correlation between descriptive parameters, correlations that can prove to be more or less relevant, fragmentary, doxastic in deciding the way in which a set of subjects experiences the feeling of a place.

In the specific case, we are testing the analysis of cases and aesthetic categories in the interior design using digital tools and prioritising an axiology derived from Floch (ex. Fig. 2). The current study concerns the conventional genres of interior design and is conducted by means of Deep Learning tools for the processing of documentary data sets concerning different social domains: healthcare, catering, museography. In this case, Floch's semiotic square constitutes a first map with two orthogonal coordinates that identify the initial value pair of each record processed according to subsequent evaluative dimensions so that it can then be found as an element of a final atlas in continuous stabilisation.

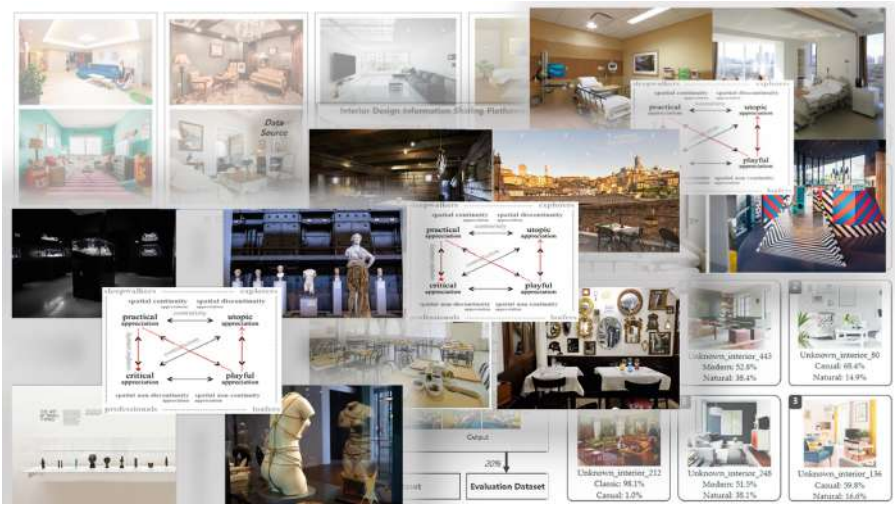

Fig. 2. Illustrative images of spatial enhancement categories in three interior design domains (museography, foodservice and healthcare) selected by a parametric web search software. The construction of these data sets is the first part of the research programme pursued by the authors.

2.1 Top-Down/Bottom-Up: 'Aesthetic Categories' and 'Image Descriptors'

Initially it is enough for us to accept the fact that "culturally conventional environments" are given and that these (generally aesthetic) categories are 'ideal objects', hence, 'social objects': one can give lists of terms, labels. These are cultural categories implicit in the distinctions between literary, cinematographic, theatrical and musical genres, especially in the genres of interior design or typical landscapes, up to the thematisations of museography, theatrical scenography and retail design, made explicit in the related marketing studies on commercial spaces.

Without needing to discuss and specify the aesthetic or historical-critical meaning of these terms, we can initially accept them as simple verbal labels that are preferably associated with interior spaces represented through texts, images and videos, contenting ourselves with the simple doxastic and statistical value of these labels.

To this end, software designed to assist interior design by providing sample collections of stylistic classes has emerged in recent years. These tools are capable of processing images and digital documents of any format from immense data sets in order to derive synthetically representable classifications according to parameters referring to different classes of qualitative factors, such as the sensorial categories conventionally attributed to materials, shapes, textures, colours, spatial patterns, potential paths, evocative values, etc.

In more specific cases [13] the result of these doxastic analysis applications is the production of a series of collections of interior images found on the web and associated with the statistical distribution of terms – present in the textual descriptions contextual to the images – referring to stylistic categories and prototypical atmospheres.

For the time being, these results are of little critical value, at most only useful for listing a few stereotypical classes – "romantic", "pop", "casual", etc. – and calculating their statistical consistency in a given repertoire. However, the development potential of this software and the applications that can already be derived from it are multiple and very important, thanks to the rapid development of calculation systems based on deep learning algorithms applicable to 'pattern recognition' and 'pattern production' in various expressive formats (visual, acoustic, verbal, dynamic, etc.).

2.2 The True Fakes

First of all, it must be remembered that applications based on deep learning algorithms are nowadays not limited to supervised learning, but can also train themselves by analysing preselected data sets – e.g. a homogeneous corpus of images – either in order to identify the rules that give coherence to the input data set, or in order to measure the exceptions of new input data, or even to deliberately produce new analogous data – e.g. images – that serve as new exempla consistent with the discovered rule.

As an example, the artificial production of 'fake' graphic, pictorial and musical works has become almost fashionable, especially using software with Generative Adversarial Network [GAN] algorithms that extract the statistical weights of image and text descriptor data from the given corpus of original *exempla* and then define and learn the co-construction rule – through a dual (adversarial) deep learning procedure –producing new (fake) *exempla* of the given set with this rule.

Furthermore, the possibility of analysing data *corpora* in composite formats – whether visual, acoustic, textual or video – allows these applications to construct new categorisations and new taxonomies, not limiting themselves to the mere recognition of a few classes of objects depicted in digital images according to an already given classification (*a priori*). They can in fact derive new taxonomies that will only be given *a posteriori*. That is, they can explore taxonomies only *in fieri*, following the semantic principle of 'family similarities' along a learning process that can be observed by us, step by step, as the construction of family categories is drawn up through the analysis of immense lexical and iconic databases accessible online.

The most creative applications have not been conceived, so far, for descriptive or historical-critical purposes; they were explicitly generated as new production tools for artists. For instance, the DALL-E software [13] is capable of producing new hybrid yet perfectly coherent visual images from a huge set of lexically labelled source images; these images are produced as iconic responses to questions that the user formulates with simple verbal sentences.

The sense of a historical-critical use of applications of this kind remains to be explored.

After all, the great panoply of software that filters information in the wearable technology devices that, by facilitating our web searches, fill our daily lives, as well as the new artistic research tools generated from the rapid developments in AI, form an invisible but pervasive artificial aesthetics [14] that is still waiting to be integrated into the aesthetics produced by human reflection.

The essential question for our discourse around the possibilities of objectifying the notion of environment is: do applications based on deep learning also make it possible to move from an approximate, doxastic investigation to a possible morphology of interiors?

2.3 From Subjective Stylistics to Objectifiable Morphometries

We would be wrong to believe that the main purpose of software with GAN-type deep learning algorithms is only to produce plausible hybrids or plausible fake works from corpora of real exempla: fake works such as the countless fictional 19th-century Chinese landscapes composed in 2021 by Alice Xue's software [15] or the fake portrait of a hypothetical Edmond Belamy made in 2014 with the algorithm of the French collective Obvious, a work sold for between USD 7,000 and 10,000.

Curiously, pattern recognition software has been proposed much earlier for exactly the opposite purpose: to discriminate cases of fake works from original works, especially in situations where their perceptual complexity exceeds the human abilities of processing and comparison. For instance, such a situation is the problem of deciding on the attribution to Jackson Pollock of a dripping paint work of dubious or suspicious provenance. The complexity of the calligraphic ductus in the dripping paint technique makes traditional morphological attribution methods in art history ineffective; hence, the use of digital morphometric tools was attempted.

Such a(n) (artificial) solution for this purpose was suggested in 2015 by computer scientist Lior Shamir; he adapted 'pattern recognition' software originally designed to automate histopathological analyses (to recognise specific morphologies of cancerous tissues) [16]. The original software was designed to be trained with countless images of histopathological slides, but Shamir adapted it to be trained only with the digital images of 26 dripping canvases believed to have been performed by Pollock between 1950 and 1955. He asked the system to extract from each of the 26 digital images the numerical values of various descriptor parameters – e.g., statistical distribution of pixel intensities, colour, position, edges, shapes, regions, fractal order, polynomial decomposition, etc. – thus values that do not concern a verbalisable semantic level, but only pure eidetic characteristics of the digital image.

Shamir constructed the discriminating rule between true and false Pollock by comparing these resulting 26 data sets and i) sorting the descriptors by resulting importance, ii) selecting 25% of the significant descriptors, iii) writing the rule in the form of Fischer's linear discriminating algorithm.

This rule was tested by Shamir by subjecting random sequences of images to the software: both original works by Pollock and works by artists emulating his dripping technique. Shamir reports that in 93% of the cases he randomly tested, the software was able to correctly distinguish original works from fake ones. This excellent result highlights three points:

1) that even a painting technique with a high degree of gestural randomness retains individual characteristics;
2) that such individual characteristics of an eidetic order can plausibly be identified at a morphometrical level as one could identify the characteristics of a calligraphic ductus;

3) that the successful scientific use of pattern recognition software for the purpose of morphometric image categorisation always requires two characteristics:
a) a clear initial separation from all semantic considerations in order to focus solely on the plastic (abstract) and morphometric characteristics of the image;
b) a deep learning processing of the recognition rule made only on 'a posteriori' data and based on predominantly frequentist statistics.

Because of these characteristics of scientific correctness, Shamir's algorithm is not suitable – as GANs are – for producing ex novo (a priori) images of real fake Pollocks. The application is made to measure past facts – measuring them on the basis of a (predominantly 'frequentist') retrospective statistic – and not to predict future facts.

We report these findings because they exemplify – by analogy – two aspects of the doxastic study of conventional environments in interior design.

I) It would make no sense to attempt a classification of conventional environments, even if it is useful to detect provisional and specific local taxonomies, constructed ad hoc, case by case.
II) The absurdity of establishing a typology of conventional environments does not forbid the fact that, instead, a specific morphology can be given.

Acknowledgements. We would like to thank the reviewers for their thorough work and the relevant advice they gave us.

References

1. Floch, J.-M.: Sémiotique, marketing et communication: sous les signes, les stratégies. Presses universitaires de France, Paris (1990)
2. Fontanille, J.: Pratiques sémiotiques. Presses universitaires de France, Paris (2008)
3. Costall, A., Morris, P.: The "textbook Gibson": the assimilation of dissidence. Hist. Psychol. **18**, 1–14 (2015). https://doi.org/10.1037/a0038398
4. Costall, A.: 1966 and All That: James Gibson and Bottom-Down Theory. Ecological Psychol. **29**, 221–230 (2017)
5. Withagen, R., Costall, A.: What does the concept of affordances afford? Adapt. Behav.Behav. **30**, 505–507 (2022). https://doi.org/10.1177/1059712320982683
6. Shaw, R., Bransford, J.: Perceiving, acting, and knowing: toward an ecological psychology. Lawrence Erlbaum Associates; Distributed by the Halsted Press Division, Wiley, Hillsdale, N.J., New York (1977)
7. Gibson, J.J.: The ecological approach to visual perception. Houghton Mifflin Company, Boston (1979)
8. Norman, D.A.: The Design of Everyday Things. Doubleday, NY (1988)
9. Gaver, W.W.: Technology affordances. In: Proceedings of the SIGCHI conference on Human factors in computing systems Reaching through technology - CHI '91, pp. 79–84. ACM Press, New Orleans, Louisiana, United States (1991). https://doi.org/10.1145/108844.108856
10. Barofsky, I.: Quality: Its Definition and Measurement As Applied to the Medically Ill. Springer Science & Business Media (2011)

11. Courtés, J., Greimas, A.J.: Semiotica dizionario ragionato della teoria del linguaggio. B. Mondadori, Milano (2007)
12. Florenskij, P.A.: Lo spazio e il tempo nell'arte. Adelphi, Milano (2007)
13. DALL·E 2. https://openai.com/dall-e-2/. Accessed 31 Oct 2022
14. Manovich, L., Arielli, E.: Artificial Aesthetics: A Critical Guide to AI, Media and Design (2022). http://manovich.net/content/04-projects/163-artificial-aesthetics/artificial_aesthetics.chapter_1.pdf
15. Xue, A.: End-to-end chinese landscape painting creation using generative adversarial networks. In: 2021 IEEE Winter Conference on Applications of Computer Vision (WACV), pp. 3862–3870 (2021)
16. Shamir, L.: What makes a Pollock Pollock: a machine vision approach. Int. J. Arts Technol. **8**, 1–10 (2015)

PROCESSES. Dematerialized Processes

The Critical Forms of Design Futures Scenarios: Introducing Unconventional Ways of Scenarios Making

Ammer Harb(✉)

Politecnico di Milano, Milan, Italy
ammer.harb@polimi.it

Abstract. This paper discusses the critical forms of design futures scenarios; these forms aim at debating, interrogating, and questioning future visions rather than extrapolating on the status quo. They aim to problematize future issues in order to enact social change and mitigate the consequences and implications of today's actions and decisions.

Keywords: Critical Design Futures · Scenarios · Speculative Design · Design Futures

1 Introduction

1.1 Context

Resource depletion, climate change, and social injustice are a few examples of self-evident future challenges that design needs to encounter. Since the role of design in shaping the future is paramount (Margolin 2007), design should find a way to introduce alternative future visions and take an oppositional stance towards the hegemonic structures that created these challenges. Fry and Nocek (2021) argue that design lies at the heart of the ontological crisis. For years, design has served the capitalist-driven market inquiry, which led to the current state of unsustainability. In response to this, several design directions have emerged to counter the negative effects of design (they could be collectively referred to as "critical design"). These practises are critical about design itself; they try to interrogate the status quo and propose alternative future visions aiming at enacting change in the present, thus leading the world toward more sustainable futures. Under the overarching umbrella of "critical design", some of these practises are specifically concerned with the futures, which is referred to in this paper as "Critical Design Futures" (CDF). Indicative examples of these practises are Speculative Design (Dunne and Raby (2013), Design Fiction (Bleecker 2009), and Experiential Futures (Candy 2010), to name a few. In the first section of this paper, CDF practises will be briefly introduced. In the second section, a concise explanation of "the Critical Catalyst" which is a set of design activities and tactics developed by the author to facilitate the process of triggering criticality in design futures practise and research, will be provided. The

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 367–376, 2024.
https://doi.org/10.1007/978-3-031-49811-4_35

Critical Catalyst follows the 10 Pillars framework that aims to work as a self-reflexive device and tool for designing and making the future. The third section focuses on the paper's main topic, critical forms of scenarios that aim to push design futures scenarios beyond their usual and conventional boundaries.

1.2 Critical Design Futures (CDF)

CDF describes a set of practises that are trying to operate outside the external borders of market-driven inquiry to question and redirect the actions we take today. They are meant to better handle the uncertainty of the future and look critically at the "otherwise" possibilities. The final aim is to enact constructive social change through design to mitigate the unfavourable consequences of the actions we take today by a) offering alternative visions of the future or b) showing the consequences and implications of today's design actions. c) democratising the visions of the future through participation and public inclusion.

Provocative critical actions are used in CDF practises to call the contingency of futures into question. They interrogate, question, and induce discussions about future issues through design. Criticality in this context aims to facilitate the induction of a discursive space. It indicates being critical, as in the etymologic meaning of "breakdown" or "dissect" of future challenges and issues.

CDF practises explore the borders of the issue to problematise it. It is more of a problem-finder or problem-maker rather than a problem solver. CDF does not refer to a linear and relaxed sequential process for a designer, but rather to a process of complex decisions, fuzzy actions, foggy roads, blurry destinations, and unexpected arrivals. The peculiar nature of CDF makes it very difficult to follow a defined path; its process is packed with uncertainty, indeterminacy, and philosophical enactments. The complexity of CDF has always raised questions about their methodological approaches, and many scholars have noted the importance of tackling this gap in the literature (Bardzell et al. 2012; Ferri et al. 2014; Ozkaramanli and Desmet 2016; Pierce 2021). To address this gap, the author introduced the Critical Catalyst as a non-prescriptive framework that can help design researchers and practitioners adopt a critical position in their projects.

2 The Critical Catalyst (CC)

The critical diegetic scenarios are the focus of this paper, but it is important to briefly introduce the critical catalyst before explaining them. The Critical Catalyst (CC); is a set of reflexive design activities, tactics, and devices developed by the researcher to fill the gap in the methodological approach of CDF. The CC serves as a catalyst for designers' reflections on future challenges and as an initiator of critical debates in design futures. The CC started as an outsourced lexicon of methods, approaches, concepts, and techniques excavated from the literature review as well as case study analysis and backed by the interviews. Then, the CC was refined through cycles of validation with expert interviewees and through observing and developing validation design experiments. The CC is a catalyst; it supports and facilitates rather than guides. It provides practitioners and researchers with tactics to problematise a future challenge and to look at the hidden and

intangible sides of it. The CC follows a structural framework that builds on Ollenburg (2019) participatory design futures model and Jonas (2007) Research through Design (generic design process), as well as the Voros Generic Futures Model (2005). The CC layers build on the findings and insights gleaned from all of these models combined. The model is set to have four macro layers: (A) analysis, (B) projection, (C) synthesis, and (D) communication and reflection (Fig. 1). The first three layers have a wide agreement in futures studies, while the fourth layer, "communication and reflection," is added since the author identified it as a fundamental factor in CDF practises (Fig. 1).

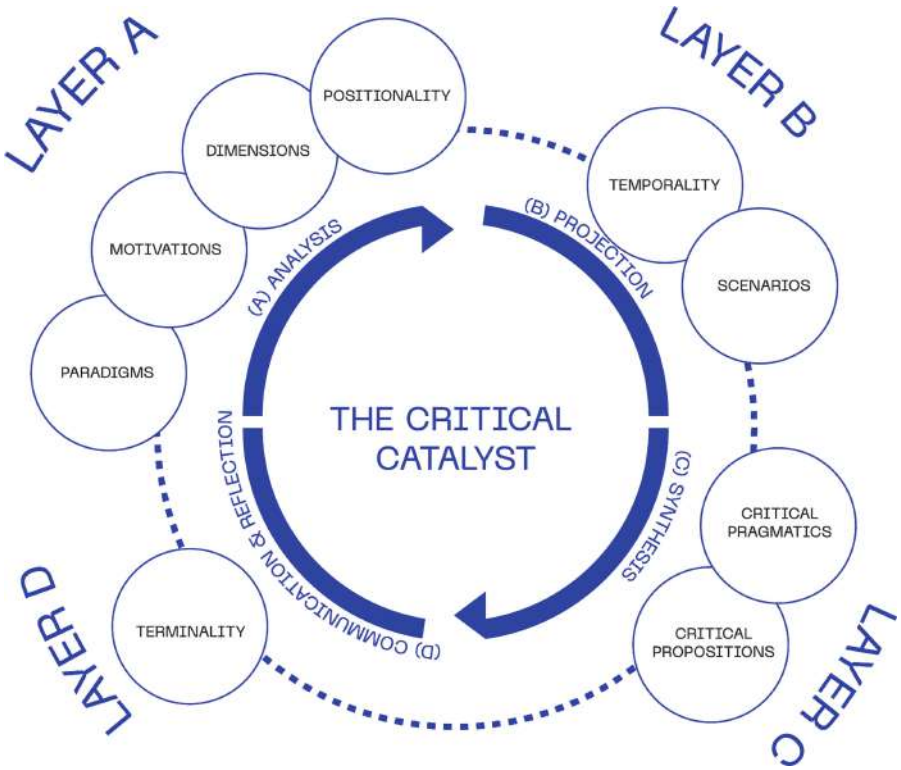

Fig. 1. The Critical Catalyst process model, by Author (2022)

3 Critical Diegetic Scenarios

3.1 Conventional vs Critical Design Scenarios

Before identifying the critical forms of design scenarios, it is important to make a distinction between conventional and unconventional scenarios.

On the one hand, conventional scenarios refer to scenarios as a tool to depict alternative futures (Dator 2018). Scenarios could be materialised as storytelling or reporting

(as in Futures Studies), yet they could also be design output, solutions, or mapping in design futures. The latter could be referred to as Design orienting Scenarios (DOS) introduced by Manzini and Jègou (2003). DOS provide a structure to design and realise new products and product service systems (Manzini et al. 2009). Design scenarios can 1) show alternative futures, their implications, and risks. 2) They tend to create a shared language or vision for many parties and actors to understand the focal issue, 3) have a focus on particular options, potentials, or possibilities, and 4) analyse contexts and products (Zindato 2016).

Evans (2010) puts three structural elements for design scenarios: a) Current worlds: Based on the information, data, and intelligence gathered during the scanning exercise. B) Plot or Story: depicts what made this scenario happen or arise. C) End state: what situations, circumstances, features, or properties prevail at the end stage of the scenario? D) Logics: what is the rationale of the plot or the events that caused a scenario to arise. What logically explains the plot.

These pillars would make up a traditional or typical progressional scenario that shows an alternative future or how a concept should be placed in the future.

On the other hand, the critical forms of design scenarios aim at subverting this view of scenarios. They comply with the function of CDF to provoke, debate, resist, twist, and trigger thoughtful insights. Critical forms of scenarios seek to call into question the sociocultural and technological contexts in which this product may be found. They do so by exposing the factors that motivated these changes to appear on the features of such futures-oriented products; although both types, the critical and the conventional, might, in some cases, seem utilitarian scenarios, they have different purposes, functions, and agendas. Tharp and Tharp (2019) note that discursive (critical) scenarios can be clearly distinguished by the intention and quality of the scenario to set a context for rhetoric. They allow "the designer to communicate substantive ideas through what might otherwise be thought of simply as a utilitarian or aesthetic object for the marketplace. (Tharp and Tharp 2019, p.18).

3.2 Features of Critical Diegetic Scenarios

Critical scenarios rely on fictional and narrative world-building since the aim is to examine how the world could be rather than how it is now (Dunne and Raby 2013). Dunne and Raby define this concept as a trip from the real world to a fictional one for the purposes of reflection, critique, and inspiration. Thus, the need to create a fictional world is fundamental to developing critical scenarios. Dunne and Raby argue that the core of the scenario is the ideological background behind it. The core value lies in identifying what drives a critical scenario and what values are being put under investigation in the end state of the scenario. Critical scenarios start a conversation about the complex relationship between the reality we live in now and make us wonder and think about it, as well as enjoy the unreality in critical forms of scenarios (Dunne and Raby 2013).

Scenarios are where the object of critical design is positioned and situated. They allow the user to have a context for understanding the future narrative that the designer wants to convey and discuss. Scenarios here are the world where all the elements can fit together in one narrative. The elements of criticality here are transversal elements that pass through all of the scenario elements and their supporting media, such as video,

images, or sketches. The narratives here are meant to ridicule and expose the flaws or errors in the topical issue under discussion (e.g., environmental impacts of design, such as climate change) (Malpass 2017).

In terms of world-building, it is critical to explain diegesis (from which the term "diegetic" scenarios is derived). Diegesis means story world, and the creation of diegesis leads to world-building, which is the context and setting where the CDF elements are positioned (for example, diegetic prototypes (Kirby 2010) refer to the objects that are situated in the diegesis with all the values of the new "built" world. This means that everything that lies within the diegesis (built world) is called "diegetic" and has the features of this world. A diegesis of the future should show the qualities of this future-oriented world, and through these features, critical designers could debate the implications and consequences of particular (present) issues.

From the premises put forth, it has to be clear that the features and qualities that differentiate conventional futures scenarios from critical diegetic scenarios are distant, contrasting, and do not share the same purpose and function. In this section, the gathered features of the critical diegetic scenarios are articulated and discussed. Five main features were identified for critical diegetic scenarios.

Plausibility: The concept of plausibility is often mentioned in futures studies and in design futures as well. Plausible means something that is not obviously untrue. Plausibility is what can suspend doubt about future-oriented scenarios. This happens through the creation of plausible prototypes that lie within a diegesis or story world (Coulton et al. 2016) and helps bridge the perceptual gap of the audience (Auger 2014).

Plausibility indicates the credibility and believability of a particular concept to the audience it should interact with. It also indicates the potentiality of being true. However, plausibility is a difficult issue because how a concept is perceived by each individual with a different cultural background, worldview, and experience is subjective.

Verisimilitude: In conjunction with plausibility, the second quality is verisimilitude, or the quality of being verisimilar. Verisimilitude in philosophy indicates "truth-likeness," which refers to propositions that appear truer than other propositions (Stanford Philosophy Encyclopaedia, 2001). In fiction, "verisimilitude" refers to the similarity and closeness to reality. The action represented should be convincing enough and close to the audience's knowledge and experience in order to be accepted. This has been used by fiction writers to suspend disbelief about improbable actions, events, or technologies within the borders of the narrative. James Auger (2013), in his influential paper about crafting speculation, argues that verisimilitude is an important quality where a designer can smartly adjust the borders of speculation so that it is not too far away from the "here and now" so that it turns out to be unbelievable and thus ineffective. Verisimilitude, according to Auger, is the ability to blur truths in order to suspend disbelief. This quality allows the audience to be the protagonist and experience the concepts being discussed in the CDF project since the audience's reaction and reflection are the actual product of CDF and not the project itself (Auger 2013).

Ambiguity: It means "a word or expression that can be understood in two or more possible ways: an ambiguous word or expression". It can also be a synonym for uncertainty. Ambiguity in CDF draws on the works of William Gaver from the early 2000s, who

identified how ambiguity creates a space for deeper interaction between the artefact, scenario and the user. Gaver et. al (2003) note that ambiguity can be "intriguing, mysterious, and delightful. "By compelling people to interpret situations for themselves, it encourages them to begin grappling conceptually with systems and their contexts, establishing deeper and more personal relationships with the meanings provided by those systems" (p. 1).

According to Gaver et al. (2003), ambiguity can allow designers to express their ideological point of view while allowing users from various socio-cultural backgrounds to interpret these ideologies or concepts through their own worldviews. Ambiguity is an attribute that gives a design the advantage of conveying more than one meaning, thus opening alternative interpretations for the users, which might, in turn, lead to an unexpected landing. Ambiguity is necessary to get people to use their imaginations and to get around the fact that familiarity with design and usefulness limits the user's ability to understand and think creatively (Malpass 2017).

Dissonance: Tharp and Tharp (2019) argue that the scenarios should be discordant with what the audience already knows, their experiences, and their sociocultural reality. This makes it different from conventional progressional scenarios, which tend to extrapolate on what is already known and what is expected to some extent. A critical and discursive scenario should challenge these sorts of future visions rather than embrace and affirm them. Dissonance sets the platform for the critical objects to be irrational and not normal, thus indicating that there is a different or alternative world to explore. It is a key aspect of conveying messages and balancing the discursiveness in a project. Dunne and Raby (2013) discuss that if the scenario is too consistent with reality, it will pass unnoticed, and if it is too dissonant, it will be ignored if misunderstood. This balance has to do with the audience and the message that is being conveyed, considering how to play it right.

Satire: Humour, playfulness, and irony are essential elements that can be seen in many CDF projects. Dunne and Raby (2013), Malpass (2017), and Tharp and Tharp (2019) identify satire in critical practises as a central aspect that works as constructive social criticism. A scenario or narrative being humorous is one of the central features in CDF, humour can be used to engage the audience in an active discourse. Satire diminishes an issue by taking it to a ridiculous state, aiming at evoking various attitudes from indignation to amusement, contempt, or scorn (Malpass 2017). It is used to criticise individuals, environments, systems, society, or the discipline itself, aiming to trigger actions for improvement. Since both CD and satire share the same corrective purpose, it is not merely about mocking or being sarcastic for no reason. Satire is a device that offers critique in an interesting and attractive manner that affords critical reflection.

3.3 Tactics for Critical Diegetic Scenarios

Besides the features, the researcher identifies three important tactics for critical diegetic scenarios that are used in CDF. These are thought experiments, logical fallacies, and counterfactuals and hypotheticals.

Thought experiments are used in CDF to interrogate future visions and critically dissect a hypothesis or logically examine the implications and consequences of particular views about the future that come from the extrapolation of the status quo. Thought experiments are meant to provoke intellectual discussion, review logical consequences, and interrogate common understandings or widely agreed-upon concepts. They could test concepts, refute theories, and challenge the borders of particular issues. These qualities are particularly relevant to CDF's purpose and function. Dunne and Raby (2013) use thought experiments to step out of reality to be able to think about complex issues. They move away from solid narratives and toward "thought experiments," which are a collection of constructed ideas designed to investigate specific issues or hypotheses. Thought experiments are interdisciplinary; they expand to overlap with other scientific fields, such as biology, cognitive science, and mathematics, other than philosophy. They are, in particular, important in philosophy as they tend to trigger topical issues in meta-philosophy, including the nature of imagination and the role of intuition in human cognition (Stuart et al. 2017).

The second tactic is logical fallacies, which is a close form of thought experiment. A logical fallacy is meant to show an absurd logical argument that usually leads to unexpected output. Fallacies are typically reasoning errors, a disruptive mental and logical line of thought that may lead to an irrational path of logical consequences. The fallacy usually takes the form of an argument. There are other types, but this is the type that CDF could be interested in. Originally debated by Aristotle, the definition of fallacy is very challenging, and it is difficult to find a concrete description for it, yet a logical fallacy could refer to:

"*to (a) a kind of error in an argument, (b) a kind of error in reasoning (including arguments, definitions, explanations, and so forth), (c) a false belief, or (d) the cause of any of the previous errors, including what are normally referred to as "rhetorical techniques."* (Stanford Encyclopaedia of Philosophy, n.d.)

Counterfactuals and hypotheticals are the third form that critical diegetic scenarios could take:

The term "counterfactual" refers to events or world states that did not occur. Yet, they are constructed with factual knowledge of the current world either implicitly or explicitly (Kulakova et al. 2013). It simply means changing a historical fact that already happened to see what the current state of the world could be if different circumstances happened. Counterfactuals can support explaining causal relations (Woodward 2004) or delivering logical arguments. (Kulakova et al. 2013). A counterfactual is travelling back in time to imagine a change in what actually happened (Gerstenberg 2022). It is also a good way to create an alternative present so that the audience can know how we reached this alternative now (Dunne and Raby 2013).

On the other hand, Hypotheticals activate the suppositional component. A good example of it is the "What if?" question. A what-if question departs from the present to hypothetically imagine an alternative future state. Although both counterfactuals and hypotheticals are concerned with possibilities, the main difference is whether the change to reality or actuality happens or is imagined occurring (Gerstenberg 2022). Counterfactuals are about imagining a past event in a different way than facts or reality, whereas

hypotheticals are about imagining possible futures, and one doesn't need to travel back in time to consider past events and different states of the world.

Either counterfactual or hypothetical events are used in CDF scenarios so that a designer can create a parallel reflection on a past event, imagining how it could lead to an alternative present, or to depart from the "now" and show the implications and consequences of particular events that are happening or have already happened in the present.

4 Conclusion

The paper discusses the critical forms of design futures scenarios; it explains the notion of critical design futures as an umbrella concept for the critical design practises that are concerned with the future. The paper briefly discusses the critical catalyst, which is a device that facilitates the process of developing a CDF project in which the critical diegetic scenarios are situated. The paper discusses five features of critical diegetic scenarios and three tactics that could be used to develop them.

It is paramount to highlight that the features and tactics described in this paper are meant to be suggestive elements for designers or design researchers who wish to create a CDF scenario, they are not prescriptive, and they are not meant to be used all in one scenario. A designer or design researcher should instrument their usage and tactically select suitable features according to the purpose of the project. A provocative CDF project is different from an inspirational one. One project might need to use harsh satire to provoke the audience, and another project might require the use of plausibility and verisimilitude to make people believe in an encouraging future vision. It is also important to note that the critical diegetic scenarios are part of the whole framework of the critical catalyst so that they function in combination with the project paradigms, project motivations, and designers' positions, as well as ways to disseminate and communicate these scenarios.

From a critical point of view, the features and tactics discussed in this paper are tools and means to provoke the audience towards positive actions aiming to enact social change. They are also tools that design researchers can use to think critically about their research, look into and propose different futures, and see the hidden goals of social, political, or economic systems behind design.

However, if CDF are used as means to produce visually interesting concepts or to be used for marketing purposes, in this case they would be deviating from their main purpose and functions, as Coulton and Lindley (2017) describe them as "vapourworlds" since they show visually entertaining artefacts yet are shallow in terms of content or core values in an artificial world with technologies that will never be realized. It has to be clearly highlighted that CDF proposals are about being sincere and transparent in exposing the issues incorporated in the systems where they operate.

The scenarios presented in this paper should take into account topics such as decolonization, equality, inclusion, and more than humans in order to achieve more sustainable futures and be resilient in the face of upcoming challenges. Humanity's future should be viewed through a critical lens, reflecting on current events and how they may affect our futures. This is the ultimate goal of critical diegetic scenarios and CDF. It is worth

noting that this is ongoing research that still requires several rounds of testing, validation, and experimentation, but it serves as a preliminary platform for defining critical design futures practises in design research and education.

.

References

Margolin, V.: Design, the future and the human spirit. Des. Issues **23**(3), 4–15 (2007). https://doi.org/10.1162/desi.2007.23.3.4

Fry, T., Nocek, A.: Design in crisis: new worlds, Philosophies and practices. Routledge, Taylor and Francis Group New York, NY (2021)

Dunne, A., Raby, F.: Speculative everything: Design, fiction, and social dreaming. Speculative Everything: Design, Fiction, and Social Dreaming, 1–224 (2013). https://doi.org/10.1093/jdh/epv001

Bleecker, J.: Design fiction: a short essay on design, science, fact and fiction. Near Future Laboratory, March, 49 (2009)

Candy, S.: Beyond utopia and dystopia. The futures of everyday life: politics and the design of experiential scenarios, 22–60, July 2010. https://doi.org/10.13140/RG.2.1.1840.0248

Bardzell, S., Bardzell, J., Forlizzi, J., Zimmerman, J., Antanitis, J.: Critical design and critical theory: The challenge of designing for provocation. In: Proceedings of the Designing Interactive Systems Conference, DIS 2012, June, 288–297, June 2012. https://doi.org/10.1145/2317956.2318001

Ferri, G., Bardzell, J., Bardzell, S., Louraine, S.: Analyzing critical designs: categories, distinctions, and canons of exemplars. In: Proceedings of the Conference on Designing Interactive Systems: Processes, Practices, Methods, and Techniques, DIS, pp. 355–364 (2014). https://doi.org/10.1145/2598510.2598588

Ozkaramanli, D., Desmet, P.M.A.: Provocative design for unprovocative designers: Strategies for triggering personal dilemmas. DRS2016: Future-Focused Thinking **5**, 1–16 (2016). https://doi.org/10.21606/drs.2016.165

Pierce, J.: In tension with progression: grasping the frictional tendencies of speculative, critical, and other alternative designs. In: Conference on Human Factors in Computing Systems. Proceedings (2021). https://doi.org/10.1145/3411764.3445406

Ollenburg, S.: A futures-design-process model for participatory futures. J. Future Stud. **23**, 3–14 (2019). https://doi.org/10.6531/JFS.201906

Jonas, W.: Research through DESIGN through research: a cybernetic model of designing design foundations. Kybernetes **36**(9–10), 1362–1380 (2007). https://doi.org/10.1108/03684920710827355

Dator, J.: Introduction to jim dator: a noticer in time. selected work, 1967–2018. In: Anticipation Science, vol. 5 (2019)

Manzini, E., Jégou, F.: Sustainable everyday: scenarios of everyday life (2003)

Manzini, E., Jégou, F., Meroni, A.: Design for sustainability (2009)

Zindato, D.: Design scenarios approaches and tools for building the future within design processes. Politecnico di Milano (2016). https://doi.org/10.2752/146069204789355209

Evans, M.: Design Futures: An investigation into the role of futures thinking in design. PQDT-UK & Ireland, August, 340 (2010)

Tharp, B.M., Tharp, S. M.: Discursive design : critical, speculative and alternative things. The MIT Press (2019)

Malpass, M.: Critical design in context: history, theory, and practices, 132 (2017)

Kirby, D.: The future is now: Diegetic prototypes and the role of popular films in generating real-world technological development. Soc. Stud. Sci. **40**(1), 41–70 (2010). https://doi.org/10.1177/0306312709338325

Coulton, P., Lindley, J., Akmal, H.A.: Design fiction: does the search for plausibility lead to deception? DRS2016: Future-Focused Thinking, 1(June) (2016). https://doi.org/10.21606/drs.2016.148

Auger, J.: How heart attacks could be a thing of the past, January 2014

Stanford Philosophy Encyclopaedia (2001)

Auger, J.: Speculative design: crafting the speculation. Digital Creativity **24**(1), 11–35 (2013). https://doi.org/10.1080/14626268.2013.767276

Gaver, W.W., Beaver, J., Benford, S.: Ambiguity as a resource for design. In: Conference on human factors in computing systems. Proceedings, September 2003, pp. 233–240 (2013). https://doi.org/10.1145/642611.642653

Stuart, M.T., Fehige, Y., Brown, J.R.: Thought experiments: state of the art. The Routledge Companion to Thought Experiments, Location, pp. 1–28 (2017)

Kulakova, E., Aichhorn, M., Schurz, M., Kronbichler, M., Perner, J.: Processing counterfactual and hypothetical conditionals: an fMRI investigation. Neuroimage **72**, 265–271 (2013). https://doi.org/10.1016/j.neuroimage.2013.01.060

Woodward, J.: Counterfactuals and causal explanation. Int. Stud. Philos. Sci. **18**(1), 41–72 (2004). https://doi.org/10.1080/0269859042331289251

Gerstenberg, T.: What would have happened? Counterfactuals, hypotheticals, and causal judgments. PsyArXiv (2022)

Coulton, P., Lindley, J.: Vapourworlds and design fiction: the role of intentionality. Des. J. **20**(sup1), S4632–S4642 (2017). https://doi.org/10.1080/14606925.2017.1352960

How Do Design Narratives Play a Role in Cognitive and Social Processes? An Explorative-Systematizing Expert Interview

Yasuyuki Hayama(✉) and Francesco Zurlo

Department of Design, Politecnico Di Milano, Via Durando 10, 20158 Milan, Italy
{yasuyuki.hayama,francesco.zurlo}@polimi.it

Abstract. Narratives have increasingly come to the forefront of both design and innovation management. As a fundamental scheme of the human cognitive process and mode of communication, the role of narratives has been emphasized in relation to design and innovation processes. Although recent contributions have explored some characteristics of narratives and storytelling in both design and innovation, the literature remains lacking in understanding how narratives by design can affect innovation processes. Drawing from the creative process literature and narratives in design and innovation studies, this study analyzes how design experts employ design narratives at both the personal-cognitive and social-collaborative levels of creative process. The study aimed at building a basic analytical construction of the roles of design narratives in creative processes. Through an explorative and qualitative study, the authors explore the roles of design narratives through the lens of the collective knowledge of 17 design experts. Data collection was conducted using an explorative-systematizing expert interview, supplemented by secondary data, such as existing interview data and archival data, in the three design foundations in Italy. As a result, three aggregated personal-cognitive themes were identified: taking original perspectives as frame tales, weaving problem and solution pairs, and making storyworlds and senses. On the social-collaborative level, three themes emerged: orchestrating idea recombination, an imaginary and aesthetic manner of tension and conflict management, and contextualizing and generating narrativity. This study contributes to the design and innovation literature in terms of narratives by exploring and constructing basic themes regarding the role of design narratives in creative processes.

Keywords: Design Narratives · Innovation Narratives · Creative Process · Personal-Cognitive Process · Social-Collaborative Process · Storytelling

1 Introduction

1.1 Narratives by Design in the Creative Innovation Process

Narratives are increasingly at the forefront of both design and innovation management. As a fundamental scheme of human cognitive processes [18] and a mode of communication [9], the role of narrative has been emphasized in relation to design and innovation

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 377–387, 2024.
https://doi.org/10.1007/978-3-031-49811-4_36

processes [2, 16, 17, 21]. Whereas recent contributions have explored some characteristics of narratives and storytelling in both design and innovation, the literature remains lacking in understanding how narratives by design can play roles and affect innovation processes [14, 21]. This study aimed to explore a basic understanding of the fundamental role of narratives by design in the creative innovation process.

1.2 Theoretical Background

A theoretical lens for coding was set to analyze the data. We consulted traditional creative process literature to focus on the general roles of design narratives during the creative innovation process. Drazin et al. (1999) classify creative processes on three levels: intra-subjective, inter-subjective, and collective. The intra-subjective level is considered the individual level, characterized by internal cognitive processes. The inter-subjective level, regarded as the level between two or more individuals, represents the social-collaborative processes. The collective level represents the development of change across inter-subjective levels [7]. This study focuses on the inter- and intra-subjective levels. Hence, the individual-cognitive processes and social-collaborative processes are the focal points of creative processes.

2 Methodology

This study followed an explorative expert interview approach, which allows researchers to quickly obtain good results when the research area remains deeply unexplored [3]. Expert knowledge is characterized by the opportunity "to become hegemonial in a certain organizational and functional context within a field of practice." [3] Focusing on experienced designers' knowledge in this research context, the traits of narrative use in creative innovation processes can be explored as commonly shared knowledge.

The applied approach is a combination of an explorative interview and a systematizing interview: the explorative-systematizing interview [6]. This method has the advantage of both approaches. First, as an explorative tool, irrespective of whether the study area is substantively new or poorly defined, it helps the researcher develop a clearer idea of the research issues and essential concepts and generate a hypothesis, leveraging expert knowledge as "analytic construction." Second, the systematizing interview supports researchers in applying this method as data triangulation for research activities, including qualitative and quantitative aspects [3, 6].

Meanwhile, some complementary documents were introduced as secondary data such as existing interview results and archival documents. Representing the intellectual heritage of Italian design history, expert interviews with three Italian historical designers' foundations were conducted to enrich the collected data.

2.1 Data Collection

Data were collected from 17 expert interviews. Interviewees were design practitioners who worked in cutting-edge design practices in the fields of communication design, product design, interior design, architecture, strategic design, and service and UX design,

as well as the representatives of three foundations. The foundations are well-established Italian design heritage foundations of the modern and post-modern era, namely: the Franco Albini Foundation, the Achille Castiglioni Foundation and the Vico Magistretti Foundation. The success of any research project based on expert interviews depends on the number of interviews conducted and the quality of the experts interviewed. Glaser and Strauss (1967) recommended a minimum of ten interviews to adequately analyze the patterns and differences across subjects [13]. We conducted interviews based on the recommendation above. The detailed data collection settings are shown in Table 1.

Table 1. Detailed data collection settings.

Items	Settings
Goal	To explore thematic units of design narratives roles To generate hypothesis and sociological conceptualization
Premise	Interpretative paradigm [20] Social constructivism Expert knowledge as "analytic-construction": technical /process /interpretative knowledge [3]
Interview techniques	Semi-structured interview The basis of the interview was an interview guideline
Interview type	Interviewer as "co-expert"
Number of interviewees	17
Interviewee types	Design practitioners who have at least 15 years of experience The selections were made according to the fields of design problems [5] They are 2 in Communication, 7 in Industrial, 2 in Interaction, 3 in Environmental, and 3 in representatives of Italian historical designers' foundations who are intimately knowledgeable of the historical designers' work and processes very well

2.2 Data Analysis and Synthesis

After data collection, the results were converted into transcripts. Thereafter, we used a two-cycle approach to conduct the coding process [19], based on an interpretative paradigm [20]. According to Gephart Jr. (2004), the aim of an interpretative approach should not be to "discover truth" but to understand the meanings and concepts used by social actors in their real-life settings in order to see how different meanings are retained by different persons or groups [12]. Based on the theoretical coding method, the first cycle was conducted according to the theoretical background of the inter- and intra-subjective levels [7]. In the second cycle, we applied holistic coding, an exploratory coding method, to capture a sense of the overall content and possible categories that may be developed.

The analysis included progressive clustering of the first-order categories into second-order themes [11]. This analysis was partially informed by the theoretical background that helped identify the narrative roles design practitioners experience when performing creative tasks. The second-order themes were subsequently aggregated into high-level dimensions of individual-cognitive and social-collaborative levels.

3 Results

Analyzing the interviews on the design narratives used during the creative process helped in recognizing the roles on the personal-cognitive and social-collaborative levels. The analysis led to the classification of three aggregated themes in the personal-cognitive and social-collaborative aspects (Fig. 1 and Fig. 2).

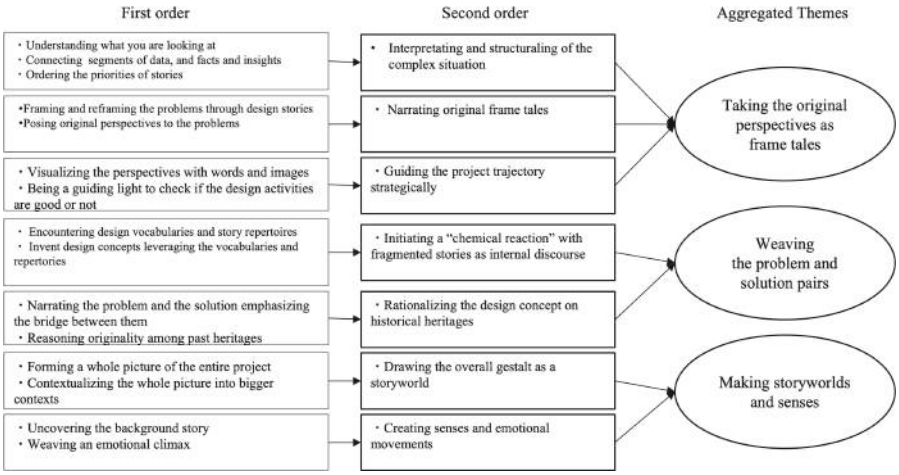

Fig. 1. Coding Tree of Roles of Design Narratives at the Personal-Cognitive Level

3.1 Personal-Cognitive Dimension: Intra-subjective Level

The following three aggregated themes emerged on the personal-cognitive level of creative process: 1) Taking original perspectives as frame tales, 2) Weaving problem and solution pairs, and 3) Making storyworlds and senses (Fig. 1).

Taking Original Perspectives as Frame Tales

The first aggregated theme across interviews can be described as *"Taking original perspectives as frame tales."* During the interviews, experts revealed that connecting fragmented events and dots, and structuring and ordering the priority of the stories, especially at the initial problem understanding phase, is important. The results revealed that starting from posing fragmented event stories – *provisional narratives* – and connecting them into more structural stories helped in understanding the "ill-defined problem."

MacroB, a service and UX designer stated clearly the roles of narratives:

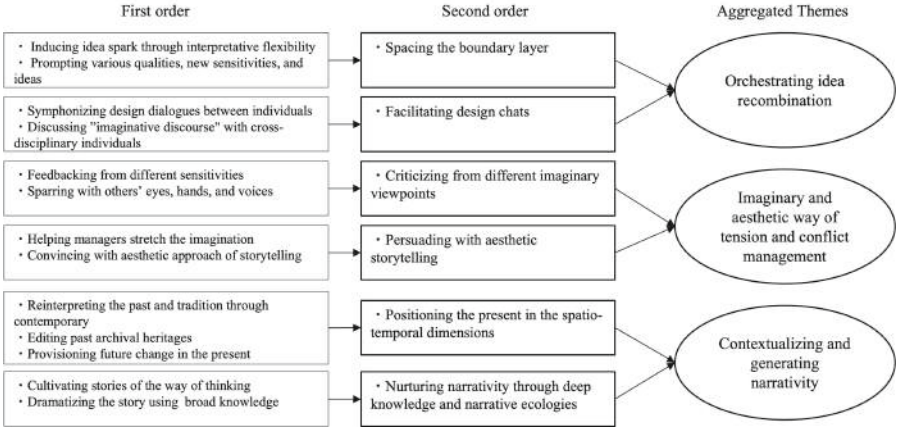

Fig. 2. Coding Tree of Roles of Design Narratives at Social-Collaborative Level

"The first thing that you need to do is to understand what you are looking at. When you have understood that, you can start to say, Okay, what is the story about that? Thereafter, you can look at data, such as understanding trends, categories, and groupings of things. This is the process, and at the end what you have is a story." - MacroB

After understanding the complex situation, the results indicated that designers tend to develop original perspectives by weaving frame tales to capture the problems and reframe them. The interviewees emphasized that this process usually relied on both words and images to make visual stories. Consequently, a constructed frame tale with visual and verbal elements can function as a "guiding light" for the entire project's trajectory.

The comments by MicheleB, a creative director, and NicolòB, a strategic and brand designer, resonated to highlight these specific aspects of narrative roles:

"We who are the storytellers, we are communicators. By asking questions continuously to our client, we investigate needs that may be broader. Therefore, ask: What are the scenarios that are foreshadowed in the future? What are the brands that they look at with more attention? A series of questions that allow us to build our own vision of the brief."- MicheleB

"The storytelling that you are creating is linked much more with the positioning, through giving your own viewpoint. It is crucial to have a precise and strong story, which consists of images and keywords." – NicolòB

"Story is important as a guiding light and the parameter to check if your work is correct or not."- NicolòB

PaolaA, who is the vice chairman of the Franco Albini foundation, clearly emphasized the role of perspective-taking as the designer's own essence in tackling specific projects.

> *"Every designer must find their OWN essence. The essences should clearly show what you propose. Throughout all the "operas" that Franco Albini produced in his life, you can always recognize coherence in his 22,000 drawings in the field of human urban planning, architecture, and design. Every "opera" mirrored himself."- PaolaA*

Weaving the Problem and Solution Pairs

The second theme that emerged from the analysis was *"Weaving the problem and solution pairs."* Starting from encountering surprising connections between design vocabularies and story repertoires, the interviewees asserted that designers tended to develop a new design concept, narrated as a problem and solution pair. The following episode of Italian design maestro, Vico Magistretti's Eclisse, represents the role of the designer's story repertoires in his brain and cognitive process:

> *"In Piazza Conciliazione in Milan, after a business meeting," Magistretti recalled, "I was told that everyone has a bed. I thought well to design a night lamp. In the subway, I drew behind the ticket a memory of Victor Hugo's Les Miserables; the thieves' lamp with adjustable light beam. I phoned Ernesto Gismondi and described to him the hypothesis of three hemispheres on a pivot, different from Hugo's Jean Valjean lamp, but useful for reading in bed."*- [15]

Magistretti, who was tasked with designing a bedside lamp by Ernesto Gismondi, co-founder of Artemide with Sergio Mazza, thought the crux of the problem was to invent one that would allow for strong or dim light, depending on one's needs, which vary greatly in the bedroom. Thereafter, he suddenly came up with the idea of Eclisse, inspired by his memories of the thieves' lamp in Victor Hugo's Les Miserables.

The importance of weaving the problem and solution pairs and the role of story repertoires was also emphasized during the interview with GiovannaC, the director of the Achille Castiglioni Foundation:

> *"If you see Achille's design process, it is very complicated. It is like chemistry, if we can use a metaphor. A chemistry which has different aspects behind it. There is irony, functionality, a reaction between the client and the user. There is a funny name. There is something hidden. Therefore, there is a good mix of stories behind the chemistry. Achille Castiglioni tried to collect anonymous objects to stock his vocabulary or design languages and episodes to make a "chemical reaction" in his brain."- GiovannaC*

Making Storyworlds and Senses

The third theme that emerged across the interviews was *"Making storyworlds and making senses."* The results showed that design narratives play an essential role in making

sense, hence the emotional movements when articulating the created design concepts to individuals.

The design concept tends to be communicated as a form of narrative composed of the entire picture. This narrative form of communicating the design concept is carefully contextualized withing larger contexts, such as the company's innovation purpose and the larger socio-technical landscape. Through the narrative form, a concept also triggers emotional reactions, such as surprise, resulting in an emotional climax in the users.

A series of comments by MicheleB provides an essential sphere of the narrative role to create a narrative storyworld:

> *"Narrative by design is a form of narration that allows us to create an aura, or a world, around our project and to connect it with those who will use the project. First, it is a form of explanation, contextualization, but also a form of involvement of the target we are going to speak to. It is also a way to tell the story of the current project we are busy with and the company we work for."- MicheleB*

GiovannaC recalled the works of Achille and emphasized the roles of creating an emotional reaction and surprise for designers:

> *"…yes, let us say communicating the function and meaning behind the product to the users. Reaction and surprise, I think, are a few keywords for Achille. It is important today for designers to solve a problem and also surprise you not because the shape is nice. The designer has to surprise individuals because they solve a problem and individuals say, oh! it works!"- GiovannaC*

3.2 Social-Collaborative Dimension: Inter-subjective Level

In the social-collaborative dimension, three aggregated themes were elicited by inductive reasoning from the interview scripts: orchestrating idea recombination, an imaginary and aesthetic manner of tension and conflict management, and contextualizing and generating narrativity (Fig. 2).

Orchestrating Idea Recombination

The first role of design narratives, which may be one of the most significant roles as stated by several design experts, can be summarized as *"Orchestrating idea recombination."* In the social-collaborative mode, narratives can be conducted to connect various small stories, attract and repel generated ideas, and blend critical perspectives among the different players in a design project. In this sense, the narrative itself has strong *"gravity"* and simultaneously a specific *"margin"* or *"boundary layer"* to allow for individual interpretation and a sense of their own viewpoint. A good design narrative can create "*narrative groove"* for designing.

In the article by ABITARE, presenting an exhibition by the Vico Magistretti Foundation, the importance of "dialogue" orchestrated by Vico was stressed as follows:

> *"The lack of executive drawings by the studio made the prototyping stage even more important, during which "dialogue" between two or more individuals working on the design process, carefully orchestrated by Magistretti, played a fundamental role."*- [1]

Thereafter, the importance of margin in a story to be interpreted differently is metaphorically stated by MatteoH, the product design leader at an Italian manufacturer.

> *"Mistaken innovations can be made through the margin of misinterpretation of a story. In fluid mechanics, it is the 'boundary layer.' There are also boundary layers between cultures. Cultures are created full of width, where the system of diet and lifestyle is not clearly partitioned. Cultures are created through friction. This is where various qualities, new sensibilities, and ideas are born."- MatteoH.*

Imaginary and Aesthetic Manner of Tension and Conflict Management

The second synthesized theme is described as an *"Imaginary and aesthetic manner of tension and conflict management."* Very often ideas and thoughts are not the same among different project members, even between the client and the design professionals. Narratives by design tend to facilitate negotiation and coordination among different viewpoints through their own imaginary and aesthetic manners of harmonization and communication.

SimoneI, a product designer, emphasized the importance of discourse across different eyes, voices, and hands:

> *"During the design process, many individuals from the company were involved. Thus, there were many eyes, voices, and hands on it, and all together we could understand whether something was a good product or not. It was not just an evaluation by the designer but something that they have to evaluate all together."- SimoneI.*

LuisaC, a design and creative director, explained the original characteristics of a designer's way of harmonizing the conflict between different opinions among individuals:

> *"Like any other design or architectural firm, we have our own style or designer's grammar. We try to convey our style in the client's project. It is like putting your own glasses [on] to read the client's narrative. In this way, it is like an aesthetic approach of storytelling rather than the scientific or rational approach of communication. To reach the right result, you have to deeply understand the client's values and the DNA."- LuisaC*

Contextualizing and Generating Narrativity

The third theme can be described as *"Contextualizing and generating narrativity."* Across interviews, different expert views resonated, emphasizing that strong design concepts should be based on broader contexts, such as the company or industry's history as tradition and modernity. Design narratives act to link the design concept to a specific *spazio-temporal context.* Thereafter, rooted in well-woven *narrative ecologies* in the spazio-temporal dimension, *narrativity* surrounding the design concept is generated.

Vico and Cesare, the founder of Cassina, emphasize the importance of contextualizing the design concept into a spazio-temporal dimension:

"Although from two different perspectives, Vico and Cesare shared a vision of the relationship between modernity and tradition, which they each applied to their approach to design. For Magistretti, creating something new meant maintaining a bond with history, as he had been taught by his teacher Ernesto N. Rogers, an intellectual and architect at the Studio BBPR: 'Being modern means being a link, with one eye on the future, and the other on the past'." - [10]

Thereafter, CarlaC, a product and interior designer, distinguished the technical tools of storytelling and the deeply rooted design narratives behind the object, emphasized their traits to enhance meaningful and emotional value at the narrative level of experiences containing narrativity:

"Like Andrea Branzi says that design is not the story of a product, but the story of a way of thinking. Furthermore, the narrative is different from a design tool of storytelling. It is the story of something behind the object. (…). For example, naming the product is the starting point of "narrazione." A product named after a musician, politician, cultural figure, or an individual who has achieved something in history is sufficient to expand the product's image. They provide names to things even from Greek mythology. In this sense, a designer is like a 'poet'." - CarlaC.

4 Discussion and conclusion

This study presents an initial investigation on the knowledge of certain essential roles of design narratives at the personal-cognitive and social-collaborative levels of the creative process. The analysis of expert knowledge as "analytic construction" allowed for the building of a knowledge structure foundation comprised of three aggregated themes for each level of the creative process.

Moreover, some of these findings complement and develop a step ahead of the extant literature of narratives in design and innovation management. In relation to the innovation process, this study complements the argument of innovation narratives proposed by Bartel and Garud (2009) from a design point of view; namely, that design narratives can offer powerful mechanisms to facilitate innovation through coordinating efforts among many actors. The findings related to designers' roles and capabilities on both inter- and intra-subjective levels overlap and complement the extant arguments, including the designer as "hub-narrator" and "design narrator" [16, 21], leveraging a "semantic heritage" and "repertoire of stories" [8, 21]. Regarding design artifacts produced as outcomes, the findings echo the argument of the narrative level of experiences such as "design brings stories to life" [4].

However, there are some limitations to this study. First, the findings are still on an initial foundational level regarding the issues, as this study relied only on expert knowledge. Hence, the findings must be examined through further empirical research, such as case studies, to be further verified and generalized. Second, the interviewees were selected from experts who have been working in Italian design contexts. Therefore, expert knowledge should be compared with those in other countries or contexts to better generalize the findings.

Future research should broadly be undertaken in several avenues. The first avenue is further empirical research regarding the role of design narratives in design and innovation processes. Real-time process data, such as designer discourse, can unveil deeper knowledge of how design narratives perform in design innovation processes. Second, theoretical consideration among narrative studies, design studies, and innovation management can open interdisciplinary research avenues, leveraging enormous academic knowledge as heritage in narrative studies given that it has decades of history. Third, broadening the themes related to design narratives can take researchers to new research path frontiers. One example is the more-than-human related themes that are gaining considerable interest in design and narrative studies.

Acknowledgement. The authors would like to thank all the experts for their participation in the interviews.

References

1. ABITARE, Vico Magistretti: Thinking with hands. https://www.abitare.it/en/design-en/2012/04/27/vico-magistretti-2/. Accessed 28 Sept 2022
2. Bartel, C.A., Garud, R.: The role of narratives in sustaining organizational innovation. Organ. Sci. **20**(1), 107–117 (2009)
3. Bogner, A., Littig, B., Menz, W. (eds.): Interviewing experts. Palgrave Macmillan UK, London (2009). https://doi.org/10.1057/9780230244276
4. Breitenberg, M.: Designing innovation. Temes de Disseny **23**, 110–119 (2006)
5. Buchanan, R.: Worlds in the making: Design, management, and the reform of organizational culture. She Ji: J. Design, Econ. Innov. **1**(1), 5–21 (2015)
6. Christmann, G.B.: Expert interviews on the telephone: a difficult undertaking. In: Bogner, A., Littig, B., Menz, W. (Eds.) Interviewing Experts. Springer. 157–183 (2009). https://doi.org/10.1057/9780230244276_8
7. Drazin, R., Glynn, M.A., Kazanjian, R.K.: Multilevel theorizing about creativity in organizations: a sensemaking perspective. Acad. Manag. Rev. **24**(2), 286–307 (1999)
8. Erickson, T.: Design as storytelling. Interactions **3**(4), 30–35 (1996)
9. Fisher, W.R.: Human Communication as Narration. University of South Carolina Press, South Carolina (1987)
10. Fondazione La Triennale di Milano, Vico Magistretti and Cesare Cassina as a figure of the essential relationship between designer and manufacturer. https://triennale.org/en/magazine/vico-and-cesare. Accessed 28 Sept 2022
11. Gioia, D.A., Corley, K.G., Hamilton, A.L.: Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology. Organ. Res. Methods **16**(1), 15–31 (2013). https://doi.org/10.1177/1094428112452151
12. Gephart, Jr, Robert, P.: Qualitative research and the academy of management journal. Acad. Manage. J. **47**(4), 454–462 (2004)
13. Glaser, B., Strauss, A.: The Discovery of Grounded Theory: Strategies for Qualitative Research. Sociology Press, Mill Valley, CA (1967)
14. Hayama, Y., Zurlo, F., Cautela, C., Melazzini, M.: Narrative in design and business: a literature review and research agenda for the future. In The 28th Innovation and Product Development Management Conference, pp. 1–20 (2021)
15. Il POST, Eclisse, il progetto più famoso di Vico Magistretti. https://www.ilpost.it/2020/10/06/eclisse-vico-magistretti/. Accessed 28 Sept 2022

16. Lloyd, P.: Storytelling and the development of discourse in the engineering design process. Des. Stud. **21**(4), 357–373 (2000)
17. Lloyd, P., Oak, A.: Cracking open co-creation: Categories, stories, and value tension in a collaborative design process. Des. Stud. **57**, 93–111 (2018)
18. Polkinghorne, D. E.: Narrative Knowing and The Human Sciences. Suny Press (1988)
19. Saldaña, J.: The Coding Manual for Qualitative Researchers. SAGE (2013)
20. Wilson, T.P.: Normative and Interpretive Paradigms in Sociology*. In: Douglas, J.D., Douglas Jack, D. (eds.) Everyday Life: Reconstruction of Social Knowledge, pp. 57–79. Routledge (2017). https://doi.org/10.4324/9781351327329-3
21. Zurlo, F., Cautela, C.: Design strategies in different narrative frames. Des. Issues **30**(1), 19–35 (2014)

Human-AI System Co-creativity to Build Interactive Digital Narratives

Anca Serbanescu(✉)

School of Design, Politecnico Di Milano, Milan, Italy
anca.serbanescu@polimi.it

Abstract. The interactive digital narrative (IDN) is an interdisciplinary field connected to narrative studies, design, human-computer interaction, and gaming. In this contribution, IDN is investigated from the designer's perspective; it deals with the use of prolific artificial intelligence (AI) support systems in this area, highlighting the need to examine their potential. However, the features and essential components of the AI support system are not systematically categorised. This paper fills the aforementioned gap by providing a literature review of twenty academic contributions that make it possible to identify the types and categories of AI support systems, narrative elements, and types of creativity. The study is conducted keeping at the centre the relationship of collaboration between the human and the AI system concerning the production of narratives. As the main contribution to knowledge, the literature review identifies the problems and the gaps and underlines future research directions.

Keywords: Interactive digital narratives · AI support systems · Co-creativity · interaction design

1 Introduction

Collaboration among people significantly affects creativity; from a Vygotskian perspective, working in a group can increase one's repertoire of cognitive and emotional expression and chances of coming up with original ideas [7]. Creativity is more likely to be achieved if the collaborators have complementary skills [5]. The mechanisms developed during collaboration can significantly influence the final product's creativity [10]. However, asynchronous forms of contact are occasionally used, and participants may feel hesitant to voice their opinions or as though their ideas are less valuable than others; AI-supported collaboration can aid in breaking through some creative barriers [4]. Computational creativity in the form of a collaborative system can be linked to the idea of creativity, but a human component made up of social, ethnographic, and personal knowledge is still required. Collaboration between a human and an AI system can lead to co-creation when the system and the human act on each other's responses in the pursuit of creativity [25].

Co-creation is the founding argument of this contribution, which inserts in the context of Interactive Digital Narratives (IDNs), considered not only an area of investigation but

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 388–398, 2024.
https://doi.org/10.1007/978-3-031-49811-4_37

also a user experience and an artefact resulting from a creative process between humans and AIs. Designers who approach AI support systems to use them for creative purposes need to understand their functionality, characteristics, and potential or access tools that allow them to classify these AIs proliferating chaotically. The IDN context is highly interdisciplinary and complex. Despite having been involved in producing IDNs for about 30 years [35, p. 525], research in this area needs to be revised. Since AI has taken hold in recent years with an increasingly efficient computing power breakthrough thanks to new neural network systems capable of working with multiple algorithms simultaneously on multiple levels, the amount of AI support tools has increased. However, a taxonomy is missing, allowing an order between these emerging and spreading tools. So, the designer looks for examples of AI systems that creatively support them in designing IDNs experiences, trying to earn time and exploit their computing power. This study aims to clarify the research area of *AI support systems* to discover the essential components to creatively design IDNs.

2 AI Support Systems and Interactive Digital Narratives

There is now a dearth of understanding and awareness among the general public regarding AI, which has led us to confusion and worries. Imaginaries connected to the philosophical current of existential risks significantly influence the current vision of AI systems [2]. In this context, "artificial intelligence" refers to a machine with algorithms capable of autonomously learning from a database and trying to mimic human intelligence. Even humans are constantly learning how to maximise AI's potential while lowering its risks, as it is still in its early stages of growth and development. The AI system is equipped with a powerful computational engine that can handle and analyse large amounts of data simultaneously, something humans would not be able to achieve. The ability to calculate quickly and accurately is one main feature. While it can recognise emotions, it lacks empathy and cannot experience feelings, which is one of its significant flaws. However, humans can overcome this problem by collaborating with AI systems. The key is working together so that humans and AIs can complement one another. Knowing what algorithms are, how they operate, and how to apply them before we can trust them is a prerequisite for a successful collaboration. Having an AI system that collaborates with a human can significantly reduce the workload that the human can take charge of, and at the same time, the system can benefit from specific inputs. However, it depends not on humans' knowledge of the system they collaborate with but on its comprehensibility. Even having the correct knowledge about algorithms and AIs is not enough since the knowledge needs to be presented precisely and comprehensively [33]. This work is a proposal of how to clarify the creative support tools for the creation of IDNs.

The paper explores and compares recent articles in the field of AI support systems, re-storing an excursus of the panorama regarding the human-AI system co-creation considering the growth of AI support systems that helps the designer build IDNs. AI systems can enable and assist authors in developing new content [38] and may be claimed to be support tools for realising stories in all their forms. In this case, authoring tools are utilised to create IDNs, a more complex narration form due to the interaction component. The medium or affordances determine the interaction, which leads to programmed

actions [11, 29]. In this instance, the AI system is the media seen as a means of knowledge; it organises knowledge to share with the user and helps them create techniques for problem-solving [37]. IDNs in AI systems are thought to boost creativity by arranging the data in the AI system to draw unanticipated new conclusions from previous ones [9].

IDN(s) are a family of narrative concepts from humanistic viewpoints that may be played with, interacted with, and intervened in using digital technologies [28]. The IDN field deals with interactive storytelling beyond a printed book's bounds. It also raises concerns about the boundaries of what qualifies a story [34]. By disrupting the traditional roles of the author and the reader, IDN shuffles the deck of cards through the interaction element. Interaction can be a participatory process in which an interactor engages with a computer program to produce an output [18].

The field needs to be systematised through developing, adopting, and advancing guidelines and taxonomies since there is an insufficient and occasionally muddled body of knowledge [8, 21]. Koenitz summarises the IDN-related concerns in the paper "Five Theses for Interactive Digital Narrative" [19], pointing out the confused body of knowledge, the variety of existing writing tools with distinct research directions, and the focus on the creation of IDN experiences rather than the method.

The *Authoring Tool* category is examined here as an *AI authoring system* that uses the AI system to assist with and manage the difficulty of developing interactive narratives. AI authoring systems have an author as a partner, but in this contribution, the author is a designer considering more aspects of collaborating and creating these systems. The designer of IDNs masters and applies design thinking and is aware of the creative process of storytelling and, in the specific case of AI systems, the machine learning process. Here, the designer is a *narrative interaction designer* [36], with the IDN creator designer as the target of AI authoring system creation–the one who designs and builds AI authoring systems. The designer is initially identified by Murray [30] as the *cyberbard* that designs the IDN experience by giving authorial control to the interactors with the system, those who create the narrative [20].

The *cyberbard,* who uses an AI authoring system to construct IDNs, is referred here to as the *designer as a creator* who has not the knowledge of a writer but that of a problem-solver.

3 Methodological Approach

The approach used here to face complexity is what Krogh calls "drifting by intention" [22], a knowledge built on continuous learning from ongoing findings. In the discipline of design, drifting is perceived positively. It exemplifies how design researchers gain information about their findings and reshapes them. The investigation is based on a literature review of twenty academic publications that contain papers, journals, articles and books. The reviewed content includes critical reviews, frameworks, prototypes, and case studies. The search was done in *Google Scholar, Scopus* and *ACM Digital Library* databases, looking for AI support systems that help the designer creatively build IDNs. From the review emerge some characteristics and recurring elements that are collected under the categories: the *Type of support tool*, the *Narrative elements*, and the *Type of creativity*. The intention is to clarify the body of knowledge by systematising it to

communicate it more simplified to the designer who intends to work alongside AI systems to create IDNs. The search has been restricted to the last twenty years, although most articles are from the last decade. The literature review includes *Creative Support Tools (CSTs)* consisting of narrative elements and those without such elements. The decision to include CST without narrative elements is essential for analysing the Type of creativity category, which otherwise would not be analysed exhaustively, i.e. considering all sub-categories. The goal is to identify the basic elements and sub-elements that make up an AI support system for designing IDNs creatively to systematise knowledge of the field.

3.1 Findings on Creativity

In the study for AI tools to support the creation of IDNs, a gap emerged between AI tools that support creativity, designed to target creativity enhancement and those designed to author stories. Eleven of twenty academic publications are *CSTs*, and nine are *Authoring Tools*. Interest in support systems for creativity is often unrelated to the goal of creating a digital narrative interaction. The analysed academic contributions address different forms of creativity, trying to make terminological clarity between personal creativity (P-creativity), historical creativity (H-creativity), human-AI co-creativity, computational creativity (CC), collaboration for creativity and crowdsourcing creativity.

Creativity can be considered the product of a human mind, as a simulation of an artificial mind, or as the result of the collaboration between humans and AI systems.

P-creativity, for example, is associated with personal or psychological creativity, which refers to new information, concepts, and ideas that an individual was not previously aware of and brings novelty to how he/she perceives the world. P-creativity is a frequent form of creativity since it involves a single person's expertise. H-creativity is also linked to the single human mind but is related to findings that have never been published in the history of humanity [1, p.76].

The CSTs are designed with the purpose of increasing creativity, and these support tools are, for the most part, disconnected from the concept of IDN. Creative support is often linked to the AI automation of some specific task. For instance, *FahionQ* [14] suggests clustered styles based on quantifiable fashion traits to enhance convergent and divergent thinking. Therefore, CC is data automation and pattern detection communicated to the end user. CC can be seen as the computational version of human creativity, which attempts to simulate creativity. In the case of a human-AI collaboration, creativity may take on different shades; that is, a qualitative interpretation of creativity comes into play rather than an objective one. Creativity is linked to a more humanistic and qualitative side, more difficult to identify in clusters, especially when the co-creative aspect that arises from the relationship between the designer and AI becomes relevant. Co-creativity is a step towards an ongoing conversation between the designer and the system, resulting in a P-creative idea. In *Paper Dreams* [3], the AI system suggests illustrations to the designer based on the designer's sketches. This example lays the foundations for creating a narrative through the construction of the visual storyboard; however, there is little creativity on the AI system side that suggests similar images based on the sketches of the user designer. The system offers images based on user changes, thus lacking an overall and more elaborate design vision. The term co-creativity is often misused, being

exchanged with CC that is limited to fulfilling tasks and can have a non-creative output (Fig. 1).

3.2 Findings on IDNs

The literature review has brought out the few AI systems that are concerned with creatively creating IDN. Furthermore (Fig. 2), the AI support systems for creating IDNs are identified in the macro group of authoring tools, which deals with automation and story generation, that reduces to the bone the potential of the interactive narrative aspect. Automation of story construction becomes a relationship between the designer's input and the response output of the system.

The autonomous creation of the stories takes place by feeding an AI database from which an output is produced, limiting the interaction with the system to settings set by the narrative interaction designer. A totally autonomous system does not fall into the *Authoring Tool* category and cannot be called such. The authoring tools automate part of the story creation process, giving the designer space to contribute to the production of stories. For example, in Shelley [41], an AI system that writes and publishes horror stories on Twitter, users are actively and continuously involved in the writing of the story that takes place through an ongoing dialogue with the AI that analyses the users' sentences and based on the received proposals elaborates a follow-up.

#	Year	Authors	Review Title	Publication type	Type of support tool	Narrative elements	Type of creativity
[3]	2019	Bernal, G., Zhou, L., Yuen, E., Maes, P.	Paper Dreams: Real-time human and machine collaboration for visual story development	Paper in conference	Creativity support tools	Story	Computational creativity, co-creativity
[5]	2002	Cavazza, M., Charles, F., Mead, S.J.	Character-based interactive storytelling	Paper in conference	Authoring tools	Characters, actions, objects, plot	Computational creativity (CC)
[11]	2021	Gu, N., Amini Behbahani	A critical review of computational creativity in built environment design	Journal	Creative support tools (CSTs)	-	Computational creativity (CC), human-computer co-creativity, H-creativity, P-creativity
[13]	2020	Huang, C.-Z.A., Koops, H.V., Newton-Rex, E., Dinculescu, M., Cai, C.J.	AI song contest: Human-AI co-creation in songwriting	Article (not peer reviewed)	AI support system	-	Human-AI co-creativity
[14]	2021	Jeon, Y., Jin, S., Shih, P.C., Han, K.	FashionQ: an AI-driven creativity support tool for facilitating ideation in fashion design	Conference paper	AI-based creative support tools (CSTs), crowdsourcing-based CST	-	Computational creativity (CC)
[15]	2018	Karimi P., Grace K., Maher M-L., Davis N.	Evaluating creativity in computational co-creative systems	Article (not peer reviewed)	Fully autonomous systems, creativity support tools, co-creative systems.	-	Computational co-creativity,
[16]	2020	Karimi P., Rezwana J., Siddiqui S. , Maher M-L., Dehbozorgi N.	Creative Sketching Partner: An Analysis of Human-AI Co-Creativity	Paper in conference	AI support for sketching	Objects, environment	Human-AI co-creativity, combinatorial, exploratory, and transformational creativity
[17]	2022	Kim, E., Hong, J., Lee, H., Ko, M.	Colorbo: envisioned mandala coloring through human-AI collaboration	Paper in conference	AI for creativity support, Creative sketching partner (CSP)	-	Human creativity through computational support, co-creativity

Fig. 1. Table of literature review. Source: author

[20]	2015	Koenitz, H.	Towards a specific theory of interactive digital narrative	Chapter in book	Authoring tool	Protostory	-
[23]	2017	Kybartas, B., Bidarra, R.	A survey on story generation techniques for authoring computational narratives	Journal	Authoring tool	Story, plot, space, discourse, events, actions, storyworld	-
[24]	2012	Li, B., Lee-Urban, S., Riedl, M.	Toward autonomous crowd-powered creation of interactive narratives	Paper in workshop conference	AI support system	plot event, plot graph, characters, virtual world, actions	creativity via crowdsourching
[25]	2021	Lopes, D., Parente, J., Silva, P., Roque, L.	Performing creativity with computational tools	Article (not peer reviewed)	Creativity support tools, Co-creative systems, fully autonomous systems	-	Computational creativity (CC), co-creativity
[26]	2020	Main A, Grierson M.	Guru, partner, or pencil sharpener? Understanding designers' attitudes towards intelligent creativity support tools	Article (not peer reviewed)	Intelligent creative support tools (CST)	-	P-creativity, H-creativity, G-creativity, N-creativity, human-AI co-creation
[27]	2002	Mateas, M., Stern, A.	Architecture, authorial idioms and early observations of the interactive drama Façade	Academic report	AI authoring system	Characters, plot, dialogue, actions, locations, objects, environment, virtual world	Computational creativity (CC)
[31]	2021	Perez, M.R.B., Eisemann, E., Bidarra, R.	A synset-based recommender method for mixed-Initiative narrative world creation	Paper in conference	AI authoring system	Narrative world, story, events, scene, action, location, time, object	Human-computer collaboration to create
[32]	2006	Pinardi, D., De Angelis, P.	Il mondo narrativo: come costruire e come presentare l'ambiente e i personaggi di una storia	Book	-	Narrative world, story, actions, events, characters, environment	P-creativity
[35]	2018	Shibolet, Y., Knoller, N., Koenitz, H.	A framework for classifying and describing authoring tools for interactive digital narrative	Conference paper	IDN authoring tools, story generation tools, Interactive fiction tools, hybrid text + graphic tools, Real-Time graphical rendering/game-creation tools	Story progression, events, counters, inventory, stats	-
[39]	2021	Urban D.J., Anderson F., Stroetzel M., Grossman T., Fitzmaurice G.	Designing co-creative AI for virtual	Conference paper	Co-creative AI tools, VR co-creative systems	-	Human-AI creative collaboration
[40]	2014	Wolf, M.J.	Building imaginary worlds: The theory and history of subcreation.	Book	-	Possible worlds, imaginary worlds	P-creativity
[41]	2021	Yanardag, P., Cebrian, M., Rahwan, I.	Shelley: a crowd-sourced collaborative horror writer	Paper in conference	Creative AI tool, interctive story generation tool	Story	Computational creativity

Fig. 1. (*continued*)

The category of *narrative elements* contains numerous components, some with distinct and others with interchangeable meanings. For example, the *narrative world (NW), storyworld* and *protostory* can take on the same meaning, referring to an imaginary world populated by characters inserted within an environment with objects available, a world from which *actions* or *events* can arise. Among these narrative components, a lack of hierarchical reflection emerges at the level of taxonomic subdivision by order of importance since they tend to be considered on the same level. In reality, narrative elements underlie the others, for their generative component, such as the NW, is composed of characters who perform actions that gradually become stories. Therefore, this literature review intends to report the deficiencies, not just the findings.

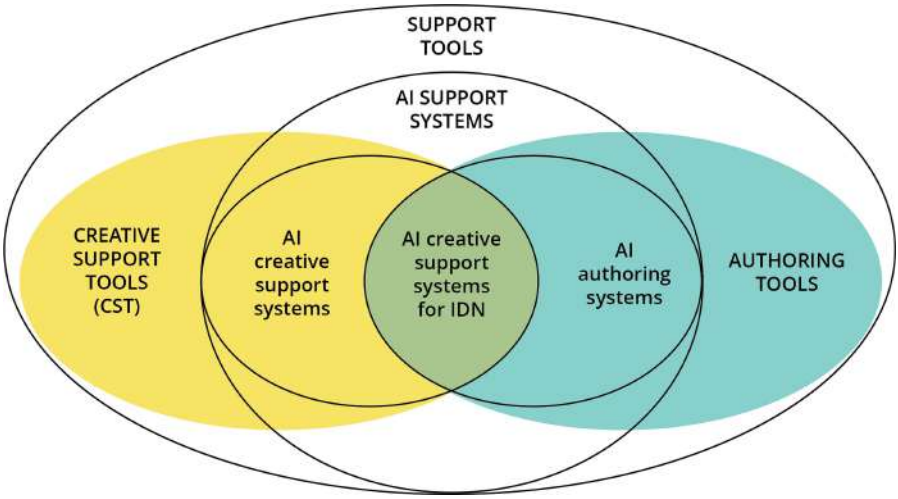

Fig. 2. Hierarchical diagram of the categories of tools analysed. Source: author.

3.3 Discussion on Findings

Therefore, the thesis that the related body of knowledge about AI support systems is still confusing has been confirmed, and the proliferation of these systems only increases the chaos leading to a waste of energy for those who try to understand the scope of the systems of AI support concerning the creation of IDNs. However, a scientific contribution tries to lay the foundations and propose a framework that allows for the classification of the support authoring tools, ordering them into sub-categories. This first attempt to identify and analyse authoring tools is presented through the work of Shibolet et al. [35], in which some categories and descriptors are introduced. These categories are described in the appendix document "Tool Shortlist" [35] and are *procedural generation tools*, *mixed-initiative authoring tools*, and *procedural AI authoring tools.* These sub-categories are the ones that get closer to AI systems that work alongside the design and support it in generating IDNs. However, two main categories of AI support systems emerged from the literature review: *AI-based CSTs* and *AI authoring systems.*

The AI-based CSTs are primarily related to computational creativity, being generative AIs that mainly support humans in executing tasks rather than collaborating on a specific project with an overall vision. These AI systems generally involve users in generative music [13], drawings [17], sketches [16, 3], and image generation [14].

From an IDN perspective, the two AI support systems categories converge and form a new class: AI systems to support creativity for creating IDN, also called *AI creative support systems for IDNs*. This new hybrid category represents a new emerging typology of AI creative support systems that involve the creation of IDNs thanks to a creative collaboration with the designer. To date, this category of AI support systems remains unexplored or consciously little explored. AI co-creative support systems for IDNs need to be acknowledged in the literature as a new category of tools and is a niche since most of the support systems do not adequately support the designer in a continuous dialogue toward finding a creative solution to the starting problem.

Outcomes	Future steps and goals
1) Contribute to closing the research gap on the unsystematised body of knowledge of AI support tools for IDN through a literature review that analyses the recurring elements that build such tools.	1) Continue the research in a more targeted way by looking for case studies related to the category *AI creative support system for IDN* with the aim of implementing and validating the elements that emerged from this contribution.
2) Define a new emerging category of *AI creative support systems for IDN* as AI support systems for creatively designing IDNs.	2) Create a framework that puts the elements and sub-elements related to the *AI creative support system for IDN* category in taxonomic order.
3) Identify the specific categories of the type of support related to AI systems that collaborate with humans and of the basic elements that characterise the type of creativity and the elements that make up a narrative.	3) Validate the framework through interviews with experts from the field of Design and IDN.
4) Highlight the results of the literature review analysis: Most AI authoring systems are tools for automated story generation and are related to computational narratives rather than co-creational ones. One consequence of the procedural nature of AIs is to create IDNs autonomously through automatic story generation without involving the designer in the IDN creation process.	

Fig. 3. Table of outcomes and further steps. Source: author.

4 Conclusion and Further Developments

Human-AI co-creativity is a relationship between two entities that complement each other resulting in a creative output that, in this contribution, identifies with the creation of an IDN. This study highlights the type of support tools and their main elements starting from the context of IDN and extending it to that of the CTS. These categories emerged from the literature review of twenty academic articles, which show the hierarchical relationships among support tools versus AI support systems and creative systems versus authoring systems. Furthermore, a new type of hybrid AI system is emerging from the union of *AI-based CST* and *AI authoring systems* categories, which is defined here for the first time as an *AI creative support system for IDNs*. This new type of AI support system must be acknowledged as a new category corresponding to an existing small niche in the literature.

The review identifies not only the categories of AI support systems but also the elements from which these support systems are composed. Indeed, it emerges as *AI-based CSTs* are mostly related to CC rather than human-AI co-creativity. Most AI support systems are built to execute tasks, but AI creative support systems for IDNs can reason on a given problem and suggest creative solutions. For a detailed overview of the findings and future developments, see Fig. 3.

The types of creativity components and the narrative elements currently lack a framework structure that considers their hierarchical role of importance in constructing an IDN. Therefore, it is in the subsequent developments of this research to create a framework that systematises the essential elements of the AI support system for IDN and validates them through interviews.

Co-creativity is not easy to define concerning other types of creativity; therefore, reaching a terminological consensus in the literature would facilitate its clustering. This research is the basis for future interactive narrative designers to fill the gaps and terminological pre-understandings by proposing taxonomies that consider the interdisciplinary aspect of the IDNs.

References

1. Margaret, B.: What is creativity? MIT Press (1994)
2. Bostrom, N.: Superintelligence. Dunod (2017)
3. Bernal, G., Yuen, E., Maes, P.: Paper dreams: real-time human and machine collaboration for visual story development (2019)
4. Bruno, C., Canina, M.: Creativity 4.0. empowering creative process for digitally enhanced people. Design J. **22**(sup1), 2119–2131 (2019)
5. Candy, L., Edmonds, E.: Modeling co-creativity in art and technology. In: Paper Presented at the Proceedings of the 4th Conference on Creativity & Cognition, pp. 134–141 (2002)
6. Cavazza, M., Charles, F., Mead, S.J.: Character-based interactive storytelling. IEEE Intell. Syst. **17**(4), 17–24 (2002)
7. Connery, M.C., John-Steiner, V., Marjanovic-Shane, A. (Eds.): Vygotsky and creativity: a cultural-historical approach to play, meaning making, and the arts (Vol. 5). Peter Lang (2010)
8. Crawford, C.: Chris Crawford on Interactive Storytelling, Berkeley, Calif.: New Riders (2013)
9. Davis, R., Shrobe, H., Szolovits, P.: What is a knowledge representation? AI Mag. **14**(1), 17 (1993)
10. Glăveanu, V.: How are we creative together? comparing sociocognitive and sociocultural answers. Theory Psychol. **21**(4), 473–492 (2011)
11. Green, M.C., Jenkins, K.M.: Interactive narratives: processes and outcomes in user-directed stories. J. Commun. **64**(3), 479–500 (2014)
12. Gu, N., Amini Behbahani, P.: A critical review of computational creativity in built environment design. Buildings **11**(1), 29 (2021)
13. Huang, C.Z. A., Koops, H.V., Newton-Rex, E., Dinculescu, M., Cai, C.J.: AI song contest: human-AI co-creation in songwriting. arXiv preprint arXiv:2010.05388 (2020)
14. Jeon, Y., Jin, S., Shih, P.C., Han, K.: FashionQ: an AI-driven creativity support tool for facilitating ideation in fashion design. In: Paper Presented at the Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems, pp. 1–18 (2021)
15. Karimi, P., Grace, K., Maher, M. L., Davis, N.: Evaluating creativity in computational co-creative systems. arXiv preprint arXiv:1807.09886 (2018)
16. Karimi, P., Rezwana, J., Siddiqui, S., Maher, M.L., Dehbozorgi, N.: Creative sketching partner: an analysis of human-AI co-creativity. In: Paper Presented at the Proceedings of the 25th International Conference on Intelligent User Interfaces, pp. 221–230 (2020)
17. Kim, E., Hong, J., Lee, H., Ko, M.: Colorbo: envisioned mandala coloring through human-AI collaboration. In: Paper Presented at the 27th International Conference on Intelligent User Interfaces, pp. 15–26 (2022)
18. Koenitz, H.: Towards a theoretical framework for interactive digital narrative. In: Aylett, R., Lim, M.Y., Louchart, S., Petta, P., Riedl, M. (eds.) Interactive Storytelling, pp. 176–185. Springer Berlin Heidelberg, Berlin, Heidelberg (2010). https://doi.org/10.1007/978-3-642-16638-9_22
19. Koenitz, H.: Five theses for interactive digital narrative. In: Mitchell, A., Fernández-Vara, C., Thue, D. (eds.) Interactive Storytelling, pp. 134–139. Springer International Publishing, Cham (2014). https://doi.org/10.1007/978-3-319-12337-0_13

20. Koenitz, H., Ferri, G., Haahr, M., Sezen, D., Sezen, T. (eds.): Interactive Digital Narrative: History, Theory and Practice. Routledge (2015). https://doi.org/10.4324/9781315769189
21. Koenitz, H.: Thoughts on a discipline for the study of interactive digital narratives. In: Rouse, R., Koenitz, H., Haahr, M. (eds.) Interactive Storytelling: 11th International Conference on Interactive Digital Storytelling, ICIDS 2018, Dublin, Ireland, December 5–8, 2018, Proceedings, pp. 36–49. Springer International Publishing, Cham (2018). https://doi.org/10.1007/978-3-030-04028-4_3
22. Krogh, P., Koskinen, I.: Drifting by Intention. Springer, Dordrecht, The Netherlands (2020)
23. Kybartas, B., Bidarra, R.: A survey on story generation techniques for authoring computational narratives. IEEE Trans. Comput. Intell. AI Games **9**(3), 239–253 (2016)
24. Li, B., Lee-Urban, S., Riedl, M.: Toward autonomous crowd-powered creation of interactive narratives. In: Proceedings of the AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment, vol. 8, no. 2, pp. 20–25 (2012)
25. Lopes, D., Parente, J., Silva, P., Roque, L.: Performing creativity with computational tools. arXiv Preprint arXiv:2103.05533 (2021)
26. Main, A., Grierson, M.: Guru, partner, or pencil sharpener? Understanding designers' attitudes towards intelligent creativity support tools. arXiv preprint arXiv:2007.04848 (2020)
27. Mateas, M., Stern, A.: Architecture, authorial idioms and early observations of the interactive drama Façade. School of Computer Science, Carnegie Mellon University (2002)
28. Mateas, M., Sengers, P.: Introduction to the narrative intelligence symposium. In: Paper Presented at the AAAI 1999 Fall Symposium on Narrative Intelligence, pp. 5–7 (1999)
29. Murray, J.H.: Inventing the medium: Principles of interaction design as a cultural practice. MIT Press, Cambridge (2011)
30. Murray, J.H.: Hamlet on the Holodeck, updated edition: The Future of Narrative in Cyberspace. MIT Press (2017)
31. Perez, M.R.B., Eisemann, E., Bidarra, R.: A synset-based recommender method for mixed-initiative narrative world creation. In Interactive Storytelling: 14th International Conference on Interactive Digital Storytelling, ICIDS 2021, Tallinn, Estonia, December 7–10, 2021, Proceedings 14 (pp. 13-28). Springer International Publishing (2021).https://doi.org/10.1007/978-3-030-92300-6_2
32. Pinardi, D., De Angelis, P.: Il mondo narrativo: come costruire e come presentare l'ambiente ei personaggi di una storia, vol. 5. Lindau (2006)
33. Seaver, N.: Knowing Algorithms. DigitalSTS, pp. 412–422 (2019)
34. Sethi, K.: User-generated content: the future of digital storytelling. Forbes (2021). https://www.forbes.com/sites/columbiabusinessschool/2021/08/12/user-generated-content-the-future-of-digital-storytelling/?sh=5c54810d3921
35. Shibolet, Y., Knoller, N., Koenitz, H.: A framework for classifying and describing authoring tools for interactive digital narrative. In: Rouse, R., Koenitz, H., Haahr, M. (eds.) ICIDS 2018. LNCS, vol. 11318, pp. 523–533. Springer, Cham (2018). https://doi.org/10.1007/978-3-030-04028-4_61
36. Smed, J., Skult, N., Skult, P.: Handbook on Interactive Storytelling. John Wiley & Sons, Hoboken (2021)
37. Stefik, M.: The next knowledge medium. AI Mag. **7**(1), 34 (1986)
38. Stefnisson, I., Thue, D.: Authoring tools should be mixed-initiative systems. In: Paper Presented at the Proceedings of the ICIDS Workshop on Authoring for Interactive Storytelling (2017)
39. Urban Davis, J., Anderson, F., Stroetzel, M., Grossman, T., Fitzmaurice, G.: Designing co-creative AI for virtual environments. Creativity Cogn, 1–11 (2021)

40. Wolf, M.J.: Building Imaginary Worlds: The Theory and History of Subcreation. Routledge, New York (2014)
41. Yanardag, P., Cebrian, M., Rahwan, I.: Shelley: a crowd-sourced collaborative horror writer. In: Paper Presented at the Creativity and Cognition, pp. 1–8 (2021)

Envisioning Technological Artefacts Through Anticipatory Scenarios and Diegetic Prototypes

Mila Stepanovic(✉) and Venere Ferraro

Politecnico Di Milano, Milano, Italy
mila.stepanovic@polimi.it

Abstract. Facing global challenges and managing technological and scientific development require to imply critical reflection at all levels of transformation to create more thriving societies. This paper addresses the issues behind designing in complex societies. It introduces a novel approach to generate scenarios, envision, and contextualise the not-yet-existing technological artefacts through storytelling and prototyping, to anticipate the possible ethical and societal implications of technological development and mediations in social-human-environment-technology assemblages and interactions. The authors describe the critical approach with the *Protocol* for designing consciously and an *Envisioning tool* exploiting the Science Fiction (Sci-Fi) films as a trigger for critical discussion among the design researchers and practitioners. The *Protocol* and *Envisioning tool* aim at supporting the design researchers and practitioners adopt *pluriversal* perspectives and deal with the complexity, to deliver consciously designed artefacts. In this paper, authors show how the critical approach can be implemented in design and research projects and discuss the benefits and purposes of introducing such an approach in the current design research and practice.

Keywords: Design Fiction · Diegetic Prototypes · Thriving Societies · Critical Approach

1 Introduction

Narratives are powerful tools for telling stories about the future regarding the occurrence and evolvement of different phenomena in the world [1].

However, building narratives, as a part of critical design research and practice, is a complex task that requires stimulating the imagination to improve coherence and facilitate the appropriation of what is designed [2].

In rapidly changing and transforming techno-societies, it is important to acknowledge that technologies actively co-shape our being in the world. They cannot be decontextualised from the natural and social environment [3, 4]. With the advancement of autonomous systems and advanced technologies (i.e., Artificial Intelligence), questions of moral ethics arise: how could these systems ever attach any meaning to what is processed? [5]. Design research and practice should shift toward the social/human agency and engage a wider public in designing the future.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 399–407, 2024.
https://doi.org/10.1007/978-3-031-49811-4_38

The authors acknowledge that fictional imaginaries and artefacts can support the critical analysis of technologies and ethical and societal questions behind scientific development while at the same time tackling societal issues and human behaviour [6].

Design Fiction as a strategy for more explicitly attending to the feedback loop between fictional imagined futures and actual technology design can engage the designers and researchers in different kinds of thinking to deliver a more conscious design of products, adopt plural visions, and comprehend long-lasting consequences for the future of humanity, and human behaviours [7–11].

Design Fiction is about "creating a believable and relatable story world […] to first represent and then explore the nuances and 'mundanity' of future circumstances." [12].

Design Fiction produces socially relevant artefacts. The future becomes more tangible through storytelling and prototyping [5, 7, 13]. Fictional prototypes, also known as diegetic prototypes, elevate 'the context by placing it within a larger fictional world' [7].

The value of Design Fiction to trigger critical discussion about how things could be in alternative is recognized by the Human Computer Interaction (HCI) and design community. However, the challenge of operationalizing it into design research and practice is still present [14]. For this reason, it is often combined with established design methods such as participatory design and design ethnography [9, 15].

The research in question aims at proposing a new critical approach that operationalises the Design Fiction principles into design research and practice concerned with the design of technological artefacts, design for human behaviour, and design for societal challenges.

2 Method

The critical approach explores the feedback loop between the future and present to test the future before it exists and find strategies to generate action in the present [16, 17]. The critical approach is supported by the *Protocol* and *Envisioning tool* for generating scenarios to anticipate, contextualise and materialise the not-yet-existing technological artefacts.

The critical approach aims at creating a system of relations between societal challenges, society, the natural environment, humans, and technologies to open up the technology to a wider range of interests and concerns and approach the design of technological artefacts in a more compatible way with the human and environment [18].

The critical approach is framed into the following actions:

1. Use the four-stage *Protocol* and *Envisioning tool* to generate scenarios;
2. Materialise scenario into fictional prototypes;
3. Engage the citizens in testing the fictional prototypes;
4. Appropriate/rethink the artefacts to address the societal challenges in the present.

The *Protocol* and *Envisioning tool* result from the three-year research (2018–2021), engaging six experts from different fields of study (neurosciences, social psychology, design for sustainability, behavioural design, critical design, and digital design), nine

design researchers (Design Department of Politecnico di Milano), and circa 100 design students. These experimentations aimed at identifying and testing the tools, theories, and methods to build the *Protocol* and design the *Envisioning tool*.

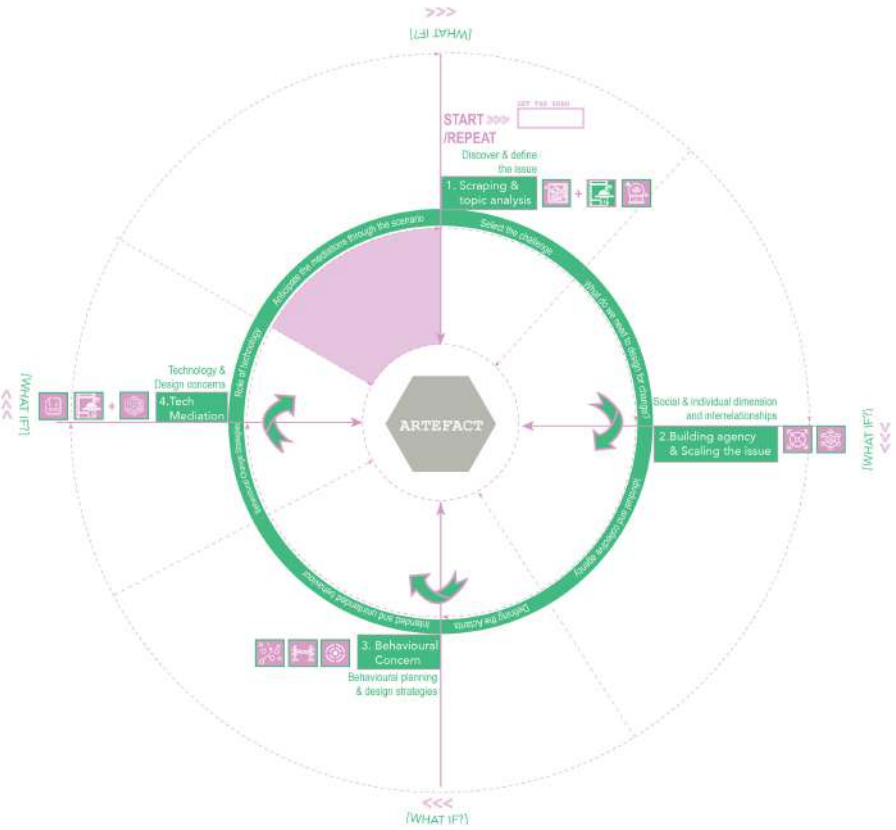

Fig. 1. Four-stages Protocol for designing consciously.

2.1 The Protocol for designing consciously and Envisioning tool

The *Protocol* aims to support the design researchers and practitioners in analysing the system of relations between human, non-human, and artificial (technologies and infrastructures, institutions and communities) to deliver anticipatory scenarios.

The *Protocol* combines several existing theories and tools derived from different fields of studies, including Design research and Social Psychology, Human-Computer Interaction (HCI), Behavioural Sciences, and Philosophy of Technology.

The *Envisioning tool* exploits how Science Fiction (Sci-Fi) films interpret and represent societal issues and scientific and technological development as a part of popular culture.

The *Envisioning tool* is an online library of cards clustered into two categories: (1) Tech Inspiration Cards (TICs) and (2) Societal Inspiration Cards (SICs) [19]. The cards were generated through an in-depth study using data scraping tools [20]. A review of the existing literature on the philosophy of Sci-Fi was conducted to support the data-driven research.

Table 1 describes each stage of the *Protocol* with the tasks and tools that are applied to support the analysis and deliver scenarios, including the integration of the *Envisioning tool*.

Table 1. The structure of the Protocol with tools and references.

Stage of the Protocol	Task	Tools/References
1. Scraping and Topic analysis	Analyse the topic through present cases and future trends; Use Sci-Fi to trigger critical discussions; Set design challenge	Envisioning tool – SICs (Authors) New Green Deal (EU Commission) SDGs (United Nations) Strategic Intelligence (World Economic Forum)
2. Building Agency and scaling the issue	Scale design challenge through different levels (macro and micro level); Define the actants	Doughnut Economy Model [21] Social-Ecological Model [22] Actants Mapping [23]
3. Behavioural concern	Identifying target behaviours to address the challenge; possible barriers and enablers; identify the design strategies (qualitative and formal, social and functional)	Model for anticipating the unintended outcomes of behavioural interventions [24] Social-Ecological Model [22] Design with Intent tool [25] Product Impact Tool [26] Functional Triad [27]
4. Tech mediation	Analyse critically the role of technology as mediator (design scripts and possible technology implications)	Technological Mediations [3] Envisioning tool – TICs (Authors)

Figure 1 illustrates the *Protocol* for designing consciously.

3 Research Through Design: Applying the Critical Approach in Design and Research Activity

Founded on Research Through Design (RtD) methodology, in this research, artefact becomes the "key means in constructing the knowledge", generating design knowledge through making, reflecting, and interacting [28].

In September 2021, the authors conducted a study to identify the weak points of the critical approach and test the *Protocol* and *Envisioning tool*. The study is follows the four activities prescribed by the critical approach.

The first activity was building the scenario through the *Protocol* and *Envisioning tool*. This activity lasted one day (8 h) and was divided into two part where after each, the authors reflected and discussed the structure of the *Protocol*. The authors delivered the scenario about the future artefacts for preventing air pollution in the household. The scenario is the first output of this study.

The second activity was materialisation of the scenario into fictional artefacts. The authors deliver two fictional artefacts for the future household called Living Artefacts. This activity produced two aesthetical prototypes, animated to simulate the context of use, functioning principles, and interaction modalities and rituals.

The third activity was testing the fictional artefacts in a focus group with citizens.

The fourth activity involved analysing the results of the focus group to generate a new design directions for design of technological artefacts and interactions to trigger sustainable practices and behaviours in users.

Fig. 2. Diegetic prototypes: Transforming pollutants in energy (left) and transforming pollutants in hygiene tabs (right).

3.1 Output of the study: fictional artefacts

The first output of the study is an anticipatory scenario (the reference year 2050). The authors set the scenario's structures into the narrative part, explaining the background story regarding the evolvement of the events and scientific and technological development, environment, and society. The second part of the scenario is about defining the fictional artefact in a functional sense (configuration of the artefact, functioning principles and technology, defining the interactions with the human and environment, and the context of use).

The authors generate two fictional artefacts. One artefact envisions how to transform household pollutants into cleaning tabs for the home, and the other envisions how to transform pollutants into energy. Both of these artefacts anticipate the application and scaling of novel technology (microbial engineering), new interfaces (living interfaces represented through reversible microbial propagation instead of digital screens), new services and resource distribution such as the production of the escherichia coli (e.coli) solutions, controlled energy sharing and distribution. Figure 2 shows fictional artefacts [29].

3.2 Engaging the citizens – Appropriating the artefacts

The authors conducted a focus group to understand whether the values prescribed by the *Protocol* are recognisable and test how the citizens perceive the artefacts regarding technological trustworthiness, interaction rituals, user experience, and whether such artefacts could let them establish a better dialogue with the environment.

Five participants were engaged, aged from 27 to 34, two female and three male, all of Italian nationality. The participants were regular consumers of digital products and consider themselves knowledgeable users. The analysis method was an open discussion, observation, and semi-structured questionnaire. The focus group was registered.

3.3 Results of the study: Observations and limitations

The authors found *Protocol's* structure appropriate regarding how the four stages of the *Protocol* interact and how supportive the tools are to make an in-depth analysis and understanding of the systems of relations while triggering critical thinking. The *Envisioning tool* triggered a critical discussion about the possible implication of technological development, climate issues, and human behaviour. However, the authors recognized ambiguity and open-endedness in the scenario-building process.

Translating the scenario into a fictional prototype requires effort, time, and specific skills. This part of the study took around one month to be realized. These factors may represent the limitation of this critical approach regarding applicability and scalability.

The participation of the citizens combined with future thinking and fictional artefacts was fruitful in this process. These findings may be used to draw conclusions and guidelines for the design of new artefacts and interactions to support the users in adopting more sustainable practices and behaviours.

4 Discussion

Engaging the citizens in evaluating the fictional artefacts helped authors understand how to appropriate future visions. The authors introduce some of the findings from the focus group to reflect on how these can inform and inspire the present design and research.

The authors aimed at investigating the following aspects of the artefacts:

1. Whether the interaction modalities and rituals are comprehensive and meaningful;
2. How demanding are artefacts to use;
3. Perception about technological trustworthiness;
4. Could the behavioural strategies embedded into represented interaction modalities stimulate users to adopt more sustainable behaviours and practices.

Starting from the first Living Artefact transforming the CO2 into energy (see Fig. 2, left side), 80% of the participants stated that they felt already familiar with some of these interaction modalities (feedback through the sound, augmented interfaces, feedback through three colours), and found them very comprehensive (evaluation 4,2 from 5). The gestural interaction was appreciated less than the visual and sound feedback (evaluation 3,5 from 5). 100% of the participants stated that using the artefact is not demanding

in terms of interaction aspects and overall usability, and they agreed that this kind of artefact could help them adopt aware behaviours. Nevertheless, one's impact on the outer world should be made more visible.

Regarding the second Living Artefact transforming CO2 in cleaning tablets (see Fig. 2, right side), 50% of the participants found this idea fascinating, while the other 50% found that the interaction through the microbial surface is "too alive" and even repulsive. The clarity of the interfaces and information provided by the artefact was evaluated as average (3,2 from 5). They claimed that some segments of the interaction were not valuable and necessary. 90% of the participants found this artefact slightly demanding to use, but this was more related to the formal and functional aspects.

Participants in the focus group recognized the individual and collective benefits embedded in both fictional artefacts. However, they expressed some concern regarding the trustworthiness related to the functioning of the artefacts, like: 'I am not sure how accurate is the air quality monitoring with this technology'; 'I don't know if it is monitoring when it is in passive state'. Another concern was regarding privacy: 'What if it suddenly turns on when I have guests at home, they would know about my behaviour and habits'. The participants appreciated the circularity of the process and the possibility of giving a personal contribution on a larger scale (i.e., share the energy within the community, reduce plastic use). The participants found no unethical or obtrusive ways to influence one's behaviour in these fictional artefacts.

Such insights may be helpful in considering all possible implications of technological application, interaction design, and preventing negative behavioural outcomes.

5 Conclusions

The authors argue that reflecting through making and using fictional artefacts can enable critical thinking, discussions, and exploration of the plurality of the future [17]. The authors study how to use fiction more thoroughly to deliver more conscious designs in the present [15]. They also introduce and discuss the use of participatory methods as a possible way to approach the appropriation of future visions.

The study described in this paper was the first application of the critical approach in design and research activity. At this embryonal stage of the research, few participants were engaged in the focus group. This aspect of the study is undoubtedly limiting to reporting robust results. However, it was useful for the authors to understand and test the entire process and how the fictional artefacts may inform the design and research at present. This study's findings also served as a starting point to refine the Protocol and Envisioning tool and set the upcoming design and research activities.

From September 2021 to November 2022, the critical approach was applied in another two workshops with experts from academic and professional fields and in a one-year design and research project in collaboration with IxD lab from ITU Copenhagen.

Beyond the professionals and academic researchers, the Protocol and Envisioning tool was also applied in Politecnico di Milano Design School educational activities.

Further development of this research will aim to understand how to manage the ambiguity in such a process and find a more objective way to interpret fictional artefacts to draw the strategies for design and research in present.

References

1. Miller, R.: Learning, the future, and complexity an essay on the emergence of futures literacy. Eur. J. Educ. **50**(4), 513–523 (2015). https://doi.org/10.1111/ejed.12157
2. Godet, M., Roubelat, F.: Creating the future: the use and misuse of scenarios. Long Range Plann. **29**(2), 164–171 (1996). https://doi.org/10.1016/0024-6301(96)00004-0
3. Verbeek, P.: Materializing morality design ethics and technological mediation. Sci. Technol. Hum. Val. **31**(3), 361–380 (2006)
4. Feenberg, A.: Questioning the Technology. Routledge (1991)
5. Fiore, E.: Ethics of technology and design ethics in socio-technical systems: investigating the role of the designer. FormAkademisk **13**(1) (2020). https://doi.org/10.7577/formakademisk.2201
6. Tanenbaum, J., Pufal, M., Tanenbaum, K.: Furious futures and apocalyptic design fictions: popular narratives of sustainability. Interactions **24**(1), 64–67 (2017). https://doi.org/10.1145/3022123
7. Bleecker, J.: Design fiction: from props to prototypes. In: Proceedings of the 6th Swiss Design Network Conference, pp. 58–67 (2010). https://doi.org/10.1002/glia.20282
8. Jakobsone, L.: Critical design as approach to next thinking. Des. J. **20**(sup1), S4253–S4262 (2017). https://doi.org/10.1080/14606925.2017.1352923
9. Bina, O., Mateus, S., Pereira, L., Caffa, A.: The future imagined: exploring fiction as a means of reflecting on today's grand societal challenges and tomorrow's options. Futures **86**, 166–184 (2017). https://doi.org/10.1016/j.futures.2016.05.009
10. Rapp, A.: Design fictions for behaviour change: exploring the long-term impacts of technology through the creation of fictional future prototypes. Behav. Inf. Technol. **38**(3), 244–272 (2019). https://doi.org/10.1080/0144929X.2018.1526970
11. Escobar, A.: Designs for the Pluriverse. Duke University Press, Durham (2018)
12. Lindley, J., Sharma, D., Potts, R.: Anticipatory ethnography: design fiction as an input to design ethnography. In: Ethnographic Praxis in Industry Conference Proceedings (2014). https://doi.org/10.1111/1559-8918.01030
13. Ilstedt, S., Wangel, J.: Altering expectations: how design fictions and backcasting can leverage sustainable lifestyles (2014). https://doi.org/10.13140/2.1.4127.1688
14. Lindley, J.: A pragmatics framework for design fiction. In: 11th EAD Conference Proceedings: The Value of Design Research, 2013. https://doi.org/10.7190/ead/2015/69 (2016)
15. Sus, L., Virpi, R., Elizabeth, B., Yiying, W.: The role of design fiction in participatory design processes. In: Proceedings of the 10th Nordic Conference on Human-Computer Interaction (NordiCHI '18). Association for Computing Machinery, New York, NY, USA, pp. 976–979 (2018). https://doi.org/10.1145/3240167.3240258
16. Auger, J.: Speculative design: crafting the speculation. Digital Creat. **24**(1), 11–35 (2013). https://doi.org/10.1080/14626268.2013.767276
17. Dunne, A., Raby, F.: Speculative Everything: Design, Fiction, and Social Dreaming. The MIT Press (2013)
18. Feenberg, A.: Critical theory of technology: an overview. Tailoring Biotechnol. **1**(1), 47–64 (2005)
19. LNCS Homepage: https://milastepanovic.wixsite.com/df4ct/tools
20. Varisco, L., Mariani, I., Parisi, S., Stepanovic, M., Invernizzi, M., Bolzan, P.: InData envisioning and prototyping informed by data. A data scraping and visualization tool to support design scenarios. In: Ahram, T., Taiar, R., Colson, S., Choplin, A., (Eds.), Human Interaction and Emerging Technologies (pp. 441–447). Springer International Publishing (2020). https://doi.org/10.1007/978-3-030-25629-6_68

21. Raworth, K.: Doughnut Economy. Seven Ways to Think Like a 21st-Century Economist. Cornerstone (2017)
22. Janssen, M.A., Ostrom, E.: Chapter 30 governing social-ecological systems (Tesfatsion, L., Judd, K.L., Eds.; vol. 2, pp. 1465–1509). Elsevier. https://doi.org/10.1016/S1574-0021(05)02030-7 (2006)
23. LNCS Homepage: https://uxdesign.cc/tools-for-environment-centered-designers-actant-mapping-canvas-a495df19750e
24. Stibe, A., Cugelman, B.: Persuasive backfiring: when behavior change interventions trigger unintended negative outcomes. Lect. Notes Comput. Sci. (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) **9638**, 65–77 (2016). https://doi.org/10.1007/978-3-319-31510-2_6
25. Lockton, D., Harrison, D., Stanton, N.A.: The design with intent method: a design tool for influencing user behaviour. Appl. Ergon. **41**(3), 382–392 (2010). https://doi.org/10.1016/j.apergo.2009.09.001
26. Dorrestijn, S.: Design and ethics of product impact on user behavior and use practices. In: Proceedings of the 5th International Conference on Intelligent Environments, vol. 4, pp. 1–8 (2009)
27. Fogg, B.J.: Persuasive technology: using computers to change what we think and do. Morgan Kaufmann Publishers (2003)
28. Zimmerman, J., Forlizzi, J., Evenson, S.: Research through design as a method for interaction design research in HCI. In: Conference on Human Factors in Computing Systems - Proceedings, January, pp. 493–502 (2007). https://doi.org/10.1145/1240624.1240704
29. LNCS Homepage: https://youtu.be/M0BFbTL9S24

EXPERIENCES

Feeling Through Technology

Jocelyn Spence(✉)

University of Nottingham, Nottingham NG8 1BB, UK
Jocelyn.Spence@nottingham.ac.uk

Abstract. This chapter aims to encapsulate the core elements of the keynote presentation on experience and interaction designs, primarily those using augmented reality, virtuality, or a mix of physical and digital elements. My interest is not in creating cutting-edge technology, but rather in seeing how people react, engage, think, move, and feel when they engage with designs by myself and colleagues.

The contribution I make is to use performance theories and practices in design, especially design for mixed reality experiences, so that I can bring specific tools to bear on the creation and analysis of those designs. 'Performance' can be the kind practiced by professionals. It can also be the behaviours of people who take on the role of audience member or bystander. It can also be 'performance' in the ways that people 'perform' their everyday lives.

Performance often aims to be thought-provoking, but (aside from Bertolt Brecht and those who use his politically minded *Verfremdungseffekt*) it virtually always aims for an emotional response through engagement with the aesthetic choices that have been made. This chapter provides a basic theoretical grounding and a specific example of how performance can lay out a richer design space for personally meaningful experiences.

Keywords: Experience · Performative Experience Design · Performance · Mixed Reality · VRtefacts

1 Feeling

Take a moment to notice the chair you're sitting in, or the floor you're standing on. You can stop reading anytime you want. The text won't care. Are you reading a paper book? If so, imagine you're reading on a screen instead. Better yet, go read something on a screen and notice what your eyes feel like, your shoulders, your mouth, your sense of self. Then come back.

Now imagine you're in a large lecture hall, sitting on a comfortable dark orange seat. There are a few dozen people in here. A few friendly colleagues sit next to each other. A middle-aged woman with bright magenta hair, a patterned dress, and magenta tights walks up to the lectern. Most people look up and maintain eye contact. A few look down at their laptops or phones from time to time, even for prolonged periods of time, but this is perfectly normal, polite behaviour at an academic conference. Now the words you are experiencing are not just text. This woman is performing, and that performance depends just as much on you as it does on her.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 411–419, 2024.
https://doi.org/10.1007/978-3-031-49811-4_39

How would your eyes feel now – maybe more comfortable from being able to look around? Your shoulders, maybe looser from being able to sit back? Your mouth, maybe tighter from having dutifully smiled at a bad joke because everyone else was chuckling? Your sense of self, maybe a bit of a knot in your stomach from the thought of talking to all these people you don't know at the coffee break? Maybe your legs have been crossed for too long but you don't want to risk bumping into the person next to you.

2 Background

I work in human-computer interaction (HCI) and experience design, the first of which (arguably) traces its lineage along self-styled scientific, functional lines (Norman 2002). Early work in HCI focused primarily on doing work more efficiently and effectively. The key word there is 'doing'. Topics of research tended to be task-based, results-oriented, cognitive, or physical interactions with technologies. An example is Fitts' Law (Goktürk, ND), a simple equation that predicts how quickly and accurately a typical person will be able to move a cursor to a particular target. I do not argue that there is no feeling in doing this – especially if you can't get the cursor to land where you want it to! – but the focus tended towards the accomplishing of tasks.

In the past couple of decades, though, research has expanded into a realm dominated by feeling. Research questions have started to revolve around internal perceptions and affect produced by interactions with technologies. Designs were created to prompt emotional and/or aesthetic responses. These had cognitive and physical components as well, but the emphasis was less on using the mind to tell the hand how to move the cursor to the target and more on the embodied nature of the human interacting with technologies. Some of the technologies themselves were also demanding to be used in different ways – squeezed, for example, or kept in peripheral vision (Hassenzahl et al. 2012).

I argue that feeling comes into play any time that digital technology mediates an interaction between people, or when people interacting with a technology can sense or imagine others witnessing their interactions. For several years I had to explain what I meant by this, but the recent global encounter with Covid-19 means that anyone with access to digital technologies and the ability to shelter at home will know it. That feeling of connection, seeing a friend's face on the screen, and at the same time loss, not being physically with them. That odd shift when live face-to-face contact takes a detour via a screen, virtual reality, or any other technological mediation – that is the type of experience that my research explores.

3 Performance

This is where performance comes in, because what is performance if not a means of mediating interactions between people? Walk into a big, ornate theatre showing Hamlet, and you'll either know exactly what to expect or you'll feel your lack of knowledge keenly (so keenly that you probably won't be there in the first place). Walk up a plain staircase to a deserted office space for a night of queer performance art and don't be surprised if you have to scramble across the floor to avoid being bled on. Buy a ticket to

an online performance and know that whatever you see, it will likely be bounded by the edges of your screen but may be available for later viewing. Do something different and watch the interactions shift before your eyes: for example, place two human performers in a huge 'aquarium' with a touchscreen surface and see how passers-by respond to the changes in lighting and sound they cause by touching the screen, barely half a metre from the performers' eyes (Taylor et al. 2011).

In terms of performance theory, the ways of valuing and analysing different elements of a performance lend themselves to the more recent addition of phenomenology to the traditional semiotic interpretation of what the audience member is seeing and hearing (Fischer-Lichte 2008) – especially as performance is continuously broadening its reach into site-responsive, game-based, promenade, immersive, intermedial, virtual, 'Zoom' as a generic term… And each of those genres invites its own preferred or provocative theoretical lenses as well. However, the task of conveying these theories in the confines of a single article or chapter intended for an HCI audience, or even an experience design audience, is often too great to justify the reward.

Therefore, I tend to step back in time and refer to theorists that are accessible and meaningful to both performance studies and HCI / experience design. My meaning of 'performance' draws from the likes of J.L. Austin's 'speech acts' (Austin 1962), John Dewey's pragmatist approach to aesthetics (Dewey 2005/1934), and Erving Goffman's delineation of shared 'onstage' spaces where the way we appear to each other matters and our private 'backstages' where they probably do not (Goffman 1959). In other words, you do not have to be staging Hamlet to engage in a performance. Anyone in that lecture hall could say or do something to alter the performance, from a problem with the slide deck to an inappropriate question from an audience member to a fire alarm shrieking.

4 Performativity

It would be unfair to try to expand the meaning of 'performance' without recognising the impact that the word 'performativity' has, especially within academia, and especially when a female, feminist writer is doing the defining. However, it would take far longer than the space allotted for this chapter simply to offer a full rationale for the various defensible positions. For the purposes of the concepts and examples presented here, I will nod gratefully to Judith Butler for her ideas around gender performativity and the insights that these ideas have made possible. Then I will set the term 'performativity' to one side, reserving it as much as possible to Butlerian (Butler 2002) connotations around acts of performance.

5 Performative Experience Design

Yet here it is: 'performative'. Performative Experience Design (PED) 'is the setting of technological and social parameters to create opportunities for performative experiences with interactive technologies' (Spence 2016, p. 5). This definition allows for solo experiences from singing along to music in your bedroom to witnessing the excruciating durational works of Tehching Hsieh (www.tehchinghsieh.net), though performative

experiences nearly always involve other people more directly. What the definition highlights, though, is that the technology is on a par with the design of the forces that can guide its use. It also highlights the agency of the user – performer, audience member, bystander, or other (Reeves et al. 2005) – over that of the designer. Finally, it celebrates the looseness of the term 'performative'. PED does not try to exclude other types of design. Rather, it provides a set of theoretical lenses and methodologies for creating and/or analysing virtually any interactive experience.

While background in performance and their analyses can help, and a novice can benefit from works such as the succinct one already mentioned (Fischer-Lichte 2008), in the end I think that what stands out to your designer's eye – or design researcher's eye – is most important. Keep in mind your line of enquiry or purpose in doing this work in the first place, and engage all your senses and imagination into exploring every technological and social parameter that the artists would have set, accepted, or left to chance in order to achieve their effects.

6 Example

6.1 VRtefacts – performance analyses

From 2017–2020 I worked on a project that aimed to make visits to museums more personally meaningful by using digital technologies to incorporate gifting in various ways, making visitors feel that they had more of an emotional stake in museums and their collections. No mention was made of performance in the project plans or agreements, and I was not a specialist in either gifting or cultural heritage studies. However, museums lend themselves well to performance in its broader sense. They have a space with a set of unique, well-established social norms. They have objects and spaces to direct your attention and action. Finally, of course, they are public, whether that is a throng of people trying to catch a glimpse of a famous painting, a shuffling group of elderly friends on their way to the café, the imagined impatient sigh of your companion as you linger just a moment longer in your favourite room, or the near certainty of a security camera catching you in its dispassionate stare.

Much of the early emphasis in this project was in capturing and sharing images of museum pieces that a visitor felt would appeal to a particular friend or family member. The tactic of having visitors decide on a 'gift' receiver before starting their museum visit was proving to be very powerful, but the early implementations were smartphone apps. Easy to understand, easy to share, but literally and figuratively flat.

I set out to imagine the opposite of what had been done so far – and please let me emphasise that this was out of academic curiosity, not criticism, because those results had already outstripped what we had hoped for! In my imagination, the opposite would be private, tactile, and three-dimensional. So, using my own PED methodology, I followed my line of enquiry back to earlier works I had analysed. Many of the one-on-one performances of the late Adrian Howells (Heddon and Howells 2011), for example, used tactility to create a space for physical and emotional closeness with the strangers who made up his audiences, one person at a time. For example, he might wash your feet, offer you a strawberry to eat with calm concentration, or simply hold you silently in a (fully clothed) embrace. These are such unusual things to do with a stranger, though,

that he could not simply take your ticket and instruct you to take off your shoes and pop a strawberry in your mouth. His performances were as much a series of quiet invitations and unspoken negotiations, bringing audience members to the point of accepting what he offered, as they were the offers themselves.

I also felt that conversational storytelling – simply chatting – would provide an adequately low barrier to entry for museum visitors with no subject matter expertise or performance training. Again I used my own previous analyses of works such as Mike Pearson's *Bubbling Tom* (2000), a conversational guided tour of his hometown. As with Howells, Pearson established a more intimate rapport with his audience than in a typical theatrical production. Here, though, the relationships he had with specific audience members changed the dynamic of the performance completely. Those who did not know him personally 'acted' like 'proper' audience members – they followed him and either kept quiet or spoke to companions in hushed voices while walking so as not to interrupt the 'performer', Pearson. This was not the case for at least some of those who also lived in his hometown, especially his friends and family members. They had no compunction interrupting him to offer their own recollections or opinions on topics he raised, even when their stories conflicted with his own. This would be nearly unthinkable in a traditional performance, of course, but also in the private worlds that Howells created for his individual audience members.

6.2 VRtefacts – Design

At this point, the 'I' who wondered about alternative directions for personally meaningful museum experiences and conducted performance analyses gives way to the 'we' of the team that brought VRtefacts to life, most notably Dimitri Darzentas and Harriet Cameron. Together, we sought to design technological and social parameters that would encourage museum visitors to offer up their personal thoughts or reminiscences, no matter how tangential or untrained, regarding items from a city museum. The technology that we wanted to explore was the convergence of a virtual reality (VR) space, which blinds the user to the physical world around them, with three-dimensional versions of the items they saw. These items were 3D-printed white plastic in the real world, but in VR, the scans of the real exhibits were overlaid on the physical items so that it looked and felt to the user as if they were holding and moving the actual item in their hands. This description covers only the essentials of the project, which is covered in more detail in Spence et al. (2020) (Fig. 1).

Technologically, the novelty and importance of the project lay in the bringing together of VR imagery and resized 3D-printed museum objects. This alone might have made for experiences different from the VR or museum norm in a number of ways, but we doubted that on its own it would reliably achieve the goal of a personally meaningful encounter with the object. The lynchpin of the design, therefore, was to give the researcher running the experience some duties of a performer. We called this researcher the Host. Luckily, our research team included two skilled performers. We wrote and used a script, adaptable to visitor questions and comments, that gently altered the expectations of the interaction from research data-gathering, through light back-and-forth conversational storytelling, to the surprise at touching a physical object in what they believed to be a purely virtual space. At this point visitors would nearly always 'take the stage' and tell a story, reminisce, or

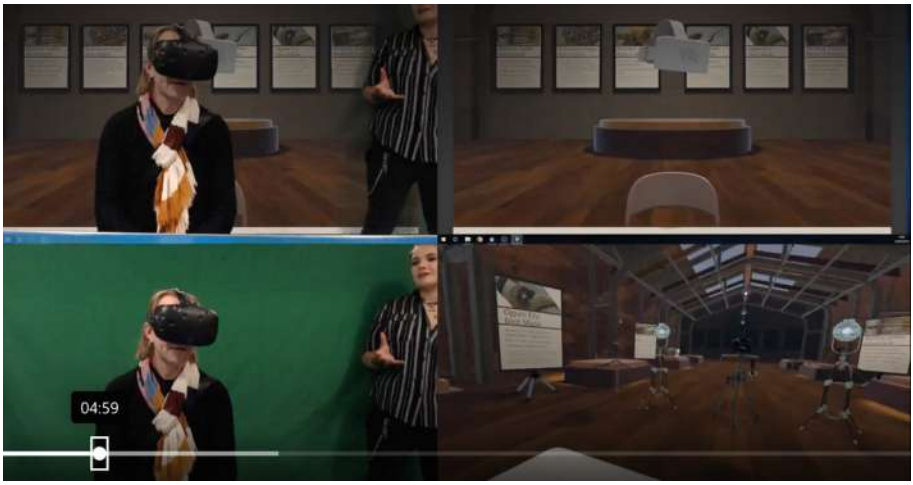

Fig. 1. Host guiding visitor

muse over past experiences the item brought to mind. The ability to manipulate, feel, and spend time with an object led to some touching recollections, fascinating connections, and even the identification of a previously unidentified piece of machinery (Fig. 2).

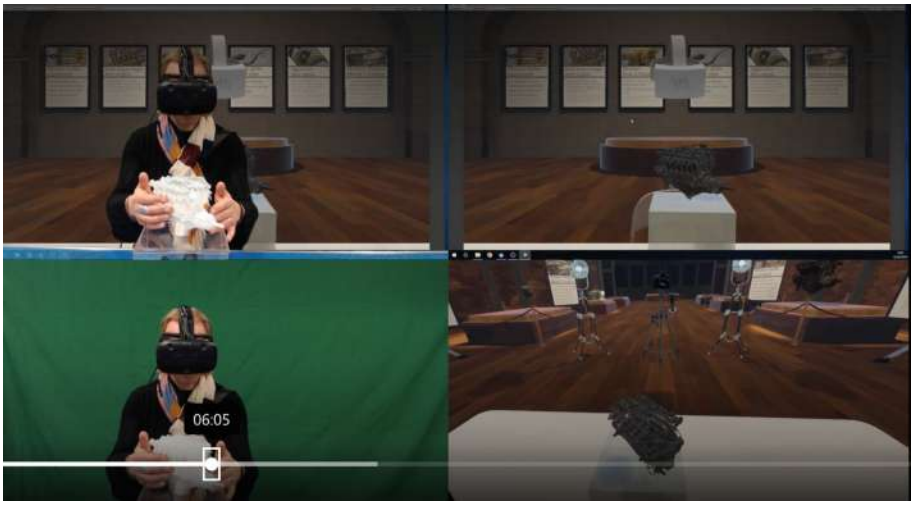

Fig. 2. Visitor feeling aero engine that prompts family story

Of course, I can only speculate on what would have happened without the Host, whose role is detailed further in (Spence et al. 2021). Between the combined experience of myself, my colleagues, and the literature we consulted on storytelling (e.g., Wilson 2006) and conversational storytelling (e.g., Langellier and Petersen 2004), we feel strongly that the 'performative' elements of the design, handled by the Host, altered a visitor's

expectations of the event from something akin to 'go into VR and get surprised by touching something that may or may not have any personal meaning for me' to something more like 'get taken into VR by someone I can trust, who primes me to think of my thoughts and feelings as valuable to the museum – then get surprised by a physical object that I attach personal meaning to'. Thankfully, design research is not a linear process of proving what is empirically right or wrong. Rather, we made small analyses and judgements during our non-linear, iterative design process (e.g., Wolf et al. 2006), each of which showed how to move one step closer to our goal of personally meaningful interactions with physicalised museum objects.

7 Experience

To return to theory:

'Experience in the degree in which it *is* experience is heightened vitality. Instead of signifying being shut up within one's own private feelings and sensations, it signifies active and alert commerce with the world; at its height it signifies complete interpenetration of self and the world of objects and events.' (Dewey 2005/1934, p. 18).

This has always been arguably true of the performing arts even when thinking of a West End or Broadway play performed on a proscenium stage. In traditional stagings such as these, an important theoretical and practical concern is 'mise-en-scène', or the arrangement of the elements of the production on its stage and how the show is directed. The implication is that the audience member sits still and directs their audio and visual attention to a rectangular spot at the middle of the space (Zoom, anyone?), where events will be staged for them to perceive. This may, indeed, constitute an experience, even an extremely moving one.

A strong argument has been made for a shift in the past couple of decades, though, away from mise-en-scène and towards 'mise-en-sensibilité' (Lavender 2016). To put his argument briefly, more and more performances are being conceived with the audience physically and experientially in the middle of the action. The scene is not held within a rectangle over there but is all around you, possibly engaging your senses of smell, touch, even taste, and challenging you exercise your agency in new ways. His book offers a number of detailed analyses of fantastic new works, some of which I have experienced myself. I encourage everyone to think of performance in this way, as a mental challenge if nothing else. I also encourage those who are less familiar with live performance to seek out some non-traditional works that appeal to you or your professional curiosities. The performing arts are simply too rich a resource to ignore, especially when accompanied by a methodology for applying the insights they provide to design research processes.

8 Closing

Feeling through experience, then, is a bit like feeling your way through a dark room. We are surrounded by digital technologies to the point where sometimes we can't even see them. We only notice them when we bump up against them. My work aims to make these points of contact into personally meaningful experiences. I would hazard that the same could be said of my brilliant colleagues at the Mixed Reality Lab as well, without

whom my body of work would never have come to fruition. PED therefore owes much to them, and to anyone who finds it interesting enough to try. I wish all of you – designers, HCI researchers, UX professionals, anyone invested in this area – the joy of bringing your own corner of the performing arts into your work. The everyday world can use more foot washes and hometown reminiscing.

Acknowledgements. VRtefacts received funding from the UK's EPSRC grant number 727040.

References

1. Austin, J. L.: How to do things with words: The William James Lectures delivered at Harvard University in 1955. Oxford University Press (1962)
2. Butler, J.: Gender trouble: feminism and the subversion of identity. Routledge, New York (2002)
3. Dewey, J.: Art as experience. Perigee Books, New York (2005/1934)
4. Fischer-Lichte, E.: Sense and sensation: Exploring the interplay between the semiotic and performative dimensions of theatre. J. Dramatic Theory Criticism **22**(2), 69–81 (2008). https://doi.org/10.1353/dtc.2008.0001
5. Goffman, E.: The Presentation of Self in Everyday Life. Anchor Books, New York (1959)
6. Goktürk, Mehmet: The Glossary of Human Computer Interaction, Chapter 37, Fitts's Law. https://www.interaction-design.org/literature/book/the-glossary-of-human-computer-interaction/fitts-s-law
7. Hassenzahl, M., Heidecker, S., Eckoldt, K., Diefenbach, S., Hillmann, U.: All you need is love: Current strategies of mediating intimate relationships through technology. ACM Trans. Comput.-Hum. Interact. (TOCHI), **19**(4), Article 30 (2012)
8. Heddon, D., Howells, A.: From talking to silence: a confessional journey. PAJ: A J. Performance and Art **33**(1), 1–12 (2011)
9. Langellier, K.M., Peterson, E.E.: Storytelling in daily life: performing narrative. Temple University Press (2004)
10. Lavender, A.: Performance in the Twenty-first Century: Theatres of Engagement. Routledge, London and New York (2016)
11. Norman, D.: Emotion & design: attractive things work better. Interactions **9**(4), 37–42 (2002). https://doi.org/10.1145/543434.543435
12. Reeves, S., Benford, S., O'Malley, C., Fraser, M.: Designing the spectator experience. In: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, pp. 741–750 (2005)
13. Spence, J.: Performative experience design. Springer International (2016). https://doi.org/10.1007/978-3-319-28395-1
14. Spence, J., Darzentas, D. P., Huang, Y., Cameron, H. R., Beestin, E., Benford, S.: VRtefacts: performative substitutional reality with museum objects. In: DIS 2020 - Proceedings of the 2020 ACM Designing Interactive Systems Conference, pp. 627–640 (2020). https://doi.org/10.1145/3357236.3395459
15. Spence, J., et al.: Gifting in museums: using multiple time orientations to heighten present-moment engagement. Hum.-Comput. Interact. **37**, 1–31 (2021). https://doi.org/10.1080/07370024.2021.1923496
16. Taylor, R., et al.: Designing from within: humanaquarium. In: Proceedings of the 2011 Annual Conference on Human Factors in Computing Systems, pp. 1855–1864 (2011). https://doi.org/10.1145/1978942.1979211

17. Wilson, M.: Storytelling and theatre: contemporary professional storytellers and their art. Palgrave Macmillan (2006)
18. Wolf, T.V., Rode, J.A., Sussman, J., Kellogg, W.A.: Dispelling design as the black art of CHI. In: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, pp. 521–530 (2006)

EXPERIENCES. Education and Culture

Storytelling as a Tool to Design Museum Experiences: The Case of the Secret Marquise

Licia Calvi[1](✉), Bertine Bargeman[2], Moniek Hover[2], Juriaan van Waalwijk[2], Wim Strijbosch[2], and Ondrej Mitas[3]

[1] Academy for Hotel and Facility, Breda University of Applied Sciences, Breda, Netherlands
calvi.l@buas.nl
[2] Academy for Leisure and Events, Breda University of Applied Sciences, Breda, Netherlands
[3] Academy for Tourism, Breda University of Applied Sciences, Breda, Netherlands

Abstract. This article describes how the 4 period rooms of the city museum in the Dutch town of Bergen op Zoom were redesigned using storytelling and how this design has been received by visitors. For this redesign, rooms were reframed as sets of the story of Marie Anne van Arenberg, Marquise of Bergen op Zoom, and the objects as props to stage her story, which was full of secrets and of unexpected turning points. The visitor is enticed to discover cues to unlock these secrets in order to get a grip on her story while exploring the museum space. This is however not a treasure hunt, nor *simply* a game, but an exploration in which visitors are invited to discover and to create meaning and a journey into what matters to them. To this end, they have indeed to resort to their own frame of reference and to their personal life story in order to come to a narrative closure at the end of their visit. We used Interpretative Phenomenological Analysis to understand the visitors' lived experience, both emotionally and sensorially at different moments and situations during the story-driven experience and to understand how the chosen design helps tell the story and how visitors use their personal context and frame of reference to make sense of it.

Keywords: Museum Experience Design · Storytelling · Meaning Making · Narrative Analysis

1 Introduction

'Nature creates bodies, but it is stories that turn them into people'. ([17], p. 9, own translation).

Since the advent of new museology at the end of the 1980s [16], with its shift from objects to stories and meaning-making, putting people and their stories at the centre of museum experiences, storytelling has become one of the dominant approaches used in museums as an exhibition practice, to design such visitors experiences, because of its ability to trigger emotions, to help create meaning and to evoke memories in people. Previous research [11] has indeed shown that storytelling leads to an increased feeling of narrative transportation (i.e., of being drawn into the story), and to more vivid

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 423–433, 2024.
https://doi.org/10.1007/978-3-031-49811-4_40

and accurate memories than when only factual information is provided. This proves particularly interesting and important in museums where design is used to help tell the story in an attempt to 'anchor content to context' [14]. Back in the 1990s, narratologist Mieke Bal was already comparing walking through a museum to reading a book [2]. Like with reading a book, for which, next to the linear order of one page following another, there is also the order that the active reader makes for themselves, by creating meaning (see for instance in [9]), so is for museums, where, besides the visitor following the routing that the curator has foreseen and the museum space allows, there is the meaning-making that visitors actively do, regardless of this physical order.

In this sense, storytelling is, according to museum specialist Leslie Bedford, 'an ideal strategy for realizing the constructivist museum, an environment where visitors of all ages and backgrounds are encouraged to create their own meaning and find that place, the intersection between the familiar and the unknown where genuine learning occurs' ([3], quoted in [18], p. 4). The challenge for the exhibition (experience) designer is how to make the design of an exhibition contribute to telling a story and to facilitating its comprehension.

In this article, we present how we tackled this challenge for the Marquise Palace (Markiezenhof in Dutch), the city palace in Bergen op Zoom, a town in the South of the Netherlands.

2 Design

For the Marquise Palace, which hosts the city museum and has no major artworks on display, storytelling seemed to be the best tool to redesign the visitor experience with the goal of helping the museum to rebrand part of its collection. We, a team of researchers and designers from Breda University, redesigned its 4 period rooms (see Fig. 1).

Fig. 1. The original period rooms in the Marquise Palace where Marie Anne's story is staged (from left to right): ballroom, bedroom, dining room, and epilogue room. Copyright: Moniek Hover.

We had initially developed the overarching narrative concept for the redesign of the whole city museum, which became the Palace of Secrets. Sometime after this, for the redesign of the 4 period rooms, we developed the storyline and interactions for the period rooms by linking the true dramatic story of Marie Anne van Arenberg, a historical figure, to these rooms. Her life has been marked by secrets. Marie Anne became marquise of Bergen op Zoom in the early 18th century by marriage. To satisfy her family's pressure for social status, she had indeed married, at a still young age, the much older marquis

Francois Egon, with whom she has a daughter. When the child is about three, Francois dies. Almost immediately after, Marie Anne starts a love affair with the late marquis's footman, Simon de Maisy, whom she eventually marries in secret, as he is of lesser social status. The marriage is officiated by the Cardinal of Bouillon, who, soon after it, starts to blackmail her: he wants Marie Anne to grant him custody of her daughter so that he can make claim to the late marquis's fortune, otherwise he will disclose this marriage to the rest of the family. Marie Anne's status-driven mother, who is desperate to maintain the family's position, eventually finds out about the secret marriage and forces Marie Anne to divorce Simon. If not, she will cast Marie Anne out of the family, and she herself will take custody of her granddaughter. So, Marie Anne is facing a dilemma: should she give up the love of her life to keep her child, or should she run away with Simon de Maisy but be cast out of the family and never see her daughter again?

Each of the period rooms is inspired by one of these secrets by representing a turning point in Marie Anne's story: the official marriage, the secret marriage and the betrayal, and the dilemma and choice, with, in a final room, the epilogue. These different episodes are reflected in the way the rooms are furnished: a ballroom, a bedroom, a dining room. The design principles we adopted assumed that the rooms would remain as much as possible close to their original design as to allow for art historical guided tours. Moreover, that the new design should strive to strike a balance between the amount of content that was provided and the amount of effort that was required by the visitors to understand it. It is a layered approach to disclosing content whereby in-depth, backstories are present for those who want to get to know more but that are not necessary to get the gist of the story since they also require more effort to be found. The assumption behind this design choice is that not everybody needs to experience everything and is, therefore, free to ponder how much cognitive effort to invest in this visit (see in [4]). In line with these guidelines, the rooms were 'reframed' as 'sets', and the objects as 'props' for the story.

In the new exhibition design, many digital and interactive elements were used to draw the visitor into the story. Following the star exhibit model [12], the main digital interactions (the video of the ball in the ballroom, the shadow play in the sleeping room, the moving table in the dining room) lead the visitor through the main turning points of the story in a rather linear way. Yet the visitor, as mentioned earlier, can also decide to roam the rooms freely and discover, at their own pace and in their own way, all the other elements that are there to stage this story. Many are still 17th-century collection items from the original exhibition design (the harpsichord, the fireplace, the dining table with the original dish set in a nearby cupboard), some are reproductions in the style of that period (the cardinal's painting, the family portrait, the jewelry box). On both types, an interactive component has been added which introduces other characters who bring in their own perspective on the events which took place during Marie Anne's life, giving visitors additional insights into the true events of the story. In some cases, like with the family portrait, this allows the visitor to become part of the story themselves by making choices (in this case, by signing either the divorce or the custody documents under the portrait itself, which changes portraying different family members as a result of this decision) and therefore 'influencing' the course of events and the end of the story. Only in the final, epilogue room, this is finally disclosed by means of an information panel that reports Marie Anne's final decision and what happened to her and the other

characters after this. There are also some other objects with no interactive component in the exhibition, of which some are original, like the canopy bed, and some are not, like the stuffed dog.

The Secret Marquise as design and exhibition has led to an increase in visitor numbers to the museum. As designers and researchers, however, we were interested in understanding more about this success. In particular, we wanted to understand what the visitors experienced, both emotionally and sensorially, at different moments during this story-driven design. Moreover, we were interested in understanding the meaning of this experience based on the participants' personal context, which includes the frame of reference they adopted during their visit and their previous experiences. Next to this, we wanted to understand how the design helps tell the story, i.e., how the museum space, consisting of the digital elements and physical objects, supports storytelling and meaning-making and determines the visitors' experience.

3 Approach

In the fall of 2021, the visitors' lived experience was evaluated using different approaches: a quantitative approach using biometric wristbands to register people's emotions during their visit, and a qualitative one consisting of a combination of observations, visual imagery, and interpretative phenomenological analysis (IPA [19]) to access the personal meaning visitors ascribed to this visit and experience. This article addresses the results of this qualitative analysis.

Qualitatively, our aim was to understand how respondents made sense of Marie Anne's story in the way in which this was presented throughout the exhibition. Building on John Dewey's seminal work on aesthetic experience, with the focus on interaction and continuity [8], we specifically looked at the visitors' personal context and frame of reference (e.g., their previous experiences, the connection to the visitors' own life story, possible associations with other stories from other sources) as related to the story on display in the period rooms since the visitor, rather than remaining an external observer of the exhibit, becomes part of the emerging story [7]. They do so by providing their own interpretation – they play an active role by 'putting the disparate pieces together, filling-in narrative gaps, and enlivening through the use of imagination' ([7], p. 451). In this way, they create their own meaning and understanding of it.

This 'active role' refers to the constructivist tradition in the arts which sees in closure the place where the resolution between text and reader (but also between movie and viewer or performance and audience [9]) takes place. This requires a dual process of selection and combination, i.e., the selection of particular narrative elements (characters, images, sounds, events, and settings) from a series of pre-given ones, and the combination of these chosen elements to generate specific tales and meanings.

In museum practice, this approach is well expressed in Chronis's framework of narrative construction [7] through a 3-stage process that starts when visitors enter the experiential space of the museum by bringing along their existing knowledge and experiences related to it and select ('narrative enrichment') and combine ('narrative imagining') elements from the exhibition, ultimately making sense of them ('narrative closure'). This implies that they interpret them according to their own frame of reference which consists

of their pre-existing knowledge of the topic, of previous experiences, and of their own life story.

This puts the focus on what Connelly & Clandinin call 'the three-dimensional narrative inquiry space of temporality, place and sociality' ([6], p. 54). The sociality they refer to implies the establishment of a relational engagement between the researcher and the participant. We achieved this by having conversational interviews [21] with the visitors, with the purpose of unlocking their lived experience, without steering them too much towards reconstructing the experience or remembering it.

4 Method

30 participants, evenly divided between male and female, with ages ranging between 23 and 76 years, were selected through convenience sampling. For the pre-visit interview, we asked them to bring along an artifact that they felt typifies them, as an icebreaker to get familiar and to create a safe environment before the actual visit could start. We invited them to take pictures with their smartphone of what made them curious or triggered their attention during the visit, while we shadowed them as participant observants. After the visit, we had in-depth, conversational interviews (see above). Our focus, as mentioned, was on interviews as conversations by using the artifact they brought along, to trigger the telling of stories, on the relational engagement between researcher and participant, and on the three-dimensional narrative inquiry space of temporality (how the visit unfolded), of place (what was noticed by the visitors in the museum space and what not, and how this was discovered) and of sociality (if and how they interacted with other people, considering that some of the visitors were visiting together with a friend or a family member) [6].

We started this conversation by asking them to draw on an empty map of the exhibition space the way they had navigated that space and to indicate what they had experienced in each room. Additionally, we also looked at the pictures they had taken during their visit and used them to trigger emotions and understand their frame of reference better.

The data we collected was analysed using the narrative experience method (NEM [20]). First, by means of IPA, we searched through the transcripts of each participant's interview for interesting quotes, for repeated terms, for anything that seemed relevant in the light of the research questions we were addressing (namely, understanding the visitors experience, understanding their meaning-making process and understanding how the design helps tell the story – see above). Subsequently, we have reconstructed each participant's narrative of their visit trying to make sense of the information we had identified in the previous phase focusing first on *what* the participants had experienced (textural description [1]: the possible meanings that the visit has evoked in the participants) and then on *how* they have experienced it (structural description [1]: how the process of meaning creation unfolds over the course of the experience). To this end, we have also made use of the notes we had taken, of the floor plan with the routing they have followed that they have drawn at the start of our conversation, and of the pictures they had shared with us. This allowed us to link these initial annotations to emerging themes at a higher level of abstraction, so as to come to themes 'which are high-level enough to allow theoretical connections within and across [participants] which are still

grounded in the particularity of the specific thing said' ([19], p. 41). In this way, we could identify underlying values and meanings that the participant was expressing. In all of this, our own interpretation as researchers clearly plays a significant role. This is why establishing an emotional engagement between researcher and participant from the beginning is so important to guarantee that the researcher's interpretation remains tuned to what the participant really means (or is believed to).

On the basis of the above, we have derived recurring themes.

5 Results

5.1 Roaming the Exhibition

Our results show that many participants started their visit by exploring the museum space as a way to get to know it. This exploration brought them first to discover the physical objects in the rooms, which also entailed reading the information panels next to these objects (as for example with the paintings).

To guide the participants through their visit of the 4 period rooms, they could also use a map of the exhibition that was offered to them by a butler at the exhibition entrance, in the form of an invitation to the wedding ball of Marie Anne with Francois Egon. This invitation shows twelve touchpoints over the four rooms and invites the participants to go through to get to the full story experience. Some participants pointed out that they did not find it obvious that they had to walk to the butler and pick up the invitation. This created a misunderstanding in some cases on what to do further.

> 'It was a shame that we did not notice the importance of the invitation and the exciting story from the beginning.' (R06).

Some others found the welcoming introduction by the butler not engaging enough to raise their attention. Some, not knowing what the story was about, lost their interest in the remainder of the experience, while others became even more curious to know what was going on.

> 'I was very curious about the next room and then the next. I was thinking; okay nice but what now? It is fun enough to keep going on a discovery.' (R08).

Although the invitation was a tool to help participants not only roam the rooms but also make sense of the story, they were free to move around in the way that best suited them. Most said to have appreciated this freedom of movement. This however had an impact on their story understanding. Participants were not always 'hooked' to the story and did not always understand the purpose of its design.

> 'When I entered the first room, I was waiting for something to happen. And when it didn't, I decided to go and discover the rooms myself.' (R09).

Our results however show that the majority of our participants did take and read the invitation. The invitation suggests that there is an order to navigate the rooms and explore the space and indeed we observed that the participants who read the map were

not just wandering around in the museum space. At the same time, though, they reported afterwards that this gave them the feeling that there was a 'right' way of roaming the rooms and that they could get it 'wrong'. And indeed, in this case, we saw them go back and forth to do what they thought they had missed out.

> 'We may have missed half of it, but if we had read the invitation it would have gone well.' (R11).

5.2 The Role of the Digital Touchpoints

The interactive elements easily caught the participants' attention, especially if they were big enough to be spotted in their exploration, impressively designed and clearly visible in the room (see Fig. 2). An example of this is the dinner table (see Fig. 2, centre) with splashing wine glasses and moving objects on it to represent the heavy discussion at dinner among the family members as a tool to express the fracture in the family (which is also visibly drawn on the table itself) once Marie Anne has to face her final choice between the love for her husband and the love for her daughter.

> 'I did not expect the table scene to be so intense, it was at that point that my emotions started to take the better of me.' (R22).

Fig. 2. An overview of the interactive elements, one per room (from left to right): the butler with the invitation, the talking painting of the cardinal, the dinner table with the last family quarrel, and the family portrait which changes depending on which document (either divorce or custody) one signs below it. Copyright: Moniek Hover.

On the contrary, smaller objects like the jewelry box were not easily noticed, precisely because they are less eye-catching and their function both in the room and in hindsight also in the story's meaning-making was not immediately clear, and could therefore constrain the narrative enrichment, imagining and closure [7]. The combination of these features created a sense of irritation and confusion for these objects in the participants because they were perceived as purely distracting, non-functional elements, while the digital elements were perceived as very effective in bringing the story to life and emotionally very immersive and intense.

> 'The talking painting, that was amazing. Also, the very simplistic movements of the curtains, it makes you think of a magical world.' (R06).

Most participants could easily understand how to interact with these artefacts, also when this was not intuitive and they had to find it out by themselves and experienced this interaction in a positive way (for example, again, the dinner table and the talking portrait).

> 'There were several ways to activate them and that was very funny! Somehow, your brain works differently, then; you pay more attention because you are part of the process.' (R16).

Moreover, they reported feeling a general sense of curiosity for the digital elements, of surprise for their novelty, of pleasure and fun for the way they look and operate. Nevertheless, digital elements have been perceived in some cases as awkward, like the noise of the engine activating the interaction at the dinner table, as distracting from one's own flow in the story, when the visitor is not involved in this interaction and this is started by other people in the room, but most of all, as requiring too much of the participants' attention.

> 'If other people are behind you and you are at the fire, you will not hear the story, everything will be mixed up.' (R04).

But the fact that they had to be active participants and not just passive observers of the events staged in the exhibition, because they had to put certain actions in motion themselves, raised their interest in the story and fueled their narrative imagination.

> 'The way it's presented makes everything come closer'. 'You aren't only an observer.' (R05).

While the alternation between traditional and digital storytelling touchpoints was experienced as effective in delivering the story, the participants experienced the combination of interactive elements and static physical objects as overwhelming. There were simply too many touchpoints in the story to allow participants to process them properly and at their own pace. They reported feeling a sort of pressure to move on, to explore further, and missed the presence of an empty space for them to sit and 'digest' the information between storytelling touchpoints, to sit and reflect on what was just experienced [13].

Interestingly, though, respondents pointed out that they felt relieved when they entered the last, epilogue room and were only confronted with a form of traditional storytelling: a panel in which the true story of Marie Anne was presented.

> 'At the end of the story the total picture, the subject and the outcome were told. I reckon it might be better if it was stated in the beginning in order to raise my interest in the story, it was not on during the story.' (R24).
>
> 'I wanted to know how it all ended, like with a Netflix series, whether she (i.e., the small child) ever saw her mother again.' (R10).

This panel, by simply listing facts and events, did not leave space for any (mis)interpretations of the types that the digital interactions did allow, but was also

perceived as more limiting in allowing participants to make their own meaning of the story. This seemed however to be the most effective way to end the visit (and the story) and to help visitors come to a closure. When it comes to understanding it, only a minority of the participants did understand the story, but sometimes only in hindsight (narrative closure), also because only a minority of them reported having understood the role of all the objects in the rooms for story comprehension. Of these, the digital elements, although making them more actively involved in the story, did not always succeed in drawing participants into it. As a result, we often witnessed a mismatch between what they (reported to have) experienced (so, the meaning they have created) and what the story is really about.

6 Discussion and Conclusion

The aim of this study was to understand how storytelling can be used as a tool to design museum experiences, knowing that a narrative approach to design is not new in museum practice and is rooted in the constructivist tradition in the humanities. In our redesign of the period rooms, many storytelling touchpoints are provided in the form of either static or interactive objects, which all become cues the visitor must find to build the puzzle of understanding Marie Anne's story and of unlocking her secrets. To refer to Chronis [7], again, these touchpoints could facilitate the narrative enrichment, imaging and closure of the participants.

> 'If those moments of digital interaction were not there, I would have walked straight through, it also awoke my interest in reading the storyboards, because I wanted to keep learning more.' (R04).

While the alternation of traditional and digital storytelling was experienced as effective in delivering this story, the number of touchpoints was overwhelming and difficult for participants to deal with, in an attempt to strike the right balance between getting to know (enough) content to be able to make sense of the story and the amount of effort required to disclose it. This shows that too many touchpoints could hamper the process of self-exploration which facilitates narrative enrichment, imagining and closure.

> 'I had the feeling that I was constantly pulled back by the moving paintings for example. I wanted to feel the experience without being bothered.' (R16).

Participants needed a story-free space, a space in which they could 'mumble' the cues they had collected until that moment, a 'space to imagine' [10], in which they could let the information sink to be able to reflect upon it.

> 'I find it disappointing that all my attention went to the digital touchpoints and that I was therefore not able to look outside, to the paintings and to the walls. I had no time to think about what just happened.' (R09).

This 'reflective space' [15] which is typical of art galleries becomes in museums a 'free space' [15] that facilitates and supports 'open-ended communication' [15] and

is against the linear routing of curatorship. It supports a more personal fruition of the museum space itself.

Nevertheless, this design has proven effective in helping the museum tell Marie Anne's story and in helping the participants build *their* plot. i.e., their meaning of it.

> 'This (i.e., the shadow play in the bedroom that stages Marie Anne's love story, from getting a child from Francois to his death and her love affair with Simon) was the point on which the gradient of the story became clear to me and I could connect the dots more easily in the rooms after.' (R01).

How meaning is created, what conclusion is reached, which interpretation they give to her life, what choice they had made had they been in her shoes, all depends on the frame of reference participants bring along which makes them identify or not with one of the characters in this story. So, some may sympathise with Marie Anne as the young woman who chooses to follow the love of life; some others would instead identify themselves with Marie Anne-the mother and choose to protect their child.

> 'You have to make a choice for her, that gives you the feeling of what you would do. And then you think about what you find relevant in life.' (R18).

So, even though not all participants were able to indicate what the message of this story really is, they have all been able to create a meaning that is relevant to them. This proves how a storytelling-driven design is effective in telling a story, less, however, how effective it was to embed and root this content to the museum space. But this also proves, as Jerome Bruner had already concluded in his book Acts of Meaning [5], that storytelling is indeed the primary tool by which human beings make meaning.

Acknowledgments. The authors would like to thank the employees and volunteers of Markiezenhof for their hospitality and support during the data collection, as well as the participants of this study for sharing their experiences with us. A special thank also goes to Nicole Symington for the interesting conversations on her narrative experience method.

This research has been financed by Regieorgaan SIA, part of the Dutch National Funding Organisation for Scientific Research (NWO).

References

1. Alase, A.: The interpretative phenomenological analysis (IPA): a guide to a good qualitative research approach. Int. J. Educ. Literacy Stud. **5**(2), 9–19 (2017)
2. Bal, M.: Double Exposures: The Subject of Cultural Analysis. Routledge, London/New York (1996)
3. Bedford, L.: Storytelling: the real work of museums. Curator Museum J. **44**(1), 27–34 (2001)
4. Bitgood. S.: An attention-value model of museum visitors. Center for Advancement of Informal Science Education: Washington, DC, USA (2010)
5. Bruner, J.: Acts of Meaning. Harvard University Press, Cambridge (1992)
6. Connelly, F., Clandinin, D.: Stories of experience and narrative inquiry. Educ. Res. **19**(5), 2–14 (1990)

7. Chronis, A.: Tourists as story-builders: Narrative construction at a heritage museum. J. Travel Tour. Mark. **29**(5), 444–459 (2012). https://doi.org/10.1080/10548408.2012.691395
8. Dewey, J.: Art as experience. Minton, Balch (1934)
9. Eco, U.: Lector in fabula. Bompiani (1979)
10. Greenberg, S.: The vital museum. In: Macleod, S. (ed.). Reshaping museum space, pp. 226–237. Routledge (2005)
11. Hover, M., Bargeman, B., Bastiaansen, M., van Waalwijk, JM., van den Eijnden, F., Strijbosch, W.: Vincent van Gogh en storysperience. In: Vermeulen, T., Bijl, J., Rooijackers, M., Heslinga, J., Politiek, M., Heerschap, N., Schreven, L., van Wijk, K. (eds.). Trendrapport toerisme, recreatie en vrije tijd, pp. 534–540. PleisureWorld NRIT (2019). http://webform1.nhtv.nl/mediatheek/Link.aspx?ID=3530
12. Hughes, P.: Exhibition Design: An Introduction. Lawrence Kinf Publishing Ltd, London (2015)
13. Jonker, H.: Storytelling as a tool to design experiences - A case study conducted within the Period rooms of the Markiezenhof museum in Bergen op Zoom. BA, Breda University of Applied Sciences (2022)
14. Macleod, S. (ed.): Reshaping museum space. Routledge (2005)
15. Marshall, C.: When worlds collide: the contemporary museum as art gallery. In: Macleod, S. (ed.) Reshaping museum space, pp. 170–185. Routledge (2005)
16. McCall, V., Gray, C.: Museums and the 'new museology': theory, practice and organisational change. Museum Manage. Curatorship **29**(1), 19–35 (2014)
17. Pfeijffer, I.L.: Monterosso mon amour. Boekenweekgeschenk (2022)
18. Skolnick, L.H.: Towards a new museum architecture: narrative and representation. In: Macleod, S. (ed.) Reshaping museum space, pp. 118–132. Routledge (2005)
19. Smith, J., Osborn, M.: Interpretative phenomenological analysis. In: Smith, J.A. (ed.) Qualitative Psychology: A Practical Guide to Research Methods, pp. 25–52. Sage, Los Angeles (2015)
20. Symington, N.: Designing from the inside out. Paper presented at the 7 Experiences Summit (2021), online
21. van Manen, M.: Researching Lived Experience: Human Science for an Action Sensitive Pedagogy. State University of New York Press, Albany (1990)

Open Communication Design A Teaching Experience Based on Anti-disciplinarity, Thinkering and Speculation

Francesco E. Guida(✉)

Department of Design, Politecnico di Milano, Milan, Italy
francesco.guida@polimi.it

Abstract. This paper aims to present and discuss how the teaching of visual identity and experience design in Communication Design education may be developed within a speculative design framework. By adopting this approach, students can experience the ethics of design practice and explore alternative design values, forms, and representations. They become familiar with design as a problem-seeking and problem-finding practice, which encourages the development of concepts, scenarios, and results without any predetermined function. Assuming an open approach to final results and learning more about a design field to be intended as an *open context* with blurred borders.

They base the project's development on the principle of learning by doing, which consists of thinkering, making mistakes and repeatedly trying to improve the results and acquiring competencies and skills. This method pushes the students to experiment with visual expressions and user experiences between two and three dimensions. They could range among many techniques and technologies, from analog to digital ones. Consequently, each design had to be theoretically discussed and physically verified by making prototypes.

By defining a design process and discussing the implications of an *anti-disciplinary approach*, the aim is to inquire how such framing may destabilise conservative methods and consolidate new practices into Communication Design learning.

Keywords: Communication Design · Speculative Design · Thinkering · Design Education · Anti-Disciplinarity

1 Introduction

Communication Design is an open context with blurred borders [1, 2] and, by its very nature, is a discipline situated among scientific knowledge, technical expertise, and art. The discipline's knowledge and culture are becoming increasingly difficult to fit into any existing academic standard compared to the past. It is possible to define it as an anti-disciplinary field that requires a new set of values [3] in terms of knowledge, culture and expertise because of the recent changes and advancements in technologies, expectations and requests from users, audiences and industry. In addition, it is possible

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 434–442, 2024.
https://doi.org/10.1007/978-3-031-49811-4_41

to witness a clear switch from the centrality of function to the centrality of meaning [4]. These statements convey the idea that Communication Design, far from being a mere problem-solving framework, can also be a tool for exploration and questioning to front the uncertainty of our contemporaneity. Because, as affirmed by Bauman [5], in today's world, "the only certainty is uncertainty".

Over the last nine years, these premises have inspired the teaching method and the assignments of a third-year Communication Design Studio (Bachelor in Communication Design) at Politecnico di Milano's School of Design. The students are prompted to work on visual and experience design related to thought-provoking themes, such as human conditions, emotions, or superstructures, like death or rituals, in the meaning of Harari [6]. The theme is an opportunity. The task is to design communicative ecosystems with interactive experiential devices (defined as 'Communicative Machines') as the main applications in a critical and speculative framework.

This is the starting point to involve students in a reflective practice [7], both theoretically (concept, design) and physically (tools, production). Consequently, Communication Design can be used as a tool and a means to validate speculation: the speculative process is correct when designed artefacts, devices, and ecosystems can effectively convey it. Design should not be considered a self-reflexive practice but rather a powerful communication tool to promote speculation.

Students, who work in teams, learn to cross disciplinary borders and adopt a critical approach. Experimentation is intended as a means to find solutions [8], even in areas that teachers, professionals, or students do not master confidently. While developing their projects following learning by doing approach, students experience something close to the definition of thinkering [9], according to which results can only be obtained through progressive and collective reworks. Consequently, the discussed teaching approach does not aim to reassure students with fixed notions. Instead, its goal is to unsettle them, providing a set of tools by which they can deal with uncertainties and develop their design outcomes based on the context they are working in.

2 Speculative Design and Technological Fluency

"As design educators, we cannot afford to exclude Speculative Design from […] education of our students, especially after the current crisis that the whole world is experiencing" [10]. As a pedagogical tool, speculative design opens students' minds to "think more creatively and critically about the role of design in our shared futures" and apply design principles in different contexts and types of projects. Most design educational programmes still adopt "the modernist rational and functional understanding of design as a problem-solving discipline" [11].

By adopting a speculative design approach, students can experience a variety of possible media and tools that are not exclusively belonging to a specific design area or a fixed method. They can practice various approaches, tools, techniques and instruments as well as other practices and disciplines [12]. However, another issue is also relevant here, and it is the one of the technological fluency to be interpreted as the "ability to translate between domains and view the membranes separating areas of inquiry as porous" [13]. Lukens & DiSalvo [13] affirm that "speculative design and technological

fluency are cross-disciplinary and integrative". Bringing code within the toolset enables students to learn "procedural literacy" and no longer regard the computer as a mysterious "black box" [14]. They regain control of the technology. In the professional context, computational design is misunderstood as a technical skill instead of being regarded as a way of thinking. According to Reas, it allows "to think around and outside of the constraints of any specific piece of software – it makes it more possible to imagine and invent something new […] the code is a means to an end, and the focus is on what the code creates or generates" [15].

Moreover, it is crucial to consider accessibility to instructions and information related to programming languages offered by the global open source culture as a critical component in this evolutionary process [16]. This culture allows sharing of knowledge, results, and codes, making a constant upgrade possible. Knowledge becomes available for all, blurring the boundaries of a merely academic or professional disciplinary field. For these reasons, students are encouraged to use coding environments (Processing, p5.js, Three.js), electronics and embedded programming with the Arduino ecosystem and digital fabrication to start processes and develop applications. As commented by Bernstein, "fluency with technology often draws on knowledge, skills, and approaches that cross traditional disciplinary boundaries" [17].

3 A Critical and Anti-disciplinary Design Pedagogy

According to the belief that design is a tool to create ideas, not only things, students are involved in a process that moves from problem-solving to problem-finding. That encourages the development of concepts, scenarios and results without any predetermined function, aesthetic or, as already affirmed, boundaries in the use of technology.

The process is based on an anti-disciplinary and evolutionary idea of the educational design process, which does not rely on a fixed design method. Defining a pedagogy as anti-disciplinary means "going one step beyond being multi-disciplinary" [18], avoiding strict specialisation in Communication Design education. Adopting an anti-disciplinary approach could mean "not only working in one specific field, but rather instead drawing from elsewhere to imagine something new" [19].

The applied methodology can be visualised with a spiral model, representing repeating cycles of design moving away from a central starting point (Fig. 1). In each of the four main phases, students experience different steps in the design process as they gradually approach their final assignment.

Once the general theme is given, each group has to define a specific point of view on the theme and a concept to work on: so they have to seek and find a problem to highlight and discuss. They use human superstructures and organisations as useful subjects to 'represent' their fiction. It is a "critical pedagogical strategy that emphasises alternative approaches to conventional problem-solving paradigms" that "include both problem-seeking initiatives, and problem-posing inquires" [20]. In this phase, they define a scenario and design concept, starting with a "what if?" question.

The second step is to define a communication strategy and how to develop it in a multidimensional and multichannel dimension (touchpoints and selected media), as well as the 'Communicative Machine' (an interactive object or installation) main functions, meanings, and contents. According to their concept and strategy, they must think

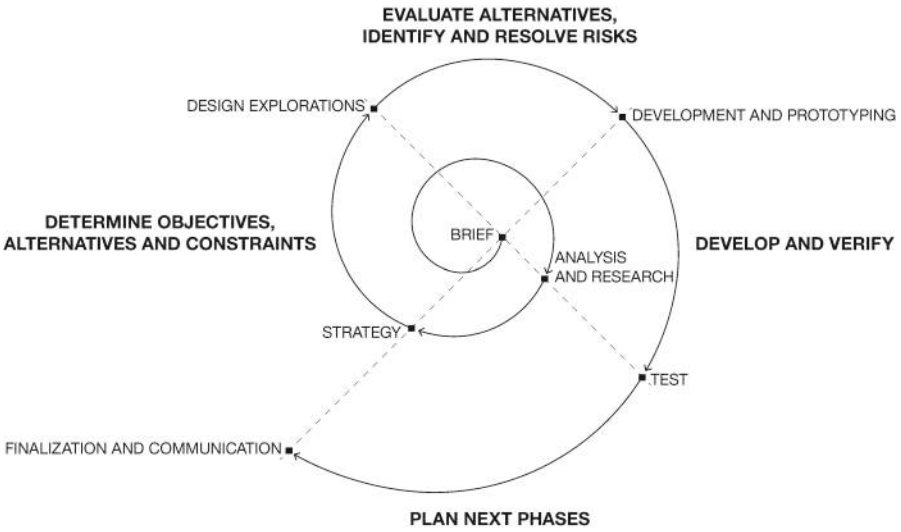

Fig. 1. The spiral model of the applied methodology.

and design a visual identity to consistently communicate in two and three-dimensional outputs. By doing so, the students gain confidence in the design of complex systems.

Few steps are mandatory, and deadlines are not given beforehand to teach the students to move autonomously towards a final result by testing concepts and outputs. The core activity is the prototyping phase, which involves both digital and analog areas. The groups are not strictly organised by distributing students' skills or interests. They are instead encouraged to autonomously acquire the skills they lack – especially for what may concern the areas of digital design, coding and prototyping.

The main outputs are 'Communicative Machines': objects, installations, or interactive devices to be realised as prototypes to be verified and tested (Fig. 2).

Those 'machines' are intended as "object personas": an extension of the design research and educational process arguing for design fiction as an important methodological tool. Design fiction represents a speculative mode of thinking that can disclose new questions and unconventional opportunities [21].

4 Communicative Machines

As Peace affirms, "a work of speculative design is often an object […]. While prototyping deals with how an idea could be realised, speculative design asks what if that idea was prevalent in our society? Would we want it?" [22]. Those statements appear to be consistent with the learning process's aims and the following results. Each project has been developed (from the concept to the final prototype) over five months. Results are of different scales (from installations to home devices) and show a range of output using various approaches among the variety of critical and speculative ones.

Fig. 2. From top-left, clock-wise: Micromort's monolith, design by A. Aspesi, C. Bacchini, E. Carbone, P, Forino, D. Perucchini, E. Taboada Fung, A.Y. 2019-2020; Schadenfreudemetertest (Geist), design by A. Arosio, L. Bernini, E. Coppo, E. Monasteri, F. Testa, A.Y. 2019-2020; TOD, design by G. Bonassi, M. Bracchi, S. Casavola, D. Renzulli, T. Stragà, M. Visini, A.Y. 2020-2021; Proxy by Nextnet, design by A. Avanzi, L. Baraldi, S. Cellura, A. Nodari, A.Y. 2021-2022.

During the 2019–2020 Academic Year, the assigned main theme was 'Death' (http://morte13.labsintesi-c1.info/); an intriguing and demanding issue, especially considering that just after a few months, we had all to front it directly because of the pandemic. Out of 13 projects, it could be interesting and helpful to look at two of them deeper.

Micromort, a fictional currency connecting nationality and the value of death, emphasises that death always has a different social value depending on where it occurred or who has been involved. The critical and political position behind the project is that this value depends on how the western world perceives itself. The speculation is materialised into a 'stock exchange monolith', using this solid metaphor for engaging the user. Thanks to an algorithm (Hades 2.0) that considers the GDP per capita, population and number of violent deaths of each nation between 2000 and 2017, Micromort calculates the price of every single death worldwide. More than 21.000 real data items have been collected from public databases. The consistency of the Communication Machine design (a monolith), the data visualisation and the user interaction/interface reveal the critical position of the students (https://micromortproject.github.io/micromort/).

Geist (Gedankliches Experimentelles Institut für Spezielle Therapien, which means Experimental Institute of Thought for Special Therapies) is a fictional scientific research centre that studies unknown aspects of the human mind as the Schadenfreude, the pleasure caused by others' bad luck or death. A fictional test (Schadenfreudemetertest) forces

the users to simultaneously watch six videos of real-life events, including deaths and killings. The machine is equipped with an Eye Tracker that follows the movements of the user's gaze, analysing how long people focus on each video. Another essential part is the headrest, equipped with two blinkers with integrated speakers that play the audio and constrain the users' movements while watching the videos. At the end of the experiment, the Eye Tracker's collected data are processed by customised software that prints a report, showing the trend of the user's Schadenfreude level. The whole experience aims to reflect on human morbid curiosity about death, which tends to be emphasised by media and social channels, through fiction with several communicative levels: a consistent visual identity inspired by Dieter Rams' design for Braun, which has been developed both in two and three dimensions; the accurate selection of videos showing well-known events; the final data visualisation; an ironic narrative (http://geistlab.de/).

Tod, a sort of home device developed during the Academic Year 2020–2021 (http://retuals.labsintesi-c1.info/), intended to speculate on the ritual of deads commemoration, starting from the question "What if commemorating the dead was an evaluated performance?". That year the theme was 'human rituals' to explore a permanent pandemic condition. Tod blends into the environment and the everyday life of its users just like every high-tech appliance. It guides the user to the proper commemoration of the dead by suggesting the right frequency and execution. The Core symbolizes each deceased person; it is a portable device made 'alive' by the glow of an ever-changing luminous 'will-o'-the-wisp'. The user can perform the memorial service by placing it in his home hub and periodically performing three tasks: Contact, Conversation and Remembrance. In this case, the speculation, if compared to the two previous cases presented, moves from a pure critical goal to a design future one, assuming the possibility of such a home ritual (https://toditalia.com/).

Finally, during the Academic Year 2021–2022 (http://fattididati.labsintesi-c1.info/home.html), having as the main theme 'Daily Data', another home device, named Nexnet Proxy, intended to speculate on the impact of the internet on the environment. The internet machine consumes energy and produces tons of CO2 every day, although people continue to see it as ethereal and pure. In a fictional future plagued by an economic and social crisis, the ecological impact of the internet is out of control. Each country is forced to ban the internet planetwide, and Nexnet Proxy is the only device capable of generating connection through user effort. Although the scenario may appear simplistic, it is possible to position Nextnet as a critical-speculative project, imagining a possible future that could also be an alternative present considering the current conditions of our planet.

5 Conclusions

The four shortly discussed projects developed using the presented pedagogy process interpret the different assigned themes (death, human rituals, daily data) starting from different points of view, developing different scenarios, using various technologies and media, from analog to digital ones. A natural consequence is that each design has to be theoretically discussed and physically verified by making prototypes. Students are pushed to experiment with visual expressions, user experiences and tangible interactions

between two and three dimensions, involving inevitably the fourth, the one of time. Students unveil unconventional approaches to the project and explore alternative design values, forms, and representations [23, 24].

The speculation and the critical stance are translated actively by using Communication Design. By adopting this approach, students are led to assume a critical attitude towards their position as designers, reflecting their practice's social and political implications. It is necessary and urgent for the designer to be trained to "reflect-in-action" to become a "researcher in the practice context" [7] and not just to solve problems.

Auger et al. [10] confirm this position as follows: "as a pedagogical tool, speculative design – at its best – opens students' minds to brave new worlds: to critical and creative interventions, transgression, and change, as well as the possibility of applying design principles and tools in very different contexts and types of projects. The speculative approach allows students to create a set of tools and a language for understanding the consequences of their design practice. It is particularly stimulating as an educational tool because it foregrounds criticism, self-reflection, and a move away from familiar practices."

Where design has been paradoxically left behind by its own modernist promises [25], showing the limits of its deterministic spirit, it becomes necessary to re-think new roles for design itself [26]. As stated by Bauman [27], in a post-modern society rife with uncertainties, it is in the ambiguity itself that a transformative potential can be found. For this reason, the proposed teaching approach opens a space for intellectual exploration, demanding a tangible Communication Design translation of such speculation, which can be discussed and evaluated. Furthermore, today, this approach appears even more plausible in a period of new uncertainties. As a designer, far beyond the overconfident utopia of trying to change the world, using Communication Design tools and methods to understand better and critically observe reality may be a first step in contributing and being humble and better citizens of our time.

Using this approach in an educational context aims at opening the disciplinary fields in a consistent and contemporary manner, breaking its borders, and looking to anti-disciplinarity as a necessity for future designers.

Acknowledgements. The author would like to thank the teachers and colleagues who worked during the last years at the Communication Design Studio (Final Synthesis Design Studio), School of Design at Politecnico di Milano. Precisely, professors Andrea Braccaloni, Pietro Buffa di Castelalto, Giacomo Scandolara and Alessandro Masserdotti, the assistants Marcello J. Biffi, Alberto Candido, Michele Invernizzi, Adele Mazzali, Andrea Pronzati, Claudia Tranti and Ernesto Voltaggio. With them, it has been possible to launch, share and evolve an actual, not easy, inventive method and design practice. Consequently, a grateful thought is for all students who accepted the challenge and enthusiastically followed its development.

References

1. Armstrong, H.: Graphic Design Theory: Readings from the Field. Princeton Architectural Press, New York (2009)
2. Grimaldi, P.: Blur Design. BlurDesign **1**, 139 (2009)
3. Ito, J.: Design and Science. Can design advance science, and can science advance design?. J. Design Sci. 1 (2016). https://doi.org/10.21428/f4c68887. Accessed 22 Sept 2022
4. Antonelli, P.: Talk to me. In: Hall, E. (ed.), Talk to me. Design and communication between people and objects, pp. 6–16. Museum of Modern Art, New York (2011)
5. Bauman, Z.: Modernità Liquida, p. VII. Laterza, Roma (2000)
6. Harari, Y.N.: Sapiens: a Brief History of Humankind. Harvill Secker, London (2014)
7. Schön, D.: The Reflective Practitioner: How Professionals Think in Action. Temple Smith, London (1983)
8. Triggs, T.: The Typographic Experiment: Radical Innovation in Contemporary Type Design. Thames & Hudson, London (2003)
9. Antonelli, P.: States of Design 03: Thinkering. Domus Web (2011, July 4). http://www.domusweb.it/it/design/2011/07/04/states-of-design-03-thinkering.html. Accessed 22 Sept 2022
10. Auger, J., Hanna, J., Helgason, I., Mitrović, I. (eds.): Beyond Speculative Design: Past – Present – Future. University of Split, Arts Academy (2021)
11. Auger, J.: Speculative design is a counter to normative design [Interview]. Speculative – Post-Design Practice or New Utopia? (2016). http://speculative.hr/en/james-auger/. Accessed 22 Sept 2022
12. Mitrovič, I.: New Reflections on Speculativity. Speculativeedu (2019). https://speculativeedu.eu/new-reflections-on-speculativity. Accessed 22 Sept 2022
13. Lukens, J., DiSalvo, C.: Speculative design and technological fluency. Int. J. Learn. Media **3**(4), 23–40 (2012)
14. Crow, D.: Magic box: craft and the computer. Eye **18**(70) (2008). http://www.eyemagazine.com/feature/article/magic-box-craft-and-the-computer. Accessed 22 Sept 2022
15. Cangiano, S.: Coding as a way of thinking – interview with Casey Reas. Progetto Grafico **13**(30), 10–19 (2016)
16. Lehni, J.: Teaching in the spaces between code and design. Eye **20**(81) (2011). http://www.eyemagazine.com/feature/article/teaching-in-the-spaces-between-code-and-design. Accessed 22 Sept 2022
17. Bernstein, D.: Developing technological fluency through creative robotics. PhD dissertation, University of Pittsburgh (2011). http://d-scholarship.pitt.edu/8780. Accessed 22 Sept 2022
18. Childress, J.: Head, Hands, Heart & Voice. justinchildress.co (2016/05/26). https://justinchildress.co/head-hands-heart-voice. Accessed 22 Sept 2022
19. Brin, S.: Making/Meaning in the Realm of Anti-Disciplinarity. opentranscript.org (2016/11/02). http://opentranscripts.org/transcript/making-meaning-antidisciplinarity/. Accessed 29 Sept 2022
20. Blauvelt, A., Davis, M.: Building bridges: a research agenda for education and practice. In: Beirut, M., Drenttel, W., Heller, S., Holland, DK (Eds.): Looking Closer 2, pp. 77–81. Allworth Press, New York (1997)
21. Cila, N., Giaccardi, E., Tynan-O'Mahony, F., Speed, C., Caldwell, M.: Thing-centered narratives: a study of object personas. In: 3rd Seminar Research Network for Design Anthropology. The Research Network for Design Anthropology, Aarhus (2015). https://www.researchgate.net/publication/305781838_Thing-centered_narratives_A_study_of_object_personas. Accessed 29 Sept 2022
22. Peace, E.: Speculative design for the real world. How speculative design methods can drive innovation. Uxdesign.cc (2019/07/24). https://uxdesign.cc/speculative-design-for-the-real-world-551130b22827. Accessed 29 Sept 2022

23. Johannessen, L. K.: The young designer's guide to speculative and critical design. (2017). https://www.ntnu.edu/documents/139799/1279149990/16+TPD4505.leon.johannessen.pdf/1c9221a2-2f1b-42fe-ba1f-24bb681be0cd. Accessed 22 Sept 2022
24. Bardzell, J., Bardzell, S.: What is critical about critical design? In: CHI '13: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, pp. 3297–3306. ACM, Paris (2013). https://doi.org/10.1145/2470654.2466451. Accessed 29 Sept 2022
25. Colomina, B., Wigley, M.: Are we human? Notes on an Archaeology of Design. Lars Müller Publishers, Zürich (2016)
26. Dunne, A., Raby, F.: Speculative everything. Design, fiction, and social dreaming. MIT Press, Cambridge (MA) (2013)
27. Bauman, Z.: Scrivere il futuro. Castelvecchi, Roma (2016)

Fashion Education: Cultivating Fashion Designers-Plants

Clizia Moradei(✉)

Università Iuav di Venezia, 30135 Venice, Italy
cmoradei@iuav.it

Abstract. In the context of the contemporary social and ecological crisis, this contribution proposes a reinterpretation of current fashion design educational programs through a bio-inspired perspective, with the intent of guiding next generation fashion designers to successfully face such issues. The investigation delineates the theoretical subsoil to frame the topic by illustrating some key concepts connected to 'fashion futuring', 'making kin', plant neurobiology, collective authorship and co-design, translated within fashion studies. Specific plant neurobiology and botanical definitions are then applied to the qualitative analysis of two peculiar didactical case studies: the Master in Co-diseño de Moda y Sostenibilidad at the Escola d'Art i Superior de Disseny de Valencia (Spain); the course in Biomoda at the Universidad de los Andes (Colombia). Proven the evidence that nowadays the needs of the planet and those of the fashion labour market must be realigned, the ultimate goal in education must be to train professionals capable of pursuing principles of sustainability. This is possible implementing redirection practices in a 'futuring' perspective, by operating as a collective parental-like organism establishing multidisciplinary dialogues. The vegetal metaphor allows weaving analogies between specific plant attitudes and today's essential design requirements. Such aspects are not only useful to visualize and guide the creation of collective paths and sharing dynamics, but also to enhance the structuring of emerging experimental academic fashion curricula on the model of the fashion designer-plant hybridization.

Keywords: Fashion Education · Fashion Futuring · Making Kin · Plant Neurobiology · Co-Design · Biofashion

1 Introduction

On a planet interfacing with a proven social and environmental crisis, it appears crucial to realign the academic curricula in fashion design in order to prepare future fashion designers for today's competitive and increasingly unsustainable fashion industry. Overall it has become necessary to educate students to co-operate as part of larger organisms, besides acquiring cross-disciplinary skills to handle the growing permeability of fashion practice. Fashion, in fact, appears to approach a biotechnological revolution through the manipulation of living organisms thanks to the collaboration of design and science [1]. Given these considerations, the essay proposes the re-reading of the educational

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 443–451, 2024.
https://doi.org/10.1007/978-3-031-49811-4_42

paradigm within fashion design through a plant-inspired metaphor. «For millennia, plants have been regarded as animated superior intelligent beings and honoured as teachers by many cultures» [2, 4]. Affirmation which clarifies why such vegetal metaphor is key to redefine living beings activity on a damaged planet, a world where too often plants have passed unobserved [3]. The first part of the essay outlines the theoretical framework by enlisting heterogeneous introductory concepts borrowed from fashion studies. Some notions related to neurobiology and botany are applied in the second part to develop a bio-inspired analysis of two case studies of didactical methodologies. The aim of the paper is to show how the biological and botanic fields penetrate fashion design processes; demonstrating how a plant-oriented paradigm offers a practical guide to cooperation, to establish more sustainable partnerships and experiment with nature-based solutions.

2 The Soil of the Vegetal Metaphor

To frame the soil of the metaphor means in first instance to reflect on what Fry [4] defines as 'futuring'. Such notion aims at re-establishing sustainability in a world that has become unsustainable through redirection strategies oriented towards shared objectives. Fry's studies have been applied to fashion studies and – as remarked by fashion scholars Vaccari and Vanni [5] – this produces a shift in the role of the designer, seen as the interpreter of a new collective approach. Concurrently, Payne [6] explains 'fashion futuring' as a dynamic process of negotiation between what she terms the 'taming' and the 'rewilding' of fashion, reconfiguring a balance between technology and tradition, artificial and nature. To this end, it is important to learn to act as a collective parental-like organism by 'making kin' [7]. Kinship indicates a relationship of intimate affinity, not exclusively among human beings but interconnecting all living beings. Such 'making kin' is associated here to the mutual synergy between fashion designers and plants. As Bondí [8] writes, the Greek philosopher Anaxagoras was the first to rigorously define mixing as the proper form of the world: everything is in everything (*pàn en pantí*). Mixture that in Bondí's interpretation transforms the world in a space of universal transmissibility, where experiencing the world necessarily means making a world through acts of anthropization. As a consequence, the urgency to spread awareness on the human-nature co-responsibility.

The studies of Mancuso [9], pioneer of plant neurobiology, are analysed to re-imagine a new form of collaborative community. As Mancuso clarifies, plants are not individuals. Despite humans and animals, if divided into two or more parts they don't die but multiply – simply think of propagation by cuttings or grafting. The main concept borrowed is that of 'plant-colony', which indicates the phenomenon whereby each single root acts autonomously while silently cooperates with the other root tips to solve problems concerning the overall life of the plant. It is therefore the entire root system that guides the plant, like a sort of 'collective brain' [9] or distributed intelligence, over a surface that can be enormous in the darkness of the forest subsoil. This 'collective brain' has the peculiarity of ensuring a distributed organization in the absence of a hierarchy, thanks to the modularity and interconnection between its parts, proving that plants have both a distributed intelligence and an exemplary capacity for collaboration. Although numerous design disciplines have already adopted methods based on participatory design, a

collaborative paradigm in fashion design appears not to be yet fully incorporated (Pardo-Cuenca) [10, 11]. Thus, hindering fertile forms of role sharing, active collaboration and networking.

As discussed by Vaccari [12], the debate on authorship dates back to Barthes [13] and to Foucault [14], where the authors identify in the 'author-function' a set of historical and social phenomena responding not so much to the reality of the individual as to the system that regulates it. Therefore, the fashion designer assumes the role of social mediator between reality and imaginary. Paradoxically, looking closer at the history of costume evidences how often its fruits result from collaborations [12]. What is innovative about today's fashion partnerships is the diversity of the nature of such alliances that involve an increasing rate of experimentation and interdisciplinarity. Fashion designer J.W. Anderson in an interview says: «You can be most genius designer in the world. You can make the most incredible clothing and come up with the most incredible silhouettes, but if you're unable to collaborate, it will never grow». Today, creative collectives and teamwork are celebrated as a way to excel in a difficult and competitive industry, as the most modern way to survive in the big fashion business. The fundamental shift is to figure oneself neither as competitor nor as neutral, but rather as a person who is part of a collective identity and who's inevitably defined by the relationship with others [15].

The framing of the theoretical soil of the vegetal metaphor discloses two main themes: the request for more collaborative skills of fashion designers to overcome the limits of individual authorship; the ability to develop interdisciplinarity for their survival in a demanding labour market and to prevent further environmental disasters. The essay describes the emerging phenomenon whereby co-design and biology are grafted onto fashion design curricula inspiring the education – or cultivation – of fashion designers-plants.

3 Nurturing Hybridity

Inspired by a neo-positive attitude towards the resolutions of the environmental emergency through fashion education engagement, I apply a plant-oriented perspective of investigation to display two recently developed educational practices. Drawn on the affinity with neurobiology's concept of 'collective brain', the first case illustrates the experimentation of co-design practices in fashion education. The second case is exemplary of the interdisciplinary hybridization – in line with the botanic definition of chimera – which fades the borders of fashion design. It consists of a qualitative research applying the methodology of live interviews; useful to explore details and origins of the programs structure, to probe specific professor-student dynamics, to compare advantages and disadvantages, and to collect impressions on the overall results of students' educational curricula.

3.1 Designing as Plants' Collective Brain

Thanks to my fellowship research project FabbriCrafter (2020–21) at Università Iuav di Venezia under the scientific responsibility of professor Alessandra Vaccari, I collaborated with professor Desamparados Pardo-Cuenca during my visiting research. Pardo

is founder and coordinator of the Master in *Co-diseño de Moda y Sostenibilidad* at the public Escola d'Art i Superior de Disseny de Valencia (Spain). The one-year Master was founded in 2014 and is based on two fundamental pillars: the practice and implementation of collaborative design methodologies and the development of open design processes for sustainable production. My intent during the interview was to draw analogies that could demonstrate and answer the following question: could we define this way of teaching fashion design as cultivating a 'collective brain'?

First of all, a curious fact that emerged from our conversation is how the term co-design is often confused with eco-design, which doesn't sound like a coincidence but rather proofs their intertwinement. Hence, the combined name of co-design plus sustainability. The idea for the program of the Master originates from Pardo doctoral thesis [10], focused on bringing the collaborative methodology of co-design to fashion. One of her key research topics was the investigation through an estimated value scale of creative unlocking, to demonstrate how working together helped this process (Fig. 1). Another significant fact discussed in the interview is the importance of the students selection phase, which strongly affects the general outcome of the course. The assortment of the students group is attentively evaluated by the commission, whose members should estimate attitudes and foresee possible group roles. It is essential to identify people capable and motivated to work in team, rather than personalities who want to stand out or overpower in the wake of the traditional stylist. With some exceptions, the most part of the students are in their 23–26, that is the age they finish the four-years Bachelor. Previous fashion design or fine arts studies are privileged, since they ensure the basic knowledge and technical competences to develop subsequent team skills. In addition, class groups are kept limited in number (maximum 15 are selected each year) for a more effective management.

Co-design materializes in the Master program in its structure made of two semesters: three practical classes which result in three collective fashion projects; a set of theoretical classes that reflect as well the collaborative approach. Unfortunately, not all professors are prepared for this methodology and tend to orient towards the development of individual researches. So, besides the students selection process, another critical step is to prepare an educational team capable of triggering interactivity and dialogue with and among students. Within this perspective, educators interpret the role of mediators orienting the fluxes of information. As theorized by Manzini [16], in a world in transition in which everyone – individuals and collectives – is called to design in order to redefine its life project, we are witnessing a wave of social innovation with a sustainable matrix consisting of an open co-design process in expansion. As a result, the new frontier is the construction of a new shared and more malleable educational paradigm. «Co-design is a rupture of hierarchies, a rupture of alienation, a rupture of institutions, it is a collective enrichment. It is also breaking prejudices, bringing fashion to the right place and not seeing it as something superfluous» stated Pardo.

The last questions were intended to verify how much do students assimilate the practice and whether they re-propose it in other projects or professional activity. Previous co-design teaching experiences held by Pardo testified how fashion design students strengthened their creativity, self-esteem and motivation when they work with co-design methods, while the students' confusion and anxiety levels lowers [10]; Pardo-Cuenca

Fig. 1. Initial phase of the co-design process: development of a collaborative moodboard for creating students' collective identity in order to design a group capsule collection. Photograph courte-sy of the authors.

and Baldan [17]. As an evidence of absorption, the last group of students graduated in 2020 participated autonomously but collectively in the European Social Innovation Competition 2020 *Re-imagine fashion: Changing behaviours for sustainable fashion.* The group, selected among the finalists, was headed by a former student whose interest for collaborative design further lead her to found MeuTeu co-design lab with four of her colleagues. This scenario stands in the representation of a rooting plant system, where each student moves autonomously but harmoniously cooperates with the others to achieve common goals. Thought and design processes flow according to a rhizomatic net (Deleuze and Guattari) [18]. The combination of co-design plus sustainability assembles the perfect attempt to stir the soil of fashion academic programs to bring them on a horizontal and non-hierarchical level. Proving the efficiency of collective designing for both the design process and the quality of the working environment, this case study appears to translate the principle of 'collective brain' into fashion design education by nurturing future fashion designers-plants.

3.2 Students-Chimeras

An important aspect links this second case to the previous one: a plant-oriented educational paradigm seems to imply engaging with the issue of sustainability. The *Biomoda* course started with its first edition in the Fall 2020. It is a one-year elective class part of the Bachelor curriculum in Product Design at the private Universidad de los Andes (Colombia). Most of the students who choose it are towards the middle or end of the Bachelor. Carolina Obregón and Giovanna Danies Turano, professors and co-founders of the course, represent an innovative teaching duo. Their professional background is

briefly reported to understand how they are reflected on the peculiarity of the course. Danies introduced: «Who we are is more than who we actually are, but we as a team have created a very nice marriage. We really enjoy working together and I think this is very important for you to understand how it all started with the *Biomoda* – or *Biofashion* – course». Danies is a biologist and microbiologist with a PhD in plant pathology. Her passion for education took her to become professor in the School of Architecture at the Universidad de los Andes within the program in biodesign. «As a scientist I was always expecting the results I formulated in the beginning, while in design it is about open-ended questions that depend on the methodologies you follow and which can draw a circular path, like Carolina has taught me» clarified Danies. Obregón is a fashion designer who studied at Parson's School of Design and worked in the fashion industry for many years, realizing soon how the beauty of fashion wasn't really as beautiful as the clothing itself. This led her to study at the Master in *Fashion Sustainability* at the Aalto University in Finland, which helped her understanding on how fashion practices could better fit the natural world. She has taken part in the *Sustainable Fashion* program at the University of Colombia, and has given a course in *Sustainable Fashion* and in *Disruptive Sustainable Design* at Universidad de los Andes.

Professors Obregón and Danies met thanks to the *Biodesign Challenge*, a multi-university competition born to create a community of collaboration among artists, designers, and biologists, to which the university competes since 2017. It was in 2018 that Danies was hired on behalf of the student's request to receive the support of a biology professional: the soil aimed at cultivating students-chimeras was set. Thanks to this experience and by acquiring the similarity in their educational approach, they combined their expertise to create a common course structured in two phases. The first part of the course focuses on teaching students to handle theoretical background on biology, which in parallel they are requested to put into practice. This independent exploration of the bio world leads students to create a portfolio report recording temperatures, weather conditions, origin of the samples, and any detail influencing the methodology adopted to get certain results. In the second part of the course, students go beyond observation and analysis to be guided by Obregón in the design process. They are very open to what is considered fashion piece, the important is applying the best of their former experimentations. Obregón observed that for the majority of the students it is an introduction to a world they don't know though, even if in the beginning students can be hesitating, once they get involved they immediately feel "scientists", so in the second phase they have to pull them back to being fashion designers. Students are guided into developing a fashion piece – often working in team – aware of the business side of biofashion too (Fig. 2).

Even though biofashion may indeed offer a greener version of the industry's extractive status quo, and yet may be imagined as a human kinship with the living world [1], it also represents a critical point when resuming strength and weakness of teaching and learning design interdisciplinarity. Obregón specified: «We don't have an issue teaching interdisciplinarity, it's more the hesitancy of the students into being open in just experimenting whatever happens. They cannot know how fast the fungi are going to grow or if they're going to be the colour they want to obtain». It's been observed how often

Fig. 2. Last stage of assembling for the creation of the project *Brideology* by students Juanita Salga-do, Manuela Mestizo, Maria Camila Calvo, Sara Lucia Gonzalez, Sofia Moncayo. Wedding dress made in bioplastic with organic dandelions insertion realized using made-to-measure pattern molds. Photograph courtesy of the authors.

students get anxious when experiments don't work, but failing is part of the whole process. As a professor, the goal must be to teach them to be flexible and risk-takers, since biology works at its own rhythm without enabling total control. In addition, this process of combining scientific methodologies and biomaterials with fashion design results in a handwork, whereby the limits of scalability and costs arise. As a final note, Danies remarked the definite change in students' mind-sets; testified by many of them who continue to experiment with biological materials in their thesis projects.

The discussion above highlights the reasons why this didactic example recalls the figure of a student-chimera. A chimera is a hybrid plant that owns different natures, that generates oddities in its fruits, that doesn't only co-live with these forms of *bizzarria* (which in botany stands for graft) but also enhances them. A fashion designer who is a hybrid, is someone who accepts its gemmary mutations within his professional interactivity and in his project unpredictable and more experimental outcomes, as elements that characterize and enrich his double nature of fashion designer-plant.

4 Conclusion

In introduction to the essay it emerged how fashion design academic programs need to re-direct fashion designers towards a 'futuring' perspective, by inviting them to 'make kin' with other living organisms such as plants. A bio-inspired re-direction of the educational paradigm, mutating concept from plant neurobiology and botany, is beneficial to guide next generation fashion designers towards more intense co-design practices and involvement in sustainability. It is able to guide students to co-operate as part of a larger

organism while design borders of action are becoming more labile, by teaching them how to adapt to more open and horizontal methodologies. To conclude, the use of the vegetal metaphor applied to two case studies demonstrates how weaving analogies between specific plant attitudes and fashion design helps to enhance the emerging experimental academic fashion curricula in the wake of a hybridized fashion designer-plant.

References

1. Quijano, L., Speight, R., Payne, A.: Future fashion, biotechnology and the living world: microbial cell factories and forming new "oddkins." Continuum **35**(6), 897–913 (2021)
2. Gagliano, M.: Persons as plants: ecopsychology and the return to the dream of nature. Landscapes: J. Int. Centre Landscape Lang. **5**(2) (2013)
3. Wandersee, J.H., Schussler, E.E.: Preventing plant blindness. Am. Biol. Teach. **61**(2), 82–86 (1999)
4. Fry, T.: Design Futuring: Sustainability, Ethics and New Practice. Berg Publishers, Oxford (2009)
5. Vanni Accarigi, I., Vaccari, A.: Fashion futuring: un modello di produzione sostenibile. In: Remanufacturing Italy. L'Italia nell'epoca della postproduzione. Mimesis, Milan and Venice, pp. 48–61 (2020)
6. Payne, A.: Fashion futuring in the anthropocene: sustainable fashion as "timing" and "rewilding." Fash. Theory **23**(1), 5–23 (2019)
7. Haraway, D.: Staying with the Trouble Making Kin in the Chthulucene. Duke University Press, London (2016)
8. Bondí, R.: Natura. Il Mulino, Bologna (2015)
9. Mancuso, S.: Plant revolution. Giunti, Florence (2017)
10. Pardo-Cuenca, D.: La gestión del diseño de moda a través de los valores del consumidor co-diseñando en la didáctica de la moda'. Universitat Politècnica de València, PhD Thesis (2014)
11. Pardo-Cuenca, D., Prado-Gascó, V.J.: Involving customers through co-creation: an approach from the fashion industry. In: Engaging Consumers through Branded Entertainment and Convergent Media, pp. 242–70. IGI Global (2015)
12. Vaccari, A.: La moda nei discorsi dei designer. Clueb, Bologna (2012)
13. Barthes, R.: La Mort de l'auteur. Mantéia 5, (1968)
14. Foucault, M.: Qu'est-Ce Qu'un Auteur? (1969)
15. Brown, V., Harris, J.: A collective mind for a just and sustainable future. In: Agents of Alternatives. Re-designing Our Realities, pp. 47–57. Agents of Alternatives, Berlin (2015)
16. Manzini, E.: Design, when Everybody Designs an Introduction to Design for Social Innovation. The MIT Press, Cambridge and London (2015)
17. Pardo-Cuenca, D., Baldan, P.: Co-designing in fashion teaching. Politecnico di Milano (2014)
18. Deleuze, G., Guattari, F.: Mille piani: capitalismo e schizofrenia. Cooper & Castelvecchi, Rome (2003)

Accessible Experiences. Designing Synaesthetic Access to Culture

Dina Riccò(✉)

Politecnico di Milano, Milano, Italy
dina.ricco@polimi.it

Abstract. The experiences produced using environments, physical or cultural objects, change significantly in relation to the characteristics of the users, their skills and limits, as well as change in relation to the aesthetic preferences and the context of use, chosen according to the effectiveness and/or enjoyment of use.

This text intends to address the issue of accessibility to a cultural asset in a museum context [12, 13], to highlight how designing a variety of experiential ways, of experiences based on different sensory registers, leads to broadening its accessibility also to users who, by necessity or by choice, they require specific conditions of use.

The paper highlights and exemplifies – taking conventional cases and experiments conducted in the teaching of communication design – synaesthetic translations from the visual/figural to the auditory/verbal, and from the visual to the tactile applied to communicative artifacts, highlighting how the concept of translation – between sensory registers, between devices, between graphic formats – is the foundation of every experience that intends to be accessible.

Keywords: Accessibility · Synesthesia · Audiovisual Translation · Museum · Communication design

1 Accessible Experiences

This text intends to bring attention to the accessible sensory project intended both as a project that can be used by all people and as an opportunity to foster and experiment with unusual user experiences and ways of use that can respond to new needs.

Experiences aimed at people with different perceptual or motor characteristics and abilities, to respond – consistently with the design for all project philosophy – to human diversity, and not to a standard person.

I pursue this objective in the belief that the "effort" to make accessible – the reference is to accessibility to contents and more generally to cultural heritage – is not to be understood as a limit to creativity and possible design solutions, but rather an opportunity to offer extended, expanded, diversified user experiences, achievable in different personal and contextual conditions.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 452–461, 2024.
https://doi.org/10.1007/978-3-031-49811-4_43

1.1 Concept of Accessibility

The concept of accessibility, understood as the reachability and usability of spaces, places, architectures, is a recent concept in the project, certainly not a fundamental factor in ancient cultures and societies [1], when security and defense were priority of the territory from the enemy. Even later, in Humanism, although man is placed at the center, accessibility is not yet considered, the reference is an ideal man/woman. I remember the "Vitruvian Man" designed by Leonardo, who becomes a symbol and reference for architecture on a human scale; up to modern architecture with Le Corbusier's *Modulor* (vol. 1/1948, vol. 2/1955) – a scale of proportions – referring to an ideal man, not "real"; and the following manuals, on which I also trained as an architect at the end of the 1980s, refers to an "average man", with standardized measurements. Referring to the average man, however, means referring to a minimal number of people, because most of us are above or below this average size, and have specific characteristics that differentiate him.

As Lucia Martincigh [1] – of the Observatory on Accessibility of the Order of Architects of Rome – points out, in modern times we have gone from designing for standard users (abstract, ideal for a few); to a tailor-made design (specific for people with disabilities); up to the current phase in which the design is aimed at an extended user, in the belief that if a space, an object, an information is usable and usable by people who have difficulty, all the more reason it will facilitate its use by all. Each of us, in certain circumstances, periods of life, in illness, in old age, has physical and/or perceptual limits [2], or encounters impediments to access due – in addition to physical and perceptual barriers – to the geographical or territorial context. Linguistic and cultural differences can also become a barrier that hinders the comprehensibility of a content. An accessible project is therefore more easily usable by everyone, regardless of disabilities and personal conditions. The words that are used to define the current approach to design, architecture, object design, services, communications, are different:

- *Universal Design* (1985, American Approach)
- *Design for all* (1995/2004, European Approach)
- *Accessible Design* (2001, Swiss Approach)
- *Inclusive Design* (2005, British Approach).

All terms that, although with geographical origins, are different in any case aimed at increasing the accessibility of interactive systems, products, spaces.

It is not easy to specify what differentiates these approaches, there is little international consensus on the use and concept of accessibility in design, and this paradoxically risks bringing the public and the user less overall accessibility since sharing the concept means also make it more easily measurable, evaluable, and therefore understand how effective a solution is [2].

In a note of the *ISO Guide 71/2001* it is specified that these terms are used in a similar way, but in different contexts. By comparing the different approaches and the types of artefacts to which they are addressed, the expression *Accessible Design*, with the requisites required in normatives and guidelines referred to it – from the *Web Content Accessibility Guidelines* (1999/2021), to the Stanca Law 9.01.2004, first Italian law on accessibility to digital content, up to the aforementioned ISO Guide (2001/2014) – places more attention than others on sensory aspects, their limits and how to promote better

perceptibility of information. This makes it particularly applicable to communication design artifacts that are artifacts to be seen, heard, touched. They are books, they are videos, they are interfaces, they are packaging. Therefore, it is to it that I will refer in the following.

1.2 In/Accessible Content

In the specific of communication design, a content can be inaccessible for several reasons, even trivial ones, for example:

1. it is inaccessible when the information does not reach the recipient, who ignores its existence because it is not present in the media that he usually consults (*information level*);
2. it is inaccessible when the recipient fails to understand the information, due to its level of complexity, for linguistic reasons if it is written in a language unknown to him (*cognitive level or inter-linguistic level*);
3. it is inaccessible when there are perceptive barriers, due to the person's characteristics, or situational, caused eg. the lighting or noise conditions of a given environment (*sensory/perceptual level*).

Considering this last level – therefore sensory accessibility – in a specific context, that of Museums, the latest Istat Report on Italian Museums, published in December 2019, just before the Covid19 pandemic, returned the following data: 53% of the museums are equipped for physical accessibility, with ramps, elevators, etc. useful for people with motor disabilities; while only 12% of the museum structures have alternative modes of use to the visual, providing «tactile paths and information materials for the visually impaired and blind» (Engl. tr. From: Istat, 2018).

2 Designing Accessibility: Normatives and Guidelines

These data, as well as others relating to content – the reference is to the limited availability of books in accessible formats (audiobooks, Braille books, or accessible ebooks) – highlight a great need for accessible design in communication design which, in the future very close, will have to enter the competencies of designers, even if only to comply with normatives and guidelines [14].

I indicate below some recent normatives and standards of particular importance for designers.

Web Content Accessibility Guidelines (WCAG) (1999–2021). Web accessibility guidelines based on four principles, require web content to be: *Perceivable*, *Operable*, *Understandable* and *Robust*. To which in the draft version 2.2. (2021) the requirement *Conformance* with the normatives has been added. These guidelines are important for graphic designers especially in the indications relating to perceptibility, here we find indications on color contrast, on the use of images, on text spacing. Also, for audiovisual design, indications for the preparation of subtitles and audio description [https://www.w3.org/].

ISO Guide 71/2001 (2014): *Guidelines for standards developers to address the needs of older persons and persons with disabilities.* A Guide aimed at defining the accessibility requirements and recommendations for products, services and built environments. Seven tables are attached to the first edition, three of which are useful to the communication designer, relating to information standards (labels, instructions for use, warnings), packaging and user interfaces. Each table considers the following aspects: sensory (seeing, hearing, touch, tasted/smell, balance), physical, cognitive, allergy. [https://www.iso.org].

PEBA (2018). The plan of the Italian Ministry for Cultural Heritage and Activities, presents very detailed guidelines for overcoming barriers in museums and archaeological parks. Architectural barriers, but also sense-perceptual, cultural, and cognitive, which concern all possible contexts of accessibility design: from the building to the website. It also provides for the establishment of the figure of the "Responsible for accessibility" in museums, a technical professionalism that supports the Director of the museum in setting up paths and communication tools accessible to an extended audience [http://musei.beniculturali.it].

Marrakesh Treaty (EU Directive 2017). The implementation decree in Italy dates back to 2020. It provides for exceptions or limitations to copyright to reproduce and disseminate copies, in accessible formats (such as Braille books, e-books, audio books or large print, aimed at people who are blind, visually impaired, or otherwise print disabled [https://eur-lex.europa.eu]. It therefore concerns the entire chain of the publishing project.

European Accessibility Act (2019). (2019/882 of 17 April 2019, published in the Official Gazette on 7.6.2019). European directive that must be applied to all products and services on the market starting from June 28, 2025. It has as its reference the previous UN convention on the rights of people with disabilities (13.12.2006). In particular, in Annex I of the Directive, "Accessibility Requirements for Products and Services", important information is indicated for designers. Among these, the following three are relevant for communication designers:

1. the information must be presented in an *understandable* way;
2. the information must be presented in a *perceptible* way;
3. the information must be made available through *more than one sensory channel* [https://ec.europa.eu].

In short, a cultural asset is accessible if it is also *understandable*, *perceptible*, *multisensory*.

3 Audiovisual Communication Accessibility

In this context, and to meet accessibility requirements, we are trying to sensitize students to communicative accessibility, to make them become aware of the problems that limit accessibility and to consider the *accessible design* as an opportunity to experiment with new user experiences.

In particular, the artifacts we deal with are motion graphics videos, to pursue a synesthetic congruence between visual information – the typography and the images – and auditory – speech, sounds and music – and to verify the interchangeability on the different sensory/communicative registers. We experiment on the translation of the contents between the different sensory registers, so that one can become the vicar of the other.

This highlights the close relationship that *accessibility* has with *synaesthesia.*

We aim to go beyond accessibility designed to comply with the normatives, to offer a diversification of experiences, of the ways of enjoying content, regardless of the presence of disabilities: I might prefer to listen to a book instead of reading it, or to watch a video without audio, so as not to disturb those sitting next to me.

3.1 Audiovisual Analysis: Masking Method

How to get to an accessible audiovisual project? In our working group we began to tackle the issue of accessibility by following degree and PhD theses [11], the first of these dates to twenty years ago, in 2001, applied to museum accessibility [3, 4].

We then brought the theme into teaching, and the first question we asked ourselves was to overturn the assumption: how to make people understand the *inaccessibility* of an audio-video content. We considered effective the methods already used in film analysis, and in particular Michel Chion's *method of masking* [5], a method of observation – called *audiovision* by Chion – which consists in alternately masking one of the sensory registers, to be able to answer the following questions: What do I see of what I hear? What do I feel about what I see?

This is to demonstrate: «the reality of audiovisual combination – that one perception influences the other and transforms it. We never see the same thing when we also hear; we don't hear the same thing when we see as well» [5, XXI].

We proposed audiovisual exercises to students, both with the students' own works and with authored video products. One exercise consisted in proposing listening to a film in the dark, audio only, removing the video, concurrently asking students to fill in a questionnaire, in which to describe the mental image induced by listening, specifying how much the audio-only narration had been understandable.

The descriptions collected concern the visual characteristics of the environments, indicate the colors, the clothing of the protagonists, descriptions that, in an audiovisual verification, also find singular correspondences [6]. In general, the data collected indicate a fairly good level of understanding of the narration (declared), despite the obvious difficulty of the task due to the use of listening only, a modality in which we are not trained.

Starting from the year 2016/17, we have approached the analysis of audiovision with propositive activities, aimed at the design of accessible audio-videos, based on three consolidated techniques – audio description, subtitling, tactile translations – nevertheless trying to experiment design solutions aimed at everyone, ie not distinguished by disability. So, a single product of which I can have a different user experience. Usually this is not the case because, specifically for the audio description, this is aimed only at the person with visual impairment.

Audiodescribe. It means providing a voiceover that is added to the original audio – therefore to voices, noises, and music – to describe what is happening on the screen. We know a complex task, it is difficult not only because the possible descriptions (of a scene, of the characters, of their actions) are multiple, and may or may not be capable of suggesting visual mental images; but also, because things can be seen differently. Any description passes preliminarily for an observation, for the reading and visual exploration that is made by another subject, who is different from the user.

Subtitle. Technically perhaps simpler than the audio description – many platforms, first YouTube, provide automatic subtitles – but the "subtitle", let's call it standard – both automatic and live – also poses perceptual difficulties. In particular the subtitle:

1. diverts attention from the scene, as it modifies the hierarchies of the composition;
2. exclusively translates the semantic aspects, leaving out the expressive ones of language, intonation, emotion produced by speech and music;
3. appears as an additional and not integrated element to the project.

Studies that use ocular tracings detect the reading paths of the elements on the screen, the fixation times, and show that the subtitles take away attention to the subject of the scene [7]. Therefore, the design goal we are proposing is to integrate the *subtitle* with the *title* or to understand it as an integral, and not an additional, part of the typographic project, working on the typographical translation of speech.

We use the term "translation", and not simple "transcription", because what we try to do is to translate not only the semantic aspect, but also the expressiveness, the intonation of the spoken word, we try to translate the rhythm of the music, considering every sound aspect.

Tactile Translations. They are tactile translations of visual and figural elements of the audio-video project, usable in the contexts of use in presence, such as an exhibition, a presentation in the library, an event. These translations can use different techniques, which can also be achieved in short-run print [8], among the techniques we most commonly use are UV varnish and 3D prints. The effectiveness of each solution then requires a verification phase, which the designer can do first of all on himself, by applying again the analysis tools that obscure the visual, and subsequently by the preparation of a test phase with users (Fig. 1).

(a)

(b)

Fig. 1. *Controsenso* exhibition. Above: tactile map detail. Below: tactile QR code for accessing videos. The communicative artefacts of the exhibition were designed with accessibility and Braille writing criteria. Embossed printing with UV varnish. Design: SavLab (www.sinestesie.it/controsenso).

4 A Case Study: Controsenso Exhibition

ControSenso is a small educational exhibition – set up at the Istituto dei ciechi in Milan in conjunction with the "Accessibility Days 2022" event (https://accessibilitydays.it/2022/it/) in May 2022, patronized by the School of design and by the Department of the Politecnico di Milano – which well exemplifies the relationship between synaesthesia and

accessibility, and in particular exemplifies how the same content can be translated into multiple sensory registers by pursuing a synesthetic consistency in the communication process.

The exhibition brings together the projects carried out by the students in our teaching (professors: G. L. Balzerano and D. Riccò, collaborators: A. Barone, A. Gonzalez, G. Martimucci, A. Zamperini), in the master's degree course in Design of communication to the Politecnico di Milano.

The teaching activities were dedicated to the audiovisual accessibility of the work of art in the museum context. Each group of students has chosen a museum, an artwork, or a collection of works, present among the collections of the city of Milan (Italy), on which to create an audio-video project with the communicative purpose of inviting participation and visit to the museum space, anticipating the sensory involvement and emotions of the visit.

Each video was designed respecting the accessibility requirements, integrating subtitles and audio description, moreover – considering that the project was aimed at an exhibition event – material artifacts were also created that can be explored tactfully and olfactively.

The project was given scientific support by Rai pubblica utilità (the company that is the exclusive concessionaire of the public radio and television service in Italy), the Institute of the blind in Milan, with which the Department of Design has a scientific collaboration and the organizers of the Accessibility Days event.

The title given to the exhibition – *ControSenso* – encompasses the contradiction of the sensory barriers with which we face every day and at the same time summarizes and suggests the possibilities of sensory substitution, in the play on words "SensoControSenso" (sense against sense), in which a sense can stand in the place of another, not to replace him but to become vicar, to suggest an alternative way.

Overall, nine accessible multimedia projects, video and material projects were exhibited (examples of videos and tactile translations in www.sinestesie.it/controsenso).

In this specific case, the exhibition event was designed both in its experiential value and as a designed accessibility verification tool, applied to an extended audience including people with visual and hearing impairments.

5 Conclusions

Verifying the synaesthetic nature of a project is one of the tasks that the designer who pays attention to accessibility must propose himself and goes through tests and experiments aimed at evaluating the intersubjectivity of the relationships established to overcome individual aesthetics.

As we already wrote [9] all the transformations of a *prototext* (i.e. an original text) into a *metatext* (i.e. a translated text, according to Popovič's meaning) that use verbal or non-verbal signs of different sensory registers, if they can be defined as "translations" from one to the other, and therefore pursue the equivalence/congruence of a content in another expressive form, they can also be defined as synaesthetics.

In the translation process that involves contents and configurations offered on multiple sensory registers, the recognisability of the same content used in different ways is

already in itself an indication of the synaesthetic nature of the project, i.e. the identification of shapes, colors, structures, textures in the translated sensory modality, sounds, means recognizing – between the original text and the translated text – analogies, remainders, relationships. As Tullio Gregory [10] stated:

«Il tradurre è fondamentale nel passaggio da una cultura all'altra. E non solo tradurre testi, ma trasferire esperienze, miti, valori, modelli. La storia della civiltà è sempre un tradurre, per rendere accessibili testi che altrimenti rimarrebbero ignoti» [«Translation is fundamental in the transition from one culture to another. And not just translating texts, but transferring experiences, myths, values, models. The history of civilization is always a translation, to make accessible texts that otherwise would remain unknown»].

We therefore place the processes of synaesthetic translation at the foundation of any experience that intends to be accessible to all.

References

1. Martincigh, L.: Alcune note sull'evoluzione del concetto di accessibilità. In Obiettivo accessibilità, Ordine degli Architetti di Roma, pp. 12–18 (2021)
2. Persson, H., Åhman, H., Yngling, A.A., Gulliksen, J.: Universal design, inclusive design, accessible design, design for all: different concepts—one goal? On the concept of accessibility—historical, methodological and philosophical aspects. Univ. Access Inf. Soc. **14**, 505–526 (2015)
3. D'Agostini, C.: Ad occhi chiusi nel museo. Analisi degli aspetti comunicativi nello spazio espositivo con particolare attenzione alla persona cieca, Tesi di Laurea in Architettura, relatore G. Anceschi, corelatore D. Riccò, Politecnico di Milano (2001)
4. Riccò, D.: Magie dei sensi: vedere per sinestesia. In Raffaella Poggiani Keller, R., D'Agostini C. (eds), Ad occhi chiusi nel museo, , Proceedings of the conference, Bergamo, 25 October 2002, Soroptimist International d'Italia/Club di Bergamo, Museo Civico di Scienze Naturali "E. Caffi", Stamperia Stefanoni, Bergamo, pp. 17–28 (2003)
5. Chion, M.: Audio-Vision: Sound on Screen, vol. 1990. Columbia University Press, New York (1994)
6. Riccò, D.: Synesthetic access to visual contents: modes of communication design to offer vicarious information. In: Actas IV Congreso Internacional de Sinestesia, Ciencia y Arte, Universidad de Almería, 16–19 Febrero 2012, Ediciones Fundación Internacional Artecittà, Imprenta del Carmen, Granada (2012)
7. Perego, E.: La sottotitolazione sperimentale degli anime e le norme contravvenute: cosa ci dicono i tracciati oculari. In: Dubbing cartoonia: Mediazione interculturale e funzione didattica nel processo di traduzione dei cartoni animati, G.L. De Rosa (ed. by), Loffredo Editore, pp. 47–58 (2010)
8. Riccò, D.: The ways of synesthetic translation: design models for media accessibility". In: Lloyd, P., Bohemia, E. (eds.), Proceedings of DRS 2016 Design + Research + Society Future–Focused Thinking, International Conference Brighton, UK, 27–30 June 2016, vol. 3, pp. 1101–1110. Loughborough University, London (2016)
9. Riccò, D.: Synesthetic translations. Theories and practices for design content accessibility. In: Baule, G., Caratti, E. (eds.), Design is Translation: The Translation Paradigm for the Culture of Design, Franco Angeli, Milano, pp. 149–171 (2017)
10. Gregory, T.: "Traduzione/Translation". In: Conference in Festival Filosofia, Carpi (Modena), 19 September 2015

MANCANO RIFERIMENTI

11. Bustamante, C.: Film audio description: a communication design perspective, PhD thesis in Industrial Design and Multimedia Communication, tutor G. Baule, advisor D. Riccò, co-advisor D. Calabi, Politecnico di Milano (2011)
12. Capasso, L., Monza, F., Di Fabrizio, A., Falchetti, E. (eds): L'accessibilità nei musei. Limiti, risorse e strategie, Proceedings of the XXIX ANMS Congress, Chieti, 23–25 ottobre 2019, Associazione Nazionale Musei Scientifici (ANMS), Firenze (2020)
13. Fulvia Caruso, F. (ed.): Visioni e oltre. Multisensorialità accessibilità e nuove tecnologie al museo, Proceedings of the conference, Provincia di Viterbo, 21–23 maggio 2010, Effegi, Grosseto (2011)
14. Tacca, F. (ed. by): Dossier Accessibilità. Unificazione e certificazione (1), (2017)

Misleading Design Implications of Adopting Embodied Interface in Everyday Objects

Umberto Tolino(✉) and Ilaria Mariani

Department of Design, Politecnico di Milano, Milano, Italy
umberto.tolino@polimi.it

Abstract. *What happens when an object is consciously designed not to suggest how to interact with it explicitly?* This research theme is controversial and peculiar. It is rooted in the concepts of agency and affordance of objects and their interfaces, proposing a change of perspective. Rather than conceiving functions clearly expressing themselves, embedded technology allows an extension of the possible levels of manipulation on seemingly silent objects. This implies a semantic reconfiguration that begins with aesthetics and impacts interaction. Operating at the level of attribution of meaning, these objects challenge the ecological approach, resulting in a misleading design. The topic is tackled from the point of view of the communication designer and design researcher who look at the design of interaction and interface. The study relies on the lessons learnt and knowledge from a five-year-long research-through-design experimentation, triangulated with evidence emerging from the analysis on five relevant cases.

Keywords: Smart objects · User Interfaces · Embodied technology · Affordances · Semantic Reconfiguration

1 Challenging Conventions by Design

Technology mediates not only how humans perceive the world but also the perception of action possibilities, namely affordances, and consequently, behavioural outcomes. Affordances and social norms are strictly related: socio-cultural and normative aspects affect the hermeneutic process of interpretation [1]. Specifically, it can reveal previously undiscovered affordances but also result in their concealment. Building on this, the following discourse lies on the postphenomenological discourse to open a reflection on the mediating effect that technology operates on human-technology relations [2]. Activating established interpretations and hermeneutics, socio-cultural norms can influence perception and interactions, impacting intentions. However, false assumptions and interpretations regarding affordances can trigger divergent behavioural outcomes.

I. Mariani—This contribution originates from research conducted in Thingk (thingk.design) over five years of experimentation involving the entire team of the start-up. In the team, Umberto Tolino has been involved in the role of designer and researcher while Ilaria Mariani mainly participated as researcher in charge of UX analysis and data interpretation. The authors contributed equally to the publication and are listed in alphabetical order.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 462–471, 2024.
https://doi.org/10.1007/978-3-031-49811-4_44

In a context where a people-oriented design approach prevails, we deliberately experiment with aesthetics featuring deceptive affordances. *What happens when an object is consciously designed not to explicitly suggest interaction with it?*

Acquiring new knowledge and habits of use can influence them both [3]. Applying the discourse to objects whose affordances are not explicit requires opening up specific reasoning.

This research theme, controversial and peculiar, is rooted in the concepts of affordance and agency of objects and their interfaces [4, 5], proposing a change of perspective. Rather than conceiving functions clearly expressing themselves, embedded technology allows an extension of the possible levels of manipulation on seemingly silent objects. This implies a semantic reconfiguration, with a paradigm shift that begins with aesthetics and impacts interaction. Reinterpreting the foundational definition of *design* as the creative attribution of meaning to things [6], the ecological approach to the perception of meaning is challenged [7–9], resulting in a misleading design.

1.1 Theoretical Framework

The research theme is situated in three specific domains of references pertaining to the Interaction Design area. From the broadest and most inclusive to the narrowest, such domains outline the borders of the study, limiting it to a specific area of investigation.

Domain of Reference 1: Variable Affordances. The research builds on the ability of objects to modify their behaviour according to certain external variables. Exiting a state of passivity, they capitalise on the capacity to establish a dialogue and define the interaction with the subject and its environment [10]. We propose to reason on the distinction between stable and variable affordances, as described by Borghi and Riggio [11]. Although this reasoning is originally situated in the realm of objects, broadly speaking, it naturally extends to interactive objects. Unlike stable affordances, variable affordances derive from temporary characteristics and are strictly linked to the actions to perform. In this sense, the location and orientation of an object may change, requiring an adaptation of the behaviour to complete the action [12]. Variable affordance, as an umbrella term, is therefore used to refer to objects able to change their features as a sort of communicative skin, enabling different agency.

Domain of Reference 2: Embodied Interfaces. The term Embodied User Interfaces evolved in the ‘90ies from the ideal of an invisible user interface, identifying the use of direct physical manipulation to interact with a device by tilting, translating, and rotating it [13]. The paradigm also includes the strand of Tangible User Interface [14] that sees the user interact with physical objects as tangible controllers attached to virtual representation. Speaking of embodied interfaces, the information is delegated to the interface, being embodied and often disguised in the object. The perception of affordances and behavioural outcomes are bound to a hidden layer, activated when needed [15]. The domain requires reasoning on the implications deriving from having the information delegated, embodied, and even masked in the object.

Domain of Reference 3: Embedded Technology. The term traditionally refers to the embodiment of technology in objects using sensors (individual and networked). Providing the ability to “sense”, embedded technology enables responses to external stimuli,

such as environmental changes. In the framework of this study, the relevance of embedded technology concerns the extension of possible levels of manipulation on seemingly silent objects through the interaction of displays and sensors hidden at first sight.

1.2 Challenge

When it comes to objects endowed with a digital nature, the aesthetic is enriched, and the interface contributes to forming and influencing the users' attitudes. Regardless of its type, the interface is responsible for initiating a dialogue with the user aimed at resulting in action – hence covering operative [16] and *fatic* [17] functions.

Embracing a post-phenomenological perspective [2], smart or technologically augmented objects challenge the rules of Design in its socio-cultural and normative aspects [18]. Welcoming the possibility of delegating information to the interface, embodying and disguising it in the object, these objects bound the perception of affordances and behavioural outcomes to a hidden layer, activated when needed. The challenge concerns exploring the implications that interventions on the aesthetics of objects bring. In particular, how objects are interpreted when a redesign that affects its meaning occurs, intentionally introducing a cognitive dissonance that impacts the interface (UI) and the user experience (UX). Given these premises, the research question is: *What happens when an object is consciously designed not to suggest how to interact with it explicitly?*

This challenge is tackled from the point of view of the communication designer and design researcher who look at the Design of interaction and interface.

1.3 Context of Application

This research finds its application in a spin-off of the Politecnico di Milano that takes up the challenge of transforming everyday objects by "augmenting" them through digital technologies. This perspective fuelled experimentation that, in 2017, led to the establishment of Thingk, a spin-off of the Politecnico di Milano with the aim of hybridising design, electronic engineering and computer science, with handcrafted restitution, in the field of UX & UI. We started by imagining that objects with essential and common shapes could have a digital nature, hiding interfaces capable of influencing user behaviour. The reasoning advanced after winning the H2020 project Decochrome in 2019. The project triggered new reflections and experimentations, reorienting the start-up to research the design of user interfaces with a focus on operational functions and labours [17] and investigate new ways of interacting with them.

Hence, in a context where the approach is that of people-oriented design, we deliberately experiment with aesthetics based on deceptive or apparently absent affordances, opening up necessary reflections on the consequent Design implications. By intervening on the communicative skin of the (often silent) interface, we transform everyday objects by "augmenting" them with digital technologies. The challenge, then, is to stimulate the user to unexpected reasoning concerning what the object can do.

2 Methodology

To answer the question, this study relies, on the one hand, on the lessons learnt from a five-year-long research-through-design experimentation that introduced cognitive dissonance as part of its methodological approach. The investigation started in 2017 as an empirical study that intervenes in the aesthetics of objects, influences the interface (UI), impacts the user experience (UX), and conditions the interpretation process. Specifically, it focused on redesigning meanings, pursuing a design-driven innovation logic in which users' needs are recognised and anticipated, taking advantage of technological possibilities [19]. On the other hand, such knowledge is triangulated with evidence emerging from the analysis on five relevant cases selected because situated at the intersection of the three domains of reference of the study: (1) Variable affordances, (2) Embodied interfaces, (3) Embedded technology. Secondly, these cases exemplify the different modes and intensities of *misleading-ness* that characterises those objects that do not explicitly communicate themselves. As such, they are exploited to observe the different ways in which objects with embodied interfaces generate misleading design. Their analysis led us to identify the "shape" as the criterion for discerning the behaviour of the cases, where the term is intended not as the mere object body, but as the aesthetics of objects with elements that may be more or less explicit and thus contribute in different ways to communicating the affordances of the object and how to use it.

Accordingly, the cases are displayed in a Cartesian axis, where the abscissas depict the closeness of meaning between form/function, and the ordinates the implications in terms of communicative capacity (Fig. 1).

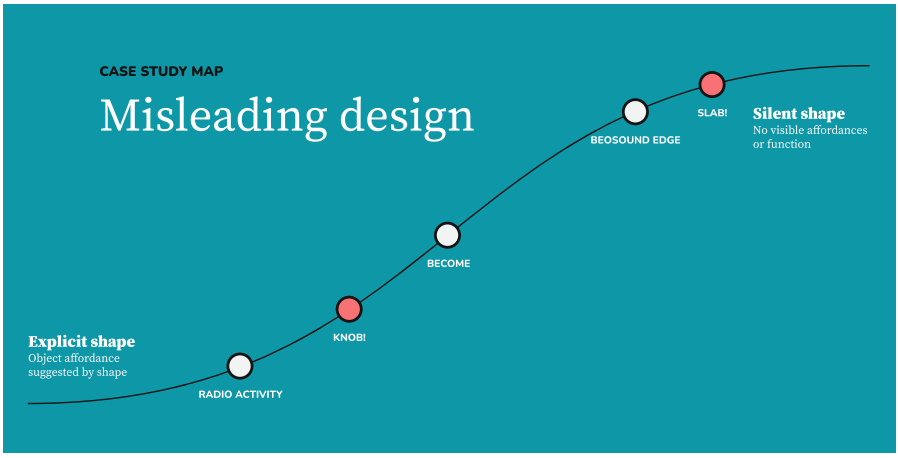

Fig. 1. Map of the case studies analysed: the x-axis describes the closeness of meaning between form and function, and the y-axis depicts the implications in terms of communicative ability.

Starting from well-known and own cases, this study analyses how apparently non-functional objects can trigger experiences of use with users and the surrounding environment, emphasising the advantages and disadvantages of designing questioning conventions and established patterns [20, 21].

3 Design Implications

This study explores the impacts of an intervention on the aesthetics of objects that starts from a semiotic perspective. The object's ability to express a function through its *sign*, which acts as an attribute of meaning, is reconfigured through design. The form-function relationship ceases to be familiar, explicit, declared. These objects are deliberately designed for technological mediations which surface through interaction. Once the interface as a sign becomes perceivable, the objects reveal themselves, and their functions can be interpreted and grasped, soliciting agency.

We critically look into the implications of embedding technology into apparently silent objects by opening up the discourse to technological manipulation and augmentation while recognising that affordances can invite behaviour [22, 23]. Interfering with the hermeneutic process, these objects are designerly conceived to deceive users about their function and functioning. However, once the interaction is unveiled, such a mediating power of technology can also produce satisfaction and gratification, even contributing to generating new literacy.

The three design directions that follow are design implications that occur when designing objects with embedded interfaces that are detected in the course of interaction, affecting the perception of the object affordances. On this basis, the reasoning below uses the five cases to reflect on the design features and how these activate an interpretation in the user, influencing how the object is perceived. The discourse starts from their "misleading" features to explore them in terms of design implications.

It is significant to emphasise how the three directions investigated below are not mutually exclusive but can coexist within the same object.

3.1 Emphasising Shape-Function

The first dimension pivots around the concepts of verisimilitude and emphasis. *Radio Activity* (Gemma Roper, 2015) is an internet-enabled radio that can be paired with Spotify and allows music to be chosen according to its beats per minute. It features a control tool mimicking a metronome for tempo selection, which provides volume and tempo management. The overtly reduced aesthetic is the focus and plays on verisimilitude with forms traditionally associated with the two functions.

The design implication arising from this intervention on the form-function relationship concerns an accentuation of the archetypal function, which is enhanced and charged with meaning to the point of transforming it into the interface itself. Consequently, the user recognises some partial patterns and integrates the interaction by interpreting the semantic gap left by the designer. The implication is built on the socio-cultural norms as scripts and frames of references ruling our interpretation of the world, taking into account rooted habits of use and knowledge as an activity of sense-making triggered by culturally defined definitions of reality [20, 21].

3.2 Challenging Design Conventions

This direction explores shapes hiding unexpected functions that challenge design conventions. Apparently silent objects are instead smart and hide their complexity. The case

Become (Rlon, 2018) is a desk lamp controlled by placing a metal sphere on a black monolith, where it interferes with different magnetic fields, switching the light. In this case, it is evident a greater gap between form and function. The lamp is switched on by placing the sphere close to the circle, which acts as a switch.

A further example is *Slab!* (Thingk, 2017), a piece of wood that can act as a kitchen scale and digital timer. *Slab!* disguises its additional, contextualised functionality beneath a material and form already present in the kitchen. Beneath a minimal shape, it is camouflaged a complex object that reacts to orientation and manipulation from the user, behaving as a kitchen scale when placed horizontal, and as a timer when vertical (Fig. 2). By touching the surface, the display emerges and, by changing its orientation, the same display becomes a timer for controlling the cooking time. This case especially portrays a seemingly silent object that conceals its complexity thanks to smart technology.

Fig. 2. Above, *Slab!* functioning as a kitchen scale and how it becomes a timer when reorientated. Below, *Knob!* and its multiple interfaces, which surface according to the positioning and interaction with other objects - the case is discussed in the next paragraph.

Embracing a post-phenomenological perspective [2], the examples show how smart or technologically augmented objects challenge the basic rules of design in terms of ergonomics, socio-cultural and normative. That is, the conventions (patterns and scripts) and expectations rooted in users [18].

3.3 Semantic Reconfiguration

The last dimension explores objects semantically reconfigured to fully overlap aesthetic and function. The best-known case is *Beosound Edge* (Bang & Olufsen, 2018): the entire speaker itself becomes the controller that requires rotation to manage the music. An additional interface is then displayed on its surface, completing the experience and making the function explicit during user interaction. The object assumes the fundamental traits of its function, namely those elements that commonly command an action/interaction.

The case is representative of what happens when the interaction becomes the shape. It implies a semantic reconfiguration, with a paradigm shift that begins with aesthetics and impacts interaction. Reinterpreting the foundational definition of *design* as the creative attribution of meaning to things [6], the ecological approach to the perception of meaning is challenged [8, 9], resulting in a misleading design.

Pushing further in this direction, we started wondering what happens if embedded interfaces get variable. The question quickly evolved because of the participation in the EU-funded Decochrome project: What if the embedded interfaces became variable *and* situated? We imagined a model of interfaces able to react not only to user interaction but also to the surrounding environment, its variables and parameters, and eventual smart objects. The concept wholly plays on the conventions of design that lead to interpreting objects according to their position. In 2019, it has started the design of an essential manipulation form, a cylinder to be exact, which uses a variable, situated interface that changes according to the situation and the actions it requires to perform [24] (Fig. 2). And so it is that the cylinder placed on the table, next to a computer or a stereo performs the function of volume control. If placed vertically on a wall, it becomes the control of a thermostat, and if placed on a bedside table next to the bed, it becomes an ambient light dimmer.

The implication is thus a further semantic reconfiguration, which is built on a form of the object capable of adapting to multiple functions. The paradigm shift, in this case, begins with aesthetics, being activated by its position in space, its orientation, or its dialogue with other objects, to impact interaction. The attribution and perception of the object's meaning are conditioned by variable elements.

4 Discussing Design Issues

When an object is consciously designed not to explicitly suggest how to interact with it, it challenges to different extents the user. Building on what has been presented so far, it is possible to identify four relevant and overarching directions of reflection that designing "misleading" objects opens.

These directions can be considered design issues, and are explored in the following paragraphs.

4.1 Technological Mediations

The first issue is nurtured by the mediation function that technology plays in the interaction. Technology reconfigures objects' ability to express a function through their signs, which act as an attribute of meaning. The shape-function relationship ceases to be familiar, explicit, declared. These are objects deliberately designed for technological mediations which surface through interaction. Becoming perceivable, objects reveal themselves, and affordances can be interpreted, soliciting agency.

4.2 Physical Storytelling

The second issue regards the augmentation of digital interfaces with analogue experiences. Merging analogue material dimension and digital immateriality allows to pursue a new haptic dimension that orients users' expectations by building on habitual interactions. The result is a newfound materiality that contrasts with a refined nature that is highly technological, digital and innovative.

4.3 Semplexity

The third issue concerns the peaceful coexistence of simplicity and complexity within objects. Objects' appearance declaring apparent simplicity hides complexity and unexpected smartness. The encounter of archetypical forms (geometric and minimal) with high-quality materials and advanced technologies that ranges from embedded sensors to networked systems allows for semplexity. This condition produces a semantic friction between a minimal and silent object with technological complexity that produces a pleasant surprise in the user.

4.4 New Literacy

The fourth issue deals with the new modalities of use that misleading objects require and trigger. The starting point is that affordances have sociocultural and normative aspects. Rooted and established affordances imply the presence of precise frames of references and scripts which are activated when needed. Interfering with the hermeneutic process, these objects are designerly conceived to deceive users about their function and functioning. Therefore, when technology mediates the perception of affordances and behavioural outcomes [2], it can open up new and surprising modalities of interactions, requiring existing frames and scripts to be updated, or even new ones to be formed. Once the interaction is unveiled, such a mediating power of technology can also generate satisfaction and gratification, contributing to generating new literacy.

References

1. Heras-Escribano, M.: Affordances and social normativity: steps toward an integrative View. In: Djebbara, Z. (ed.) Affordances in Everyday Life: A Multidisciplinary Collection of Essays, pp. 61–71. Springer International Publishing, Cham (2022). https://doi.org/10.1007/978-3-031-08629-8_7

2. Döbler, N.A., Bartnik, C.: Normative affordances through technology: a postphenomenological perspective. In: de Paz Santana, J.F., de la Iglesia, D.H., López Rivero, A.J. (eds.) New Trends in Disruptive Technologies, Tech Ethics and Artificial Intelligence. Advances in Intelligent Systems and Computing, vol. 1410, pp. 145–156. Springer, Cham (2022). https://doi.org/10.1007/978-3-030-87687-6_15
3. Segundo-Ortin, M.: Socio-cultural norms in ecological psychology: the education of intention. Phenomenol. Cogn. Sci. (2022). https://doi.org/10.1007/s11097-022-09807-9
4. Kaptelinin, V., Nardi, B.A.: Acting with Technology: Activity Theory and Interaction Design. MIT Press, Cambridge (2006)
5. Latour, B.: Reassembling the Social: An Introduction to Actor-Network-Theory. Oxford University Press, Oxford (2005)
6. Krippendorff, K.: On the essential contexts of artifacts or on the proposition that "design is making sense (of Things)." Des. Issues **5**, 9–39 (1989). https://doi.org/10.2307/1511512
7. Gibson, J.J.: The Ecological Approach to Visual Perception. Houghton Mifflin, Boston (1979)
8. Gibson, J.J.: Notes on affordances, reasons for realism, Hillsdale (1982)
9. Reed, E.S.: Encountering the World: Toward an Ecological Psychology. Oxford University Press, Oxford (1996)
10. Manzini, E.: Artefatti. Verso una nuova ecologia dell'ambiente artificiale. Domus Accdemy, Milano, Italy (1990)
11. Borghi, A.M., Riggio, L.: Sentence comprehension and simulation of object temporary, canonical and stable affordances. Brain Res. **1253**, 117–128 (2009). https://doi.org/10.1016/j.brainres.2008.11.064
12. Borghi, A.M., Riggio, L.: Stable and variable affordances are both automatic and flexible. Front. Hum. Neurosci. **9**, 351 (2015). https://doi.org/10.3389/fnhum.2015.00351
13. Fishkin, K.P., Moran, T.P., Harrison, B.L.: Embodied user interfaces: towards invisible user interfaces. In: Chatty, S., Dewan, P. (eds.) Engineering for Human-Computer Interaction. IFIP —The International Federation for Information Processing, vol. 22, pp. 1–18. Springer, Boston, MA (1999). https://doi.org/10.1007/978-0-387-35349-4_1
14. Ishii, H., Ullmer, B.: Tangible bits: towards seamless interfaces between people, bits and atoms. In: Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems, pp. 234–241. ACM, New York (1997)
15. Dourish, P.: Where the Action is: The Foundations of Embodied Interaction. The MIT Press, Cambridge (2004)
16. Tidwell, J.: Designing Interfaces: Patterns for Effective Interaction Design. O'Reilly Media, Sebastopol (2010)
17. Jakobson, R.: Linguistics and poetics. In: Sebeok, T. (ed.) Style in Language, pp. 350–377. The MIT Press, Cambridge (1960)
18. Hassenzahl, M.: The thing and i: understanding the relationship between user and product. In: Blythe, M., Monk, A. (eds.) Funology 2. Human–Computer Interaction Series, pp. 301–313. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-68213-6_19
19. Utterback, J., et al.: Design-inspired innovation and the design discourse. In: Design-Inspired Innovation, pp. 154–186 (2006)
20. Garfinkel, H.: Studies of the routine grounds of everyday activities. Soc. Probl. **11**, 225–250 (1964). https://doi.org/10.2307/798722
21. Goffman, E.: Frame Analysis: An Essay on the Organization Of Experience. Harvard University Press, Cambridge (1974)

22. Withagen, R., de Poel, H.J., Araújo, D., Pepping, G.-J.: Affordances can invite behavior: reconsidering the relationship between affordances and agency. New Ideas Psychol. **30**, 250–258 (2012). https://doi.org/10.1016/j.newideapsych.2011.12.003
23. Withagen, R., Araújo, D., de Poel, H.J.: Inviting affordances and agency. New Ideas Psychol. **45**, 11–18 (2017). https://doi.org/10.1016/j.newideapsych.2016.12.002
24. Mariani, I., Livio, T., Tolino, U.: Drawing Interfaces: when interaction becomes situated and variable. In: DeSForM 2019 Proceedings, Boston, MA (2019)

EXPERIENCES. Transitions

Communication Design for Welfare, the Challenge of Preserving Human Interactions in Remote Participation. Rethinking and Redefining Collaborative Activities for a Virtual Environment

Valeria Bucchetti[1(✉)], Michela Rossi[1], Umberto Tolino[1], Benedetta Verrotti di Pianella[2], and Pamela Visconti[1]

[1] Design Department, Politecnico di Milano, Milan, Italy
{valeria.bucchetti,michela1.rossi,umberto.tolino,
pamela.visconti}@polimi.it
[2] Milan, Italy
bverrottidipianella@gmail.com

Abstract. The unprecedented situation of the COVID-19 emergency has challenged traditional in-person interaction, forcing researchers to rethink participatory experiences, designing new tools, and readjusting the existing ones in order to adapt them to a virtual environment.

This paper delves into tools and methods of remote inclusion and participation to foster the exchange of opinions among people and the construction of a shared imagery that represents the viewpoints of the community involved. In particular, it examines the dynamics implemented within the European initiative UIA-Urban Innovative Actions for the project WISH MI-Wellbeing Integrated System of Milan that deals specifically with actions to contrast juvenile poverty in Milan, and it involves the DCXW research group (Communication Design for Welfare) of the Politecnico di Milano Design Department and the Municipality of Milan as the lead partner. Through the case study, a series of tools and communication design techniques for remote participation are presented, highlighting the approaches taken to preserve humanity and closeness in online interactions, and especially emphasizing the new opportunities that the virtual environment can offer.

Keywords: Communication Design · Remote Co-Design · Social Policies

1 Introduction

The spread of Covid-19 has significantly impacted participatory research. Social distancing, quarantine, and restrictions made it essential to rethink the co-design experience in a context of no physical proximity.

B. Verrotti di Pianella—Independent Researcher and Designer.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 475–484, 2024.
https://doi.org/10.1007/978-3-031-49811-4_45

Co-presence, tangible interactions, and physical contact, are proven to have a strong impact on collaborative processes, nurturing and facilitating debate, critical thinking, and the development of creative solutions [11]. It is therefore crucial in the transition to a virtual remote mode to activate a reflection on how to overcome the organizational and social obstacles generated by the lack of proximity and the digital dimension of interaction, especially addressing the issues of platform and devices accessibility and participant engagement and focus [6]. When designing the experience, it is essential to consider the technological requirements, both in terms of hardware and software and skills and knowledge needed, so that participants does not feel excluded or challenged [16]. Engaging and maintaining the attention of those involved is another critical issue, further complicated by the monotony and stillness of screen interaction and the multiplicity of physical environments in which activities take place that can be a source of distraction and are outside the researchers' control and planning action. In terms of the relationship quality, digital leads to another complexity factor, as it limits nonverbal interaction and precludes the entertainment of small one-on-one 'aside' conversations, making it more difficult to build connections between participants and with researchers [5]. In online research it is also harder to gauge individuals' reactions, judge if someone feels distressed by a task or a specific question and properly analyze group dynamics [7].

This paper aims to contribute to the ongoing debate on planning and conducting remote participatory activities by presenting a critical reading of tools and methods to identify coordinates for the design of a visual identity system, tested and implemented as part of the European project "WishMi. Wellbeing Integrated System of Milan[1]". Funded by the European initiative Urban Innovative Actions, the project aims at the well-being of under-age children in the city of Milan, promoting innovative solutions to address the challenges of child poverty, inequality, and segregation. Specifically, with the aim of activating and stimulating a collective reasoning on WishMi's identity, a multi-session process was designed involving different actors with complementary goals. Through the contributions of those involved, it was possible to draw a common identikit of what the system is and aspires to be, and to define its *semionarrative* and *discursive structures*, agreeing on the system values and the most appropriate ways to narrate it [8].

2 Communication Design and Remote Participation

The transition of participatory activities to a digital dimension, necessitated by the unprecedented historical circumstances, poses a significant challenge in terms of preserving the quality of human interactions and relations and requires envisioning how the new context might affect the experience [13]. Design choices are even more crucial in this instance to ensure a positive and successful engagement of the participants. The

[1] Project lead partner: Comune di Milano. Project partners: Abcittà, Actionaid, Fondazione Politecnico di Milano, Design Department – Politecnico di Milano, Università Cattolica. The participatory experience was designed and conducted by the DCXW research group (Communication Design for Welfare) – Design Department, Politecnico di Milano (Valeria Bucchetti, Research Coordinator; Umberto Tolino, WP Leader; Pamela Visconti, Project Manager; Team work: Michela Rossi and Benedetta Verrotti di Pianella).

accurate selection of the collaborative platforms, the customization of the activities' visual layout, the careful definition of flows and the directing action allow to counter and mitigate physical non-proximity, and to create a context that facilitates and sustains human relations, collective thinking, and open dialogue [14].

In particular, when selecting environments in a virtual dimension, it is important to maintain both verbal and visual collaboration to allow for nonverbal interaction among participants, even if limited, and higher involvement on an emotional level. It therefore becomes essential to determine the number of platforms and the features needed to support the planned cooperation modes, maintain a dynamic environment and at the same time have fluent media management without raising the technological requirements for participation and causing accessibility problems. Configuration and customization of the graphic layout of digital environment and participation tools, on the other hand, allow content to stand out and simplify the understanding of the flows, enabling immediate independent and guided interaction [9]. Making tools and environments more appealing in addition favors involvement and engagement.

Placing the focus on the participants, the quality of their interactions and feelings also implies designing experiences by carefully envisioning and planning not only individual activities, but the entire process, studying the timing and providing for variations in pace by alternating between different tasks and breaks to maintain interest and commitment. In addition, acting remotely requires anticipating and facing potential issues of technology "hiccups" such as problems with audio, connection, video, or distracting elements in the physical context, to prevent these from compromising the experience [5]. Therefore, it is essential to provide for a certain degree of flexibility within the planning, envisaging the possibility of reshaping the intended route and activities by incorporating contributions and inputs from previous actions and from interaction patterns observed among participants [17]. Crucial in the design and the conduction of the activities is also the directing role played by the researchers, who act as "silent strategic navigators" handling in the background timing, access to and interaction with the tools, and switching between different environments [15], managing to minimize the need for participants to interact with the software interface, thus removing most of the access barriers.

3 Characteristics and Aims of Participatory Settings

Within the framework of the European WishMi project, in designing the participatory activities, physical and digital space were conceived as a single fluid entity through which navigate and explore, adopting different degrees of transposition, from the use of hybrid tools, combining physical and digital, going through a direct or enhanced transposition of physical tools into digital ones, to the use of entirely digital tools and devices. In this translation effort [2] aimed at combining the potential of both environments, each level of transposition met different needs, such as familiarity, immediacy, speed and emotional impact, and characterized the outcomes of the activities. Each tool was also designed to respond to a specific research purpose. Through the discussion, mediated via interactive digital devices, it was possible to look at the Wishmi system from different perspectives, providing divergent moments to explore core concepts by identifying all their possible ramifications and convergent moments to build collective syntheses from

individual contributions. It also allowed abstract arguments to be concretized through representational exercises and permitted to simulate the implementation of the system to foresee its qualities and languages and to exceed the level of immediate viability to stimulate anticipatory visions (see Fig. 1).

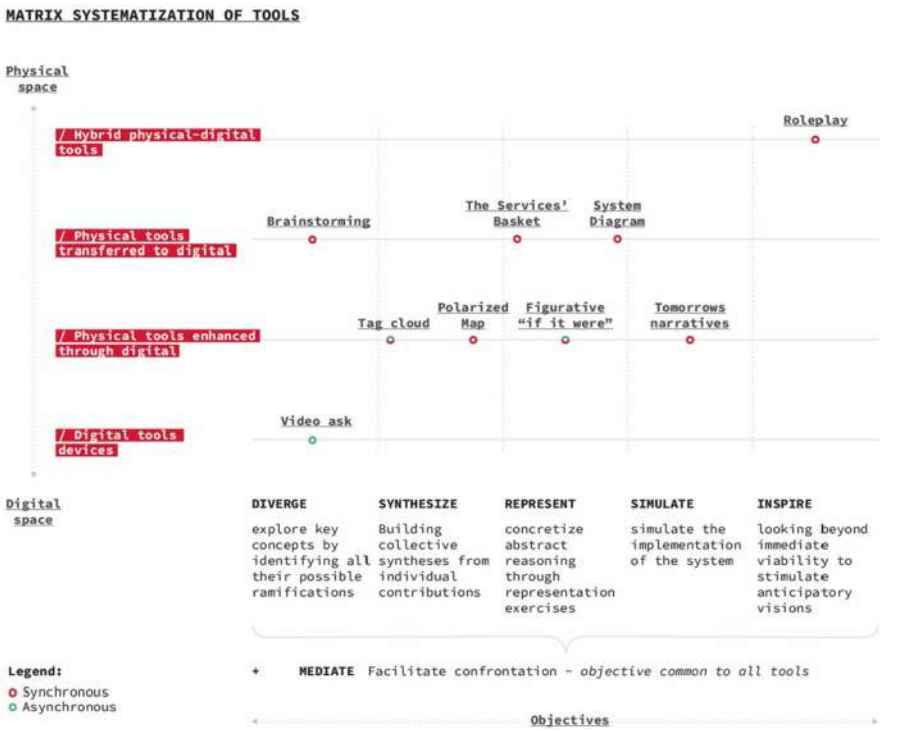

Fig. 1. A schematic overview of the research tools presented in this paper focused on the transposition methods used and the specific research objectives.

3.1 Hybrid Physical-Digital Tools

Considering physical and digital space as one seamless reality allows the creation of a blended space [3] in which boundaries are constantly crossable, and it opens an opportunity to rethink some participatory activities by incorporating phases to be performed in the physical dimension and moments to be carried out digitally. Exploiting the characteristics of both spaces, this approach helps reduce, if not entirely remove, barriers to accessing software and platforms. Moreover, during a period in history when most daily activities are inevitably carried out online, it helps to add memorability to the actions, breaking the monotony of the relationship with the screen.

Role-Playing. The activity is an example of the use of a hybrid physical-digital tool and consists of an identification exercise to encourage discussion on the level of aspirations and expectations. The technique employed was inspired by the *Round Robin*

brainstorming approach [1]: each person was asked to write down thoughts on paper cards with the tools available in their own physical space and use the digital medium to share with the group and further argue their statements. This collaborative and iterative approach allowed all voices to be heard, receive equal consideration, and be improved by additional inputs.

The strategy of opening the session with a hybrid-mode activity permitted the reflection to begin by circumventing the constraints and limitations of the platform. The direction activity, in this case, was crucial in transferring the concepts that emerged to the platform in real time. It also managed to invisibilize the digital interface, providing the participants with greater freedom in the debate and, at the same time, allowing them to observe an early form of interaction with the platform and to become more familiar with the digital environment.

3.2 Physical Tools Transferred to Digital

The most straightforward way to migrate tools and activities from a physical to a digital environment is to perform a direct transposition of physical elements into digital ones, enabling the usage of well-known and established tools that preserve their recognizability despite being mediated through a digital interface. Empirical studies have determined that prior knowledge and the ability to relate one's experience with a product play a role in the speed, efficiency, and accuracy of the interaction [4]. The digital environment is therefore made more accessible and intuitive by leveraging the familiarity of the tools' appearance to induce replicating gestures recognized and codified for the physical element. The following are some examples of physical tools transferred to digital employed in the designed participatory activities.

Brainstorming. Throughout this activity, post-it notes and voting dots were used in their digital versions to describe and articulate key concepts, and to assign value and shift attention to certain ideas. The intuitive use of digital devices facilitated the exploration of ideas, the expansion of knowledge, and the identification of possible developments and integrations.

The Services' Basket. The tool is based on the inside-outside dichotomy translated visually through the image of the basket. The digital representation of the object-basket made it possible to identify, even within a shared artboard, an inside and an outside, making the activity request intuitively immediate. Participants were asked to replicate the gesture of putting in or out of the basket to achieve a concrete definition of which services are part of the system and which are not.

System Diagram. The tool allowed the identification of the relationship between the services proposed by the WishMi system and those offered by the specific areas and departments of the Municipality of Milan. The task simulates in most aspects the same type of interaction required in presence, relying on basic equipment, such as markers, pens, pencils, and cards in their digital versions. In this instance, the design strategy of synthetically prefiguring and visualizing some of the possible configurations of the system made them concrete and immediately comprehensible, serving as an example to stimulate the participants to propose and integrate with new scenarios.

3.3 Physical Tools Enhanced Through Digital

The transition to the digital environment not only allows direct translation of tools but also creates the opportunity to enhance some of them by activating diverse dynamics and adding extra features.

For example, by conducting participatory activities remotely, it is possible to multiply digital environments, creating potentially countless virtual rooms where participants' access can be regulated to engage in different activities simultaneously. In addition, by logging in from their device, participants can have access to both personal content and web-based materials. Examples of tool enhancement through digital are presented hereafter.

Polarized Map and Figurative "if it were". The polarized map was functional to the individuation of highly expressive and representative images and visual languages to promote the WishMi system, synthesizing individual contributions into a unified visualization. The figurative "if it were" instead allowed for the metaphorical representation of the system, isolating its qualities through the association with real-world objects' features. Having access to both the network and the personal archives to select images has enhanced these tools. The same activities conducted in presence in fact require images to be pre-selected by the researchers and participants are usually only allowed to organize them on the map, the digital instead permitted complete freedom, removing any form of influence and opening to even unexpected results.

Tag Cloud. The tool permitted to synthesize concepts and insights that emerged from previous discussions and further stimulate dialogue and critique of what emerged. The digital environment facilitated a dynamic and expandable visualization, allowing participants to integrate and to reposition terms and concepts until they obtained a satisfactory outcome. In conducting the activity, it was observed that the digital synthesis, compared to the in-presence one, encouraged the development of individual rather than collective reasoning since each participant accesses and interacts separately within the platform. Hence, the researchers need to plan and promote confrontation to restore the collaborative aspect of the synthesis and stimulate new thoughts.

Tomorrow Narratives. The tool was functional to develop collective definitions that stem from the synthesis of a plurality of individual inputs acquired through short interviews.

Multiplying virtual spaces made it possible to conduct the interviews simultaneously with the other collective actions, providing an opportunity for the interviewees to detach from the main activity, and helping to maintain them engaged. In addition, the invisibility of the recording equipment contributed to the ease of the participants, fostering spontaneous interactions. Direction here played a crucial role in the transition between the various virtual environments.

3.4 Digital Tools and Devices

In addition to methods and mechanisms derived from in-presence experiences, a large selection of interactive digital tools is now available on the internet, each endowed with

specific features. Whether born for research purposes or adapted for scientific use, online software packages represent an additional opportunity for experimentation in the field of participatory design.

The advantages offered by digital tools include wider reach, better cost and time efficiency, ease of dissemination, automatic data processing features, multimedia inputs, higher immediacy of interaction, higher levels of honesty and self-disclosure due to perceived anonymity and privacy [10] and the potential for content with a powerful emotional impact.

Video Ask (www.videoask.com)**.** Video ask is an example of a digital native tool. It is a platform for creating and disseminating web-based surveys, which relies on conveying a question through video input and selecting a specific medium to submit the responses. This platform enabled the collection of a substantial amount of vocal contributions in a short time frame by directly involving Milan-based children and adolescents to reflect on and explore the expressive and evocative potential of the WishMi name. Video ask made it possible to dispose of highly emotional content that emphasized the level of involvement and compliance of participants in the workshops (see Fig. 2).

4 Considerations

The complete transition of the workshop activities held within the WishMi project to a digital environment was a necessity due to the unique circumstance of the Covid-19 pandemic outbreak, nevertheless, it provided an opportunity to increase reflections on the potential of digital for conducting participatory experiences.

The confined interaction, limited by the screen, for example, permits thorough and detailed traceability of the unfolding activities. Recording video calls and collaborative artboards in fact allows the reconstruction of individual paths in retrospect, thus granting higher accuracy and depth in research. Moreover, the almost invisible digital recording equipment does not interfere with ongoing activities, facilitating the acquisition of less biased materials.

The transition to digital also represents an opportunity for experimentation, expanding research mechanisms by tapping into digital-native devices and rethinking and enhancing some traditional tools. The virtual dimension and the remote implementation of activities increase the flexibility in considering the variables of space and time, allowing the removal of physical, geographic, and temporal constraints of co-presence. From the space standpoint, it becomes technically feasible to involve people from different backgrounds and countries in the same activity and have access to multiple virtual spaces for conducting several actions simultaneously. In addition, familiarity with one's home environment allows for a higher sense of tranquillity, encouraging more spontaneity and freedom of expression [11]. From the time-related perspective, on the other hand, it is possible to increase the flexibility of participation, as well as to carry out some activities asynchronously, allowing participants to determine how, when and where to get involved. In the WishMi project, for example, the higher autonomy in time management allowed directors from different areas of the Municipality of Milan to participate in selected activities according to their agendas. The removal of spatial and temporal constraints also broadens the scale of the research, allowing it to reach and potentially

Fig. 2. A selection of significant images aimed at conveying a visual understanding of the remote participation tools.

involve a higher number of people, even simultaneously, creating heterogeneous groups and amplifying the impact by bringing together more and diverse viewpoints [12].

The reflections presented aim at fostering the debate that in recent years has interested an increasing number of fields, from education to labour, to services, questioning the physical-digital relationship in pursuit of a proper balance between these two polarities. Even though these reflections arise from an unprecedented condition, they are not intended as a response to the Covid-19 pandemic, in the same way the tools presented are not meant to be an exhaustive list of approaches, they rather represent a contribution and a stimulus to broaden the discussion on the emerging possibilities to create more inclusive and diverse participatory design experiences and on the role of communication design. Especially since the struggle to design online participatory activities led to a new awareness of the potential of envisioning collaborative experiences in which there is an ever-increasing synergy between physical and digital and where the strengths of both contexts are better enhanced.

References

1. Barkley, E.F., Cross, K.P., Major, C.H.: Collaborative Learning Techniques: A Handbook for College Faculty, 2nd edn. Jossey-Bass, San Francisco (2014)
2. Baule, G., Caratti, E. (edited by): Design è traduzione. Il paradigma traduttivo per la cultura del progetto. «Design e traduzione»: un manifesto. Franco Angeli, Milano (2016)
3. Benyon, D., Mival, O., Ayan, S.: Designing blended spaces. In: Proceedings of The 26th BCS Conference on Human Computer Interaction (HCI), BISL, Birmingham, UK, pp. 398–403 (2012)
4. Blackler, A., Mahar, D., Popovic, V.: Investigating users' intuitive interaction with complex artefacts. Appl. Ergon. **41**(1), 72–92 (2010)
5. Constantin, A., et al.: Distributing participation in design: addressing challenges of a global pandemic. Int. J. Child-Comput. Interact. **28**, 1–14 (2021)
6. Davis, A., Niki, W., Langley, J., Ian, G.: Low-contact co-design: considering more flexible spatiotemporal models for the co-design workshop. Strateg. Des. Res. J. **14**(1), 124–137 (2021)
7. Eynon, R., Fry, J., Schroeder, R.: The ethics of online research. In: G. Fielding, N.M. Lee, R., Blank, G. (eds.) The SAGE Handbook of Online Research Methods, 2nd edition, pp. 19–37. SAGE (2017)
8. Floch, J.: Semiotica marketing e comunicazione. Dietro i segni le strategie. Franco Angeli, Milano (1992)
9. Heath, C., Luff, P., Lehn, D.V., Hindmarsh, J., Cleverly, J.: Crafting participation: designing ecologies, configuring experience. Vis. Commun. **1**(1), 9–33 (2002)
10. Hewson, C.: Research design and tools for online research. In: G. Fielding, N.M. Lee, R., Blank, G. (eds.) The SAGE Handbook of Online Research Methods, 2nd edition, pp. 57–75. SAGE (2017)
11. Kanis, M., van der Bie, J., Nauta, B., den Dunnen, M., Ben Allouch, S.: New approaches for participation in digital society in distant times of COVID-19: sharing challenges and opportunities from the professional field in support of physical closeness and digital engagement for public wellbeing. In: CHI 2021 Conference on Human Factors in Computing Systems, Yokohama, Japan (2021)
12. Kennedy, A., Cosgrave, C., Macdonald, J., Gunn, K., Dietrich, T., Brumbym, S.: Translating co-design from face-to-face to online: an Australian primary producer project conducted during COVID-19. Int. J. Environ. Res. Public Health **18**(8), 1–14 (2021)

13. Manzini, E.: Covid-19 and social innovation: Contactless sociability and hybrid communities of place (2020). https://www.desisnetwork.org/2020/04/07/social-innovation-contactless-sociability-and-hybrid-communities-of-place/. Accessed 29 June 2022
14. Murai, Y., et al.: Facilitating online distributed critical making: lessons learned. In: FabLearn Europe/MakeEd 2021 - An International Conference on Computing, Design and Making in Education. Article 9, pp. 1–9, Association for Computing Machinery, New York (2021)
15. Pedersen, S.: Staging negotiation spaces: a co-design framework. Des. Stud. **68**, 58–81 (2020)
16. Reddick, C.G., Enriquez, R., Harris, R.J., Sharma, B.: Determinants of broadband access and affordability: an analysis of a community survey on the digital divide. Cities **106**, 102904 (2020)
17. Van der Lugt, R.: Systemic co-design: the designer as a facilitator of change. In: Joore, P., Stompff, G., Van Den Eijnde, J. (eds.) Applied Design Research: A Mosaic of 22 Examples, Experiences and Interpretations Focusing on Bridging the Gap between Practice and Academics, pp.127–136, CRC Press, Boca Raton (2022)

Aesthetics of Design for Social Innovation. Pathways for a Dialogue with Everyday Aesthetics

Annalinda De Rosa and Laura Galluzzo(✉)

Dipartimento di Design, Politecnico di Milano, Milano, Italy
laura.galluzzo@polimi.it

Abstract. The paper presents "ADESSO - Aesthetics of Design for Social Innovation", foundational research that aims at investigating the sensorial insights and the aesthetic experience related to services, relationships, environments, communication strategies, and spaces within Design for Social Innovation approaches, highlighting the impact on processes and outcomes.

As Design for Social Innovation deals with all that design branches can do to promote and support social changes towards social and environmental sustainability, such processes are usually typified by a strong dematerialization of the design object itself: they own a relational and dialogical perspective. As the object itself of the design process has constantly been expanded, mainly towards its intangibility, the focus on the value generated by the experience of artefacts and places has found its area of investigation. Also, a decreased authorship has progressively turned the designer's role into participatory-design-led practices. Indeed, Design Aesthetics has mainly dealt with product design and the related sensorial involvements, and no specific studies have so far included Design for Social Innovation.

Focusing on these three principal axes of change for design research, ADESSO starts by investigating the aesthetic experience generated throughout sustainable and participative cases, stressing the importance of differential contributions to the whole process.

Keywords: Aesthetic · Design for Social Innovation · Everyday Aesthetics · Applied Aesthetics · Experiences

1 Introduction

ADESSO (Aesthetics of Design for Social Innovation) research investigates the possible interplay between Design for Social Innovation and Aesthetics. Launched at the Department of Design of Politecnico di Milano in 2018, thanks to university funds for basic research, the research is now capitalising on its findings in further projects by its team.

The research aims to investigate sensory aspects and the aesthetic qualities of relationships, services, environments, communication systems, and spaces designed for design for social innovation interventions, with attention to both the processes and the

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 485–492, 2024.
https://doi.org/10.1007/978-3-031-49811-4_46

project results. To further explain what we mean by "design for social innovation," let's take a step back.

"We define social innovations as new ideas (products, services, and models) that simultaneously meet social needs and create new social relationships or collaborations. In other words, they are innovations that are both good for society and enhance society's capacity to act." Szymańska in [1]. The outcomes of social innovation are all around us: they are new ideas that work to meet pressing unmet needs, improve people's lives, and mobilise the ubiquitous intelligence within any society [1]. As Manzini [2] states, to promote social innovation design experts must use their design skills and competencies to recognize promising cases when and where they appear and to reinforce them. That is, to help them to be more accessible, effective, lasting, and replicable. Design for social innovation is everything that design experts can do to activate, sustain, and orient processes of social change toward sustainability [3–5].

ADESSO builds on two research strands with which it is closely connected, illustrated below, to develop initial reflections on the relationships between the aesthetics of everyday life and design for social innovation.

The coordinator of the ADESSO research is a member of the Polimi DESIS Lab (https://www.desis.polimi.it), one of the research centres of the international DESIS Network (https://www.desisnetwork.org), founded by Ezio Manzini and focused on the role of design within sustainability and social innovation-oriented research and practices. Since September 2014, DESIS has been a non-profit and cultural association promoting design for social innovation in higher education institutions to generate valuable design knowledge and to create meaningful social changes in collaboration with external stakeholders.

The second research strand is linked to the DESIS Philosophy Talks (https://www.desis-philosophytalks.org), organised within the DESIS network since 2015, a Ezio Manzini and Virginia Tassinari initiative aiming to nurture the dialogue between design and philosophy, practice and theory. The purpose of this initiative is to encourage a theoretical and philosophical discourse starting from the state of the art of design for social innovation and sustainability.

2 Research Framework

The literature review demonstrates that Design for Social Innovation still lacks a structured aesthetics-driven discourse. Such a gap outlines the domain the research intended to investigate further through a cross-sector approach between design and aesthetics.

The first step of the research, through literature review, aims to map existing contributions to the topic in terms of relevant concepts and experimentations dealing with the relationship between the social context with art and design-led interventions, which observations have been helpful to guide the following steps of the research [6–11]. During the first DESIS Philosophy Talk, "Emerging Aesthetics", that took place at Parsons - The New School for Design (New York) in 2012, the conversation was based on a background paper by Manzini and Tassinari that proposed and motivated this basic question: "Are sustainable social changes generating a new aesthetics?". The talk reflected on the enjoyment of doing things together as an emerging and shared aesthetics: "can we liberate the word *aesthetics* from the overload of connotations which we inherited from our

recent philosophical past and use it in a broader sense to denote a change in *sensitivity* in the context of our contemporary lives? [How the] shift of *sensitivity* registered in creative communities […] could eventually help us to understand better the phenomena of grassroots social innovation emerging in our society and of design practices dealing with them [?]" Tassinari in [12, p. 248]. Quoting Jacques Rancière: can we consider, today, "sustainable aesthetics" as moving the political paradigm towards a more participative and open society? [13]. Considering the increasing prevalence of participatory design, may we inquire if aesthetics is generated, emerging, or co-produced? [14].

In this context, what is the designer's role versus the citizens and communities participating in consultation, co-design, and envisioning activities developed within design for social innovation research and practices? How can designers deal with aesthetics when the main design object is social, while traditional object-bound aesthetic concepts lose their validity? [14].

Koskinen describes three possible approaches to aesthetics through what he calls *new social design*: i) *agonistic*, considering aesthetics as a way to lure people into interacting with controversial content; ii) *convivial*, which registers aesthetics in community interactions; and iii) *conceptual*, which does away with aesthetics [14].

Without focusing only on process, it is interesting to explore whether the results of actions and designs dealing with social innovations have an aesthetic impact and what kind of impact collaborative design actions through the tools of design and art can have.

Markussen defined the "disruptive aesthetics" conceptual framework of design activism, exploring the impact of design activism on people's everyday life and what makes it different from its closely related 'sister arts' political activism and art activism [15]. Disruptive aesthetics has two characteristics: the potentiality to disrupt or subvert existing systems of power, raising critical awareness of ways of living, working, and consuming, and its aesthetic potential (shared with art activism), especially in the relations between people's actions and feelings. The relationship between art and social relations is also at the heart of what Nicolas Bourriaud [16] calls *relational aesthetics*; he defines it as a set of artistic practices with the whole of human relations and their social context as theoretical and practical point of departure. Interestingly, these meanings of aesthetics recall the ancient Greek idea of aesthetics closely connected with an ethical view of reality.

If we try to dwell in the field of aesthetics studies, the subject matter of the so-called Aesthetics of the Everyday or Everyday Aesthetics [17–21] owns is undoubtedly close to that of design for social innovation, participatory and design activism practices as it focuses on everyday, social, relational matters intrinsic to the world we live in. The object of Everyday Aesthetics is precisely everything that characterises our everyday life, including objects, events, and activities. It aims to give due regard to the entirety of people's multi-faceted aesthetic life, including various ingredients of everyday life: artefacts of daily use, chores around the house, interactions with other people, and quotidian activities such as eating, walking, and bathing. Also, Everyday Aesthetics seeks to liberate aesthetic inquiry from an almost exclusive focus on beauty […] as conceived from modern Western thought. Within its purview, it includes those qualities that pervade everyday experience, such as pretty, cute, messy, tasteful, dirty, lively, and monotonous, to name only a few [22].

Based on these concepts, ADESSO research attempts to relate design approaches to social innovations with insights from Everyday Aesthetics to nurture reflections to move design advancements forward.

3 ADESSO Research

In recent decades, design has faced increasingly complex social challenges, and there has been a strong dematerialization of the design object itself, focusing on a relational and dialogical perspective. More generally, it is possible to remark that the object itself of the design process has constantly been upgraded, with primary attention to the intangible sides rather than the tangible ones, granting a renewed value to the experience generated by artefacts and places.

On the other hand, among the various currents of applied aesthetics, Everyday Aesthetics leads to the analysis of everyday actions and functions rather than just the pleasurable experience generated by contemplation, thus also focusing more on processes, actions and relationships.

Indeed, design aesthetics has mainly dealt with product design and related sensorial involvements. So far, no specific studies have included Design for Social Innovation because of the need to investigate the aesthetic experience generated through socially innovative, sustainable, and participative cases. The driving research questions are:

- How can Aesthetics contribute to envisioning more effective and pleasurable human-centred designs, impacting the design process's different phases and outcomes?
- How does Applied Aesthetics impact the identification and desirability process of the design object?
- How can Design and Aesthetics launch a novel discourse and set up a model of action and intervention regarding sustainability?

Based on a multidisciplinary approach, the research has launched a cross-sector discourse within and outside the Department of Design of Politecnico di Milano, embracing a broad perspective including Sociology, Semiotics, Environmental Psychology, Ethology, Philosophy of Space, Communications Studies, and several branches of Aesthetics.

The research has been structured around the following six areas, then discussed in a 1-day symposium organised at Politecnico di Milano with experts – academics and practitioners – from the fields of study mentioned above:

- Engagement and/or activism
- Individual and/or Community
- Body and/or Technology
- Places and/or Spaces
- Visioning and/or Shaping
- Meaning and/or Interpretation

ADESSO symposium acted as a dialogue aimed at reframing research questions, mapping gaps and opportunities, identifying future research directions, and establishing an initial network of contributors. The input from national and international case studies on social innovation and artistic projects contributed to the discussion, adding a practice-based perspective to the analysis.

4 Emerging Reflections for Future Studies

Through this initial research, three primary considerations emerge for the follow-up study.

The Role of the Designer – In design for social innovation practices, the role of the design researcher stands in the ability to make social conversations among different actors happen not only through consensus-building methodologies but also as mediators and facilitators, thanks to collaborative tools that are specific to the designer's expertise (mock-ups, prototypes and scenarios) [2, 23]. These tools are not only means to visualise ideas to support discussions and debates but also to conceive together future and complex trajectories for change and materialise initial steps towards such changes. By focusing our attention on public spaces, the materialisation of speculative artefacts takes shape through the (co)design of places for staging actions and relationships and as collective demonstrations of alternative ways of experiencing public spaces. These are *urban commons*, intended as those "resources [that] range from local streets and parks to public spaces to a variety of shared neighbourhood amenities" [24, p. 57] where the stimulation of a community development policy can play "a critical role as a major intellectual critique of the dominant model that privileged property rights as the core solution to collective action problems" [25, p. 4]. The bond between politics and the spatial dimension of public spaces should therefore be nurtured by the naturalistic aesthetic conception, according to which the human being is an organism that is radically dependent on the living environment, in which it develops natural, social, and cultural interactions that are necessary for life itself. Consequently, all experience is aesthetic [26]. By supporting the collective configuration of the everyday world, the designer opens up new perspectives and possibilities, creating the representations of debates and discussions: an aesthetic and thus political [27] configuration of the everyday. Thomas Markussen traced this connection as "disruptive aesthetics", at the core of his definition of design activism and building on Jacques Rancière's agonism: "For Rancière, what characterises the aesthetic act, in particular, is that it introduces new heterogeneous subjects and objects into the social field of perception. In so doing, the aesthetic act affects people's experience in a certain way: it reorients perceptual space, thereby disrupting socio-culturally entrenched forms of belonging and inhabiting the everyday world" [15, p. 4].

This opens new questions that cross Everyday Aesthetics. What is the role of design experts in building a collective aesthetic literacy? What transversal toolkits across (participatory) design, social innovation, and aesthetics can give citizens the ability and sensibility to understand the present better and discuss the kind of future they want? How the tangible and situated manifestation by design (i.e., artefacts, performances, spatial prototypes) of such possibilities exploits the continuum of human experience, the full array of sensory and semiotic vectors?

The Object of the Research Today - What is the object? What is the object in design? What is the object in everyday aesthetics? Acknowledging the shift of the design focus from the sole tangible artefacts (outputs) to the generated implications of those into impactful effects, in the level of engagement through co-design processes and in the achieved empowerment towards further actions lies the focal point of social innovation practices. The "uptake" of design outputs through uses and interactions builds on

the Norberg-Schulz phenomenology of the *sense of place*, or, the *identity of place*: the dialectic of the human experience with the physical environment [28]. This dialectic is embedded in the human experience of the physical environment, which Norberg-Schulz [28] defines as the *existential foothold* building on Heidegger's concept of dwelling [29]. Human beings 'inhabit' when they can orient themselves in an environment and when they can find identification with it. In this sense, an inhabited space is a place: a place is the phenomenology of space, and the built environment – the tangible artefacts defining a place – is the physical manifestation of inhabiting because it discovers meanings potentially present in the given a priori environment [30]. A place "has in itself a strongly experiential connotation […], constructed in our memories and affections through repeated encounters and complex association" Graumann in [31, p. 108]. Places enclose and compress time in their thousand cavities since it is a "psychological diagram" that transcends the geometrical space [32, p. 73]. Therefore, the geographical space is not detached from the imaginative and emotional dimension, linked to the way the individual, in his social behaviour, represents and organises the reality in which he lives. European strands have investigated this kind of interpretation of public space, in particular the work of Arto Haapala, which can be included in the Finnish strand of Everyday Aesthetics [33, pp. 115–116]. Participatory practices toward social innovations in public spaces can add a layer to the reality of the environment: from *what it is* to *what it might be.* Everyday Aesthetics, which proposes a new conception of aesthetics as a theory of sensitivity and experience of the everyday environment, can reinforce the action already inherent in the design discipline of creating a more beautiful world, understood as fair, responsible, and as a common good.

Situated Futures - From the above reflections, the concept of future-making through the designer's participated acts in the public space has already emerged. More precisely, these design interventions may act as *situated futures*, scenarios of future innovation patterns. They serve to contextualise new ideas as well as *to make futures by relationality*, meaning to make interactions with and through the tangible environment, to engage a plurality of voices in conversation, and to create a common ground for a more participated, dialogical, and inclusive social transformation [34]. The concept of situatedness is clearly defined by Anna Tsing et al. [35] as "the perspective *on and from* a particular somewhere, as opposed to the point of view *on and from* everywhere. In other words, view from a specific patch". Therefore, the everyday present assumes a phenomenological and ontological relevance, where ritualised behaviours, social bonds, and forms of participation in the affairs of society or politics are also included among the 'specifically aesthetic' objects and events [33, p. 30]. By questioning our times and staging alternative narratives, co-created and prototyped public spaces are agents of aesthetics, here intended to impact the *quality of the experience* (sustainable, inclusive, beautiful, and right). Increased and strengthened social bonds are themselves components of the aesthetic legacy of the design interventions.

Starting from these three primary reflections, the research has tried to question some of the issues that emerged in the study and touched upon during the symposium. Through this paper, the authors intend to frame the insights of this interdisciplinary dialogue to identify further research questions and future research directions to establish an initial network of contributors.

References

1. Murray, R., Caulier-Grice, J., Mulgan, G.: The open book of social innovation. National endowment for science, technology and the art london (2010)
2. Manzini, E.: Design, When Everybody Designs: An Introduction to Design for Social Innovation. MIT Press, Cambridge (2015)
3. Christensen, C.M., Baumann, H., Ruggles, R., Sadtler, T.M.: Disruptive innovation for social change. Harv. Bus. Rev. **84**(12), 94 (2006)
4. Cross, N.: Design participation: proceedings of the design research society's conference, Manchester, September 1971. Academy Editions, London (1972)
5. Heidingsfelder, M., Kimpel, K., Best, K., Schraudner, M.: Shaping future—adapting design know-how to reorient innovation towards public preferences. Technol. Forecast. Soc. Change **101**, 291–298 (2015)
6. Mecacci, A.: Estetica e design. Il mulino (2012)
7. Dufrenne, M.: 'L'oggetto estetico come "la cosa stessa"', Fenomenol. E Sci. Dell'uomo, vol. 1 (Apr), pp. 11–22 (1985)
8. Forsey, J.: The Aesthetics of Design. Oxford University Press, Oxford (2016)
9. Franzini, E.: 'L'esperienza dell'oggetto. Kant, Husserl e alcuni problemi di estetica fenomenologica', Fenomenol. E Sci. Dell'uomo, vol. 1 (Apr), pp. 77–96 (1985)
10. Iannilli, G.L.: L'estetico e il quotidiano. Design, Everyday Aesthetics, Esperienza. Mimesis Edizioni (2019)
11. Iversen, O.S., Dindler, C.: Pursuing aesthetic inquiry in participatory design. In: PDC, pp. 138–145 (2008)
12. Vermaas, P.E., Vial, S.: Advancements in the Philosophy of Design. Springer, Cham (2018)
13. Rancière, J.: The Politics of Aesthetics: The Distribution of the Sensible. Continuum Intl Pub Group, London (2004)
14. Koskinen, I.: Agonistic, convivial, and conceptual aesthetics in new social design. Des. Issues **32**(3), 18–29 (2016)
15. Markussen, T.: The disruptive aesthetics of design activism: enacting design between art and politics. Des. Issues **29**(1), 38–50 (2013)
16. Bourriaud, N.: Esthétique relationelle tr. it. Estetica relazionale., 2010th ed. Postmedia, Milan (1998)
17. Saito, Y.: Everyday Aesthetics: Prosaics, the Play of Culture and Social Identities. Oxford University Press, Oxford (2008)
18. Saito, Y.: Everyday Aesthetics. Oxford University Press on Demand, Oxford (2007)
19. Leddy, T.: The Extraordinary in the Ordinary: The Aesthetics of Everyday Life. Broadview Press, Peterborough (2012)
20. Haapala, A.: On the aesthetics of the everyday: familiarity, strangeness, and the meaning of place. In: Light, A., Smith, J. (eds.) The Aesthetics of Everyday Life. Columbia University Press, pp. 39–55 (2005)
21. Haapala, A., von Bonsdorff, P.: Aesthetics in the Human Environment (1999)
22. Zalta, E.N., Nodelman, U., Allen, C., Perry, J.: 'Stanford encyclopedia of philosophy'. Metaphysics Research Lab, Center for the Study of Language and Information (1995)
23. Björgvinsson, E., Ehn, P., Hillgren, P.-A.: Participatory design and democratizing innovation. In: Proceedings of the 11th Biennial participatory design conference, pp. 41–50 (2010)
24. Foster, S.R.: Collective action and the urban commons. Notre Dame Rev. **87**, 57 (2011)
25. Benkler, Y.: Commons and growth: the essential role of open commons in market economies. Univ. Chic. Law Rev. **80**(3) (2013). https://chicagounbound.uchicago.edu/uclrev/vol80/iss3/12
26. Dewey, J.: Art as Experience, 2005th edn. Penguin, London (1934)

27. Rancière, J.: Dissensus: On politics and Aesthetics. Bloomsbury Publishing, London (2015)
28. Norberg-Schulz, C.: Genius Loci: Towards a Phenomenology of Architecture, 2007th edn. Rizzoli, Milan (1979)
29. Heidegger, M.: Building dwelling thinking. Poet. Lang. Thought **154** (1971)
30. De Rosa, A.: S+S. Spatial Design + Service Design. Santarcangelo di Romagna (RN): Maggioli Editore (2022). https://doi.org/10.30448/UNI.916.56056
31. Bechtel, R.B., Churchman, A.: Handbook of Environmental Psychology. John Wiley & Sons, New York (2003)
32. Bachelard, G.: La poétique de l'espace, tr. It. La poetica dello spazio, 1999th ed. Edizioni Dedalo, Bari (1957)
33. Di Stefano, E.: Che cos'è l'estetica quotidiana, vol. 559. Carocci (2017)
34. De Rosa, A., Tassinari, V., Vergani, F.: Envisioning in participatory design processes for civic sense-making. A collective articulation of a counter-narrative through provotyping fictional worlds. Convergences – J. Res. Arts Educ. Convergências - Revista de Investigação e Ensino das Artes **XIV**(28), 13–24 (2021)
35. Tsing, A.L., Deger, J., Keleman Saxena, A., Zhou, F.: Feral Atlas: The More-than-Human Anthropocene. Stanford University Press, Redwood City (2020)

Designing Employee Experience to Experiment with Novel Working Modes. Action Research Project to Support Organizations in Engaging Employees in a Post-pandemic Scenario

Michele Melazzini(✉) and Gianluca Carella

Department of Design, Politecnico di Milano, 20158 Milano, MI, Italy
michele.melazzini@polimi.it

Abstract. In a post-pandemic context, the application of user experience design to employees' perspectives represents one of the stimulating challenges both among design practitioners and researchers. The paper discusses novel approaches that Design may implement to support organizational transformation. How can Employee Experience Design be applied to support organizations in redefining working scenarios? A qualitative analysis has been run to address this question, with a Participatory Action Research method through observations and tests developed with the support of the HR department of the Corporate Investment Banking division in Intesa Sanpaolo.

Findings show how identifying key trends in employee perceptions and critical touchpoints, designing a set of experiential options and experience models to be tested, and engaging employees in the process of reflection in a collaborative design context can enhance the gradual redefinition of a qualitative employee experience. Moreover, the paper proposes a framework for *design intervention* in an organizational context, aiming to stimulate future opportunities for design practitioners and researchers to intervene in how people experience working routines.

Keywords: Employee Experience · Design Thinking · Organizational transformation · Strategic Design · Action Research

1 Introduction

A growing number of organizations adopt *Design Thinking* to transform the organization itself into an entity capable of facing change [1]. The strategic reasons that historically drive corporations to embrace Design are related to facilitating disruptive innovation paths or improving customers' experiences. Recently, the diffused tendency is to focus on the goals more oriented to internal cultural development as for changing internal mindset or retaining and attracting talent [2]. In a post-pandemic context, the application of user experience design to employees' perspectives represents one of the stimulating challenges both among design practitioners and researchers.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 493–502, 2024.
https://doi.org/10.1007/978-3-031-49811-4_47

The paper reflects on the design interventions in the organization that starts from the human experiential perspective: designing employee experience to nurture employee engagement. The uncertainty caused by the COVID-19 pandemic forces the organizations to explore methods to understand how employee experience is evolving and how it should be designed in such transitional working scenarios. The paper builds on a experiment conducted in a research project that applies Experience Design methods to redefine working scenarios during transitions caused by the pandemic.

The paper's primary goal is to discuss novel design interventions in employee experience that support the organizational transformation process, which can be broken down into the following specific objectives. First, to discuss the theoretical implications of a dense empirical study that presents a research and design project conducted in a specific context. Second, to propose a design approach to face the actual challenges in the knowledge workers realm, mainly aiming to support and give organizations insights on how to engage employees in a post-pandemic scenario.

The paper performs a qualitative analysis with a Participatory Action Research method through tests developed with the support of the HR department of the Corporate Investment Banking (IMI CIB) division in Intesa Sanpaolo. A significant sample of employees participated in two different iterations of an experimental test to explore how the working experience changes. The process of gathering data is developed using multiple sources of information to allow further data triangulation (semi-structured interviews and field observation mainly).

The paper articulates into four sections. The background theory presents the relationship between design, employee experience, and employee engagement to transform organizations. The research design and methodology follow, expressing how the research has been conducted. Result analysis shows the different areas of inquiry and the primary derived data. The final section consists in a discussion that summarizes the theoretical and empirical implications, including future avenues in research about design and employee engagement.

2 Background Theory

The theoretical focus of the research starts from the debate about *Design Thinking* (DT), which has been critically analyzed by scholars from design and business and management disciplines in the last decades. This growth of interest in design approach, and methods arises from the evolution of the design discipline itself, which is progressively shifting toward ways of thinking and doing oriented on designing solutions, and intangible offerings addressing complex problems [3].

The study focuses on the relationship between the design approach and private organizations' cultures: in this scope, Design Thinking act as the bridge between *design* and *non-design intensive* organizations. Therefore, the scientific debate is moving towards understanding how design thinking releases strong effects on organizational culture, where *organizational culture* comprises the underlying norms, values, and assumptions that define the "right way" to behave in an organization [4]. Elsbach and Stigliani affirm that it is time to review the value of Design Thinking "as more than a set of tools and, instead, as a cultural component of organizations" [5].

Design thinking can inspire organizational change by observing people's needs and behaviors within the organization: make the employees nurture their mindsets with creative confidence [6] to engage them and impact the motivational and behavioral aspects. The Kelley brothers and scholars like Buchanan sustained the intertwined connection between Design discipline evolution and organization structure: "the product to be designed is not an artifact or a customer service anymore but the organization, itself" [5–20].

The perspective of observation of design as organizational cultural phenomena helps clarify this research's position on the topic: not only physical artifacts but also employee experiences are considered signals of design culture in an organization. These signals are considered part of the aesthetic dimension of the organization, embedding values and symbols which highlight the critical aspects of organizational culture (Strati) [8].

DT activities are globally emerging in a vast variety of organizations; much rarer are instead the cases of a more in-depth adoption of design culture within the organization: because it is an arduous and lengthy process of cultural integration. The way through which design plays a role in this organizational scope, from the study interpretation, is through the *Design Interventions*: the creative distress that permeates organizational life. This research considers the human experiential perspective among the different *Design Interventions*: designing employee experience to engage and attract people inside organizations.

According to business and innovation literature, Employee Experience is the intersection of employee expectations, needs, and wants and the organizational Design of those expectations, needs, and wants [9]; the experience of employees is created by interactions across three spheres: employees' physical environments, their social connections, and the work to be done [10]. Design discipline brings an holistic view of the employee experience to be extended to what has been named "human experience" [11]: considering components such as the community, physical workspace, environment, tools, activities, and social platform simultaneously [10]. Thus, applying the User Experience design in the workplace means empathizing with employees as individuals and as a part of representative groups to fulfill experiential needs - cognitive, emotional, social, behavioral, and sensorial [12, 13].

Employee experience, contrary to employee engagement, is a long-term relationship between the employee and the company. Morgan [9] compared employee engagement as "a short adrenaline shot" while the employee experience "as the long-term redesign of the organization." Thus, organizations must design it properly, change it over the years when radical transformations occur, and keep pace with evolving employees' needs.

Designing employee experience implies looking at the entire experience through the employment lifecycle, a pathway including a multitude of touchpoints, concretization of the organization's culture (employee interactions, experience with tools, physical spaces, procedures, and policies) as well as interaction with outside sources (conversation with family and friends, former employees and media reports). Organizations must evaluate and identify the worker's needs along all the stages to accomplish a complete and specific experience for their employees.

Starting from the background theory explained and observing the significant changes that are occurring in the knowledge workers realm the research challenges specific

questions: how to apply Design to Employee Experience to support organizations in re-defining working scenarios? How to design employee experience to face the actual transitions caused by the pandemic?

3 Methodology

3.1 Research Purpose

Because of the nature of the experiment and a specific methodological choice in addressing the research questions identified, this research process has a particular and experimental design approach. In order to generate new knowledge contributions and develop the primary assumption, this work adopts both qualitative and exploratory research methods.) [14].

The concept of Design Employee Experience to redefine the working logic is poorly defined at this moment of field development. Thus, the research strategy must be coherent with these complex challenges proposed, preferring an explorative approach. Exploratory research does not use confirmatory mechanisms like hypotheses. Instead, it aims to maximize the discovery of generalizations leading to understanding phenomena through a massive collection of insight on a subject [15].

Furthermore, during the experiment the authors considers the *empathic-aesthetic* approach theorized by Strati [8]; entering and permeating the organizational context, the involved researchers play an active role and influence the aesthetic process by which organizational discourse is socially constructed [16].

3.2 Research Design

The research embraces a Participatory Action Research (PAR) methodology, developing a pilot experiment with a financial institution, IMI CIB Intesa Sanpaolo, the partner organization in this study. The experiment, named *Working Life Scenario in Evolution* (WLSE), is developed with the HR Department, specifically the *People Development* team. The sample involved in the experimentation includes 38 employees from three different business units. The employees belong to various job roles and positions.

One professor, two researchers with the support of two junior Service Designer, compose the research team. The experimental project lasts ten months, including the final assessment phase.

The process of gathering data presents multiple sources of information to allow further data triangulation. Due to the COVID-19 pandemic restrictions during the first phases of the research, the data collection tools implemented are digital.

The main tools adopted are semi-structured interviews, individual virtual conversations, and finally some methods inspired to digital ethnography research (such as digital user observation to document routines).

The research process follows the reiterative steps of the PAR approach: Planning, Action, and Reflection (fact-finding) followed by Evaluation [17, 18]. Thus, the research goes through a cycle of these stages until the action is complete.

The activities performed articulates into five steps:

- Step 1 – Planning – *WLSE ideation*: it encompasses the design and conceptualization of the general plan of activities. This phase stimulated the partnering company through explorative research by collecting, analyzing, and interpreting the contextual data. Together with the meetings with the partner organization, it aims to collaboratively refine the experiment to make it coherently fit with the study context.
- Step 2 – Action – *Mapping employees 'routines*: this includes the first round of experiments with a participative session to build the relationship with the employees involved. Mapping the various employee routines as the primary results and collaboratively defining future experimental activities.
- Step 3 – Reflection – *Define the pilot action*: it includes the study on the previous step to re-design and plan the main experimental action to test with a sample of employees.
- Step 4 – Action – *WLSE iterative LAB*: it comprises the main experimental activities, which include a series of employee experience models to test in the participatory session.
- Step 5 - Reflection and Evaluation – *Experiment assessment*: this includes the activity of assessment of the experimentation and the project results, comparing the findings with the framework developed in the previous stages of this research project.

4 Research Activities' Results

4.1 Planning – WLSE Ideation

The first phase describes the planning and structuring of the activities designed for this project. This step started with preliminary research, exploring how to redefine the employee experience in a post-pandemic scenario. Therefore, the explorative research combines the immersive activity of interpreting the contextual elements within IMI CIB. The aim is to define a collaborative project intertwined with the emerging needs of the organization.

A series of data gathering activities have been performed to reframe, more specifically, the drivers and expectations, which should be the guidance for the experimentation.

Working Life Scenario in Evolution has been ideated as an experimental project aimed at orienting people in shaping new work habits through experimentation with new models of employee experiences. With the HR team's support, the ideation phase produced different work-life scenarios intending to facilitate IMI CIB' organizational transition in the name of people's well-being and work-life quality.

4.2 Action – Mapping Employees Routines

The first round of experimentation includes collaborative activities to collect insights about the variety of individuals' needs after the pandemic to build up proper employee experience models.

The HR team helps identify the organization's prominent and recurring professional figures. Thus, the research team develops a set of *personas* to cover a broad spectrum of work-life situations in terms of private life and professional roles inside the specific context. *Personas* is a user archetype that helps guide decisions on product characteristics, interaction, and design, including visuals [19].

Based on these personas, the team elaborates a series of employee journeys (using the customer journey tool) to map the critical areas and opportunities in the working routines of each profile. The journeys visually reproduce a condensed version of a hypothetical day, combining each employee profile's professional and private life.

The material developed acts as a backbone for developing a digital conversation format, aiming to collect punctual data from the IMI CIB people. Thus, the data were collected through semi-structured interviews with key-informants. The key informants represent a specific persona developed in advance. Each conversation aims to match individuals' characteristics, using different stimuli to guide the talk.

4.3 Reflection – *Define the Pilot Action*

The research team analyzes the data collected during the conversation: this phase of digital ethnographic research guides in defining the urgent topics for the IMI CIB population to be addressed through the pilot project.

In the analysis process, the research considers the working model framework that the organization adopted. It consists of the Activity Based Working (ABW) model that proposes a new way to approach the smart way of working. Moreover, this model aims to give people more flexibility and autonomy in deciding where, when, and how to perform their jobs. In this way, workspaces must adapt to individual needs, diversifying the offer of available spaces.

IMI CIB shapes the ABW model around four pillars, referring to significant work-related macro areas for their businesses. These pillars are entitled *4 Cs: Concentration* (related to all those activities requiring individual focus); *Collaboration* (meaning tasks that involve teams or interdepartmental work); *Communication* (referring to all kinds of information sharing and dialogues between colleagues, not exclusively work-specific), and *Contemplation* (mainly concerning individual's need for decompression). ABW is the starting point to define experiential scenarios of new ways of working to be tested in the pilot action.

The insights extracted from the previous action phase articulates into the 4Cs model to scale them into a specific organizational context. Through the analysis of these insights, promising issues are translated into design challenges. The design challenges are the primary element considered in developing the pilot action.

4.4 Action – *WLSE Iterative LAB*

The WLSE iterative Lab pilot action presents new models of employee experiences to be tested. These models consist of prototyped working areas and *experiential options* implemented in specific areas of IMI CIB's headquarters in Milan. The LAB follows three main theoretical principles:

- ABW, as previously mentioned.
- Hybrid working, a model to combine the best of both in-office and remote work in terms of employee experience.
- Co-designed experiences, an approach to design and test new experiences with people who live them.

The various experiential options that should stimulate distinct behavior present a specific setup of the experience that recreate the conditions for users to test future working experiences. The design intervention consists of visual touchpoints, digital and physical technological tools, and space layouts. Although various limitations prevented the introduction of significant spatial changes, the research team designed the experiential conditions ad hoc.

The various options follow the 4Cs framework, grouped in four colors. Figure 1 visually synthesizes the different experiential options which respond differently to the specific macro activities of Concentration, Collaboration, Communication, and Contemplation. Each option has been appropriately labeled.

Fig. 1. WLSE LAB, Graphic representation of the different experiential options and related label.

In addition, the LAB proposes an internal communication campaign within the IMI CIB offices; various visual touchpoints propose reflections to people who navigate the offices.

The experimentation lasts ten days. During the preliminary training, the research team presented to the participants the principles at the basis of the LAB to bring people closer to the proposed working scenarios. The testing phase lets the participants use, live, and experiment with the experiential options proposed. Thus, to let them navigate the spaces and use them to run their regular job activities. A week after the experiment, a debriefing moment occurs with team leaders and HR members to gather collected insights and plan future directions.

The final step of the PAR process, the Reflection phase, is presented as a discussion of the results of the research in the following chapter.

5 Discussion

Synthesizing the significant number of activities and data elaborated during this research is possible to define a set of findings to discuss.

The study reflects on the novel role and way of Design intervening to change the employee experience and support the organizational transformation process.

Designing the employee experience can effectively orient people to discover new ways of working. The co-design process of employee experiences supports people in shaping new working habits. The main challenge is avoiding the tendency to reintroduce old habits (the ones adopted before the pandemic) into new and changing working scenarios. The experiment acts as a ground to train and raise awareness on the new ways of living the working routine.

The contribution of this study is to propose a specific approach to shaping a *design intervention* in the organizational context. First, designing a set of options and experience models to make employees navigate and interpret new conditions in their working context. Instead of designing a closed and fixed solution, the project aims to engage the participant in the design process collaboratively.

On the other hand, implementing and testing this *design intervention* as a pilot project with various organizational units could build a consolidated model to gradually support the organizational transformation process in front of the actual transitions. The *gradualness* is essential in overcoming an organization's resistance to embracing change, and this skepticism is typically spread in the different areas of the company. The phenomena observed are consistent with the theories on cultural change, which recommend the project-focused avenue for cultural change [5, 4, 20]. The *design intervention* level can be the fertile scope to implement new cultural assumptions that may influence organizational culture.

In addition, experimenting with novel routines - through employee experience design - triggers employee engagement in these critical times for knowledge workers. Thus, the experiment has been designed more as a service to activate critical thinking among participants rather than just a catalog of spaces to be experienced. Discussing the *ABW* model adopted by the organization, it may evolve into Experienced Based Working (EBW) after COVID-19. Given people's enhanced desire to rather work differently, the reason why they go to the office has to come under a specific purpose: "that purpose will involve curated experiences which deliver real value for both them [the employees] and the business" [21]. According to this interpretation, the concept of working routines assumes a renewed meaning as a set of work-life experiences an individual lives.

Consequently, the role of the office and workplace is adopting a new paradigm. It is increasingly becoming a place that must deliver value, where the individual is not just exploiting a set of services instead is experiencing an engaging and valuable working experience.

Finally, it is worth acknowledging the limitations that this study presents; first, it must be further verified the replicability of the Employee Experience Options model proposed. Second, the limited-time impacts on the experimental PAR phases of the study: it is challenging to conduct repetitive verifications and explorative discoveries in the scope of the pilot project. The subjectivity in the interpretation process is an explicit limitation of the study; however, the interpretive paradigm is the basis of the philosophy of design-based research.

References

1. Zurlo, F.: Designerly way of organizing. Il design dell'organizzazione creativa | designerly way of organizing. Des. Creat. Organ. Agathon **5**, 11–20 (2019)
2. Dunne, D.: Design Thinking at Work: How Innovative Organizations are Embracing Design. University of Toronto Press, Toronto (2018)
3. Zurlo, F., Cautela, C.: Design strategies in different narrative frames. Des. Issues **30**(1), 19–35 (2013)
4. Schein, E.H.: Organizational Culture and Leadership. Jossey-Bass, Hoboken (2010)
5. Elsbach, K.D., Stigliani, I.: Design thinking and organizational culture: a review and framework for future research. J. Manag. **44**(6), 2274–2306 (2018)
6. Kelley, T., Kelley, D., Publishers, H.: Creative Confidence: Unleashing the Creative Potential Within Us All. William Collins (2013)
7. Buchanan, R.: Worlds in the making: design, management, and the reform of organizational culture. She Ji: J. Des., Econ., Innov. **1**(1), 5–21 (2015)
8. Strati, A.: Aesthetic understanding of organizational life. Acad. Manag. Rev. **17**(3), 568 (1992)
9. Morgan, J.: The Employee Experience Advantage: How to Win the War for Talent by Giving Employees the Workspaces they want, the Tools they Need, and a Culture they Can Celebrate. John Wiley & Sons, Hoboken (2017)
10. Lesser, E.: Designing employee experience: how a unifying approach can enhance engagement and productivity **24** (2016)
11. Rossi, M.: Human Resource Design: Steering Human-centered Innovation within Organisations. Springer Nature, Cham (2021)
12. Abhari, K., Mat Saad, N., Haron, M.: Enhancing service experience through understanding employee experience management (2008)
13. Plaskoff, J.: Employee experience: the new human resource management approach. Strateg. HR Rev. **16**(3), 136–141 (2017)
14. Creswell, J.W., Hanson, W.E., Clark Plano, V.L., Morales, A.: Qualitative research designs: selection and implementation. Couns. Psychol. **35**(2), 236–264 (2007)
15. Stebbins, R.A.: Exploratory Research in the Social Sciences, vol. 48. Sage, Thousand Oaks (2001)
16. Strati, A., deMontoux, P.G.: Introduction: organizing aesthetics. Hum. Relat. **55**(7), 755–766 (2002)
17. Lewin, K.: Action research and minority problems. J. Soc. Issues **2**(4), 34–46 (1946)
18. Kindon, S., Pain, R., Kesby, M.: Participatory Action Research Approaches and Methods: Connecting People Participation and Place. Routledge, Milton Park (2007)
19. Pruitt, J., Grudin, J.: Personas: practice and theory. In: Proceedings of the 2003 Conference on Designing for User Experiences, pp. 1–15 (2003)
20. Hendry, C.: Understanding and creating whole organizational change through learning theory. Hum. Relat. **49**(5), 621–641 (1996)
21. Unispace: COVID is taking us from ABW to experience-based working (2020). https://www.unispace.com/insights/covid-is-taking-us-from-abw-to-experience-based-working

Design for Behavior Change in Design Education. A Case Study

Margherita Pillan(✉)

Dipartimento del Design, Politecnico di Milano, Milano, Italy
margherita.pillan@polimi.it

Abstract. Addressing design education programs according to the goals for sustainable development indicated by the ONU Agenda 2030 requires the update of contents and methodologies. The paper deals with why design theories for behavior change (DfBC) should be considered in design education at the university level, with a particular focus on service and interaction design. It also reports, as a case study, the results of including DfBC in a UX Design course, where students were engaged in the design of solutions aimed at supporting change of behaviors for sustainability. The experiment shows the potential of these theories as valuable educational content; it also enlights the need to develop further ethical discussion on the use of brain sciences in design.

Keywords: Design for Behavior Change · Experience · Design for Sustainability · Design Education

1 Introduction

The Sustainable Development Goals (SDG) of Agenda ONU 2030 [1–3] represent fundamental drivers for decision-makers, local and central administrations, industries, and education. The SDG embrace social and environmental issues and summarize the main challenges of our time. The problems identified by the Agenda require deep and substantial transformations of processes, systems, services, and organizations. All social actors are asked to be part of the change: governments, industries, local administrations, and citizens.

To conciliate objectives aimed at environmental sustainability – including the contrast to climate change, clean energy, and better use of natural resources - with inclusion, social justice, and economic growth, the actors of each local context must develop and implement solutions apt to the specific characteristics of the territory [4].

In universities and academia, the adoption of the SDG has a high impact on research and education: the former should produce questions, knowledge, and solutions for sustainable development [5]; the second should disseminate research outcomes and train the new generations with skills and abilities consistent with the objectives of creating a more equitable, inclusive, and sustainable future. High education programs are among the primary agents for the strategic change of cultures and behaviors and to grow

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 503–510, 2024.
https://doi.org/10.1007/978-3-031-49811-4_48

the capabilities required by sustainable transformation [6]. Academic papers investigate the strategies in academic disciplines for this purpose; they include cross-curricular approaches aimed at deep and extensive re-thinking of programs and their finalities, and stand-alone initiatives focused on specific topics [7]. Working for the SDG implies generating and implementing local and global solutions and developing transdisciplinary collaboration [8]; this asks for the broad involvement of all disciplines engaged in the design of systems and services. Literature reports that sustainability impacts not only the definition of disciplinary contents and methodologies but also organizations and education methodologies [9].

In university design programs, re-thinking education for sustainability requires updating contents to include complex and wicked problems and enhancing the attention toward ethics in projects, sense of critics, and understanding systems and processes. It also requires providing specific tools to express creativity and design-thinking for material and immaterial solutions [10, 11].

This paper contributes to updating design education for sustainability; it focuses on UX Design – User Experience Design - techniques and methodologies presently widely diffused in university education for services, interaction design, and other disciplinary fields [12, 13].

UX Design aims to understand the complex tangles of factors that compose people's experiences while interacting with products, environments, services, applications, and systems [14]. Experience investigation includes all mind and body factors engaged in action and decision-making, such as sensory phenomena and perception; cultural and mental models; cognitive and emotional processes; personal attitudes and dispositions; physical ergonomic [15]. Education programs on UX Design include theories from cognitive psychology and social sciences. Furthermore, they provide methods and techniques to research users [16, 17].

The research presented in this paper inquires about the potential of including theories about Design for Behaviour Change (DfBC) in courses on UX Design in university education programs. DfBC favors the awareness in students of the complexity of enabling and promoting sustainable lifestyles and behaviors and offers specific knowledge apt to support the design of solutions addressed to the change of attitudes and behaviors.

2 The Role of Behavior Changes in Sustainable Development

The transformations required by the ONU Agenda 2030 also rely on the change of behaviors by all citizens. For example, we can focus on goals 7, Affordable and Clean Energy, and 13, Climate Action. Citizens can contribute to the goals by adopting suitable lifestyles and behaviors at the micro and macro scale; preferring sustainable transportation; avoiding wastes in lighting and thermal regulation; restoring buildings for sustainable thermal regulation; privileging low-consumption electrical appliances. These are only some possible examples of how individuals can impact energy consumption and climate change [18, 19]. On the other hand, the achievement of Goals 7 and 13 also impacts goals focused on social inclusion and justice since the availability of clean and affordable energy affects the opportunities to create economic development, health care and education services, sustainable urban environments [20].

Changes in behaviors should also play a fundamental role in developing more efficient and effective healthcare services (Goal 3); adopting convenient lifestyles has an essential impact on the efficacy of therapies and the prevention of several diseases. Despite the complexity of framing the real effects of behaviors on health in a general sense [21, 22], it is vastly recognized that lifestyles impact it. Improving the efficiency and efficacy of medical care and reducing diseases through prevention frees up resources and enables the creation of more inclusive services.

On the other hand, change is never easy, both at the micro and macro scale, and the engagement of citizens in the construction of desirable transition toward the future requires the capability of enacting diversified strategies aimed at eliciting motivation for sustainable lifestyles to enable the contribution of individuals and their adhesion to the objectives of the SDG through new narratives, sense-making, co-design and more [23]. Despite the availability of data, information, and scientific knowledge documenting the SDG's necessity for the planet's future and humanity, several factors hamper the active participation of citizens in the required transformation [24–26].

3 Expanding User Studies in Design for Sustainability

Researchers and design practitioners have resorted to knowledge from human and brain sciences. They have developed methods and techniques for investigating contexts to model human behaviors, needs, and attitudes and to optimize the design of products and systems coherently. Human-centered design mapping at the time includes hundreds of approaches and research references [27].

The development of the brain and social sciences and the availability of data and algorithms are favoring new design approaches focused on the experience with applications in various fields. The concept of *Experience* is among the primary reference for creating value in the design of products, services, and digital and hybrid solutions [28, 29]. Designing for experience requires modeling of needs, attitudes, expectations, and potential motivations of final users to learn how to create value for them [30].

The focus on experience in design responds to the contemporary attention on the meaningfulness of actions, interactions, and relationships beyond the material quality of artifacts [31]. While societal and industrial systems keep changing, design processes evolve and rely on a growing variety of scientific theories, such as on the knowledge by the collection and processing of data, and traditional and new techniques, such as ethnography and digital ethnography [32, 33]. Depending on the project goals and context, experience design requires understanding all main factors impacting behaviors and decisions; experience involves human perception and personal dispositions; motivations; cognitive and emotional thinking; and social and cultural factors.

The theories of DfBC represent a novel approach since they focus on the frictions – such as cognitive dissonances and bottlenecks, practical obstacles, conscious and non-conscious factors influencing decision and determination – preventing people from adopting and appropriate behaviors despite their will and awareness of its importance and benefic effects on individuals, communities, environments.

4 Theories on DfBC

According to the literature, DfBC is a promising approach for creating products and services to enable sustainable behaviors of individuals (for example, the adoption of lifestyles with positive impacts on physical and mental health) and communities (for example, the promotion of environmentally sustainable behavior in the field of mobility, nutrition, use of natural resources). Compared to other design approaches, DfBC addresses the complexity of human experience by identifying the contradictory dynamics between will, attention, and motivations. It recognizes their impact on behaviors and contextual factors that can modify the perception of situations and the individual decision processes [34, 35]. Following Lockton, DfBC differs from design for persuasion since the latter is focused on the change of attitudes and does not provide means to cope with the situation where the change of behavior does not imply a change of attitude. The authors argue that, even though design could always be for a change of behavior, in DfBC, the designer's intent goes beyond that. In other words, DfBC can refer to the issues of usability, accessibility, and usability; still, it goes beyond since its focus is on the expected change, while the design of artifacts is a means to achieve the goal.

Several design approaches ascribe to the realm of DfBC [36, 37]. This paper reports the two primary references employed in the education experiment reported as a case study in the following paragraph of the document.

Wendel [38] focuses on design problems when the limits of human willpower and attention hinder behavior change. The authors also refer to the theories of the two winners of the Nobel prizes, Daniel Kahneman and the economist Richard H. Thaler. He focuses on all situations where automatic thinking and schemes of action guide the actions of people, driven by the human brain's shortcuts to economize its resources when quick decisions are needed. Wendel proposes a design approach aimed at modeling the existing habits to act in the context of action introducing new clues orienting decisions and behaviors.

West and Michie [39] refer to the COM-B model and the PRIME theory of motivation as conceptual tools to frame the main processes playing a part in behavior change and to cope with the complexity of designing for this purpose. Following the authors, the PRIME theory recognizes the gap and contradictions between people's general wants and needs and their actions since "*at every moment we act in pursuit of what we most want or need at that moment.*". In each moment, what we do is guided by the mental schemes we use to interpret the specific local context we are now, filtered by our capabilities, motivation, and opportunities we see. The models include physical and psychological capabilities, reflective and automatic motivation factors, and physical and social opportunities. From the design point of view, the model provides a map of the different facets of the user experience that designers should consider while designing for a change of behaviors.

5 Case Study

During the academic year 2021–2022, an education experiment was performed to investigate the suitability of DfBC in university education. The theories of DfBC were introduced in a course on UX Design for the students of the MSc in Digital and Interaction

Design at the Design School of Politecnico di Milano. The class included approximately sixty students working in teams. The students were asked to develop a concept of service or product/service aimed at behavior change coherently with the goals of the ONU Agenda 2030. The teams performed activities following a classical double-diamond design process. They identified a suitable focus, including reference topic and context; after that, they conducted preliminary desk and field research to collect insights on behaviors, mental models, and motivations before proceeding to the concept generation, development, prototyping, and tests.

The students developed original concepts for purposes containing a certain amount of novelty.

The topics included:

- Emotional messaging assistant – an application aimed at offering means for better control of emotional communication to be used in mailing, instant messaging, and posting on social networks;
- Compulsive shopping in fashion – an application to discourage the compulsive purchase of non-necessary items;
- Digital well-being for pre-teens – a physical/digital solution to help teens in liming their daily use of smartphones;
- Seasonal Eating – an educational and playful application to encourage families to buy seasonal and local veggies and fruits;
- Reduce food waste – a digital system for youngsters living alone;
- Attention span – a solution to help students concentrate during study hours and take control of their digital engagement;
- Disposable products – a solution to reduce travelers' use and consumption of disposable products.

The education program required the students to produce a personal logbook reporting their progress during the semester, including encountered difficulties and how they coped with them. The logbooks provided the means to analyze the potentials and criticalities of introducing DfBC in UX Design education.

The first impact with the theories of DfBC was not straightforward, and students recognized its complexity. Some reported a personal interest in DfBC also due to their past frustration for the incapability of adopting a specific change in some daily routine despite intentions and commitment; they reported amazement due to the novelty of such a brief, and for some, the challenge was inspiring. Other students also expressed their astonishment that it is not sufficient to produce information and good application and services to engage people in change, regardless of the efforts in communication. The development of this awareness is an interesting result from the point of view of raising critical thinking. Based on research to detect user needs and design opportunities, the human-centered design paradigm differs profoundly from DfBC regarding brief definition, focus, and goals.

Among the reflections reported by students, several were concerned about the ethical issues in applying DfBC. The distinction between design for persuasion and design for the change of behaviors appears foggy. Need for more profound research. On the other hand, co-design emerged as the right direction to devise solutions capable of embodying personal wills and control without implying persuasion and forcing individual freedom.

On the whole, introducing theories of DfBC appears valuable to enhance awareness, elicit new ways of framing design briefs, and fertilize the creative proposition of new services and systems.

6 Conclusions

The application of DfBC theories in a UX Design course in a MSc in Digital and Interaction Design program provides the means for the critical discussion of this approach and to identify elements of novelty and originality concerning the most diffused approaches for human-centered design. The case study shows the effectiveness of DfBC in education, despite the difficulties exhibited by some students in understanding the specific point of view adopted when working for a change of behaviors. The experiment demonstrated a growing necessity for more structured debate on the ethical issues in design for innovation, with a specific focus on the importance played nowadays in design by brain and social sciences.

References

1. Our common agenda – Report of the secretary-general. United Nations Publications. ISBN: 978-92-1101446-4. https://www.un.org/en/common-agenda. September 2021 (2021)
2. EU Holistic approach to sustainable development. The EU approach towards implementing the UN's 2030 Agenda for Sustainable Development together with is Member States. 2022. https://ec.europa.eu/info/strategy/international-strategies/sustainable-development-goals/eu-holistic-approach-sustainable-development_en (2022)
3. United nations development programme. New threats to human security in the Anthropocene Demanding greater solidarity (2022)
4. Sianes, A., Vega-Muñoz, A., Tirado-Valencia, P., Ariza-Montes, A.: Impact of the sustainable development goals on the academic research agenda. A scientometric analysis. PLoS ONE **17**(3), e0265409 (2022). https://doi.org/10.1371/journal.pone.0265409
5. Münch, A., et al.: Renovation wave: guidance for local and regional implementation. commission for the environment, Climate Change and Energy. European Union (2022)
6. Alcantud-Díaz, M., et al.: The role of higher education in the 2030 agenda: education, research, governance and social leadership. In: Teaching and Actions in Higher Education on the UN Sustainable Development Goals. Cambridge Scholar Publishing. Cambridge Scholars Publishing (2021)
7. Fia, M., Ghasemzadeh, K., Paletta, M.: A how higher education institutions walk their talk on the 2030 agenda: a systematic literature review. High Educ. Policy (2022). https://doi.org/10.1057/s41307-022-00277-x
8. Moallemi, E.A., et al.: Achieving the sustainable development goals requires transdisciplinary innovation at the local scale. One Earth **3**(3), 300–313 (2020). https://doi.org/10.1016/j.oneear.2020.08.006
9. Zaleniene, I., Pereira, P.: Higher education for sustainability: a global perspective. Geogr. Sustain. (2021). https://doi.org/10.1016/j.geosus.2021.05.001
10. Conway, B., Leahy, K., McMahon, M.: Design education for sustainability: identifying opportunities in Ireland's second level education system. Sustainability **13**, 8711 (2021). https://doi.org/10.3390/su13168711

11. Martinez-Villagrasa, B., Menendez-Varela, J.: The sustainable development goals applied to the future of design education. In: International Conference On Engineering And Product Design Education 8–9 September 2022, London South Bank University, London, UK (2022)
12. Crane, K., Crgilel Cook, K.: User experience innovation academic practice. Foundation and Innovations in Technical and professional Communication. Fort Collins (2022)
13. Li, R., Zhang, H., Liu, C., Cheryl Qian, Z., Zhang, Z.: Bibliometric and visualized analysis of user experience design research: from 1999 to 2019. SAGE Open **12**(1) (2022). https://doi.org/10.1177/21582440221087266
14. Newbery, P., Farhnam, K.: Experience design. A framework for integrating brand, Experience, and Value. Wiley, New York (2013)
15. Evans, D.C.: Bottlenecks. Aligning UX Design with user psychology. Apress, New York (2017)
16. Garrett, J.J.: The elements of User Experience. New Riders ed. (2011)
17. Forlizzi J., Ford S.: Building blocks of experience: an early framework for interaction design. In: Forlizzi, J., Ford, S.: The building blocks of experience: an early framework for interaction designers. Symposium on Designing Interactive Systems (2000)
18. Wahlund, M., Palm, J.: The role of energy democracy and energy citizenship for participatory energy transitions: a comprehensive review. Energy Res. Soc. Sci. **87**, 102482. (2022)
19. Pillan, M.: Embracing human complexity in service design for inclusive and sustainable smart cities. In: the book New Generation of Sustainable Smart Cities [Working Title]. IntechOpen (2022), https://doi.org/10.5772/intechopen.107250
20. UN Sustainable development goals, Goal 7. Accessed December 2022. https://www.un.org/sustainabledevelopment/energy/
21. Michie, S., West, R., Sheals, K., Godinho, C.A.: Evaluating the effectiveness of behavior change techniques in health-related behavior: a scoping review of methods used. Transl. Behav. Med. **8**(2), 212–224 (2018). https://doi.org/10.1093/tbm/ibx019. PMID: 29381786, PMCID: PMC6062857
22. Rachel, N., et al.: Behavior change techniques and their mechanisms of action: a synthesis of links described in published intervention literature. Ann. Behav. Med. **53**(8), 693–707 (2018). https://doi.org/10.1093/abm/kay078
23. Linnér, B.O, Wibek, V.: Sustainability transformation – agents and drives across societies. earth system governance. Cambridge University Press, Cambridge (2019)
24. Gesiarz, F., Cahill, D., Sharot, T.: Evidence accumulation is biased by motivation: a computational account. PLoS Comput. Biol. **15**(6), e1007089 (2019). https://doi.org/10.1371/journal.pcbi.1007089
25. Kappes, A.H., Lohrenz, A.H., et al.: Confirmation bias in the utilization of others' opinion strength. Nat. Neurosci. **23** (2020). https://doi.org/10.1038/s41593-019-0549-2
26. Sharot, T., Sunstein, C.R.: How people decide what they want to know. Nat. Hum. Behav. **4** (2020). https://doi.org/10.1038/s41562-019-0793-1
27. Auernhammer, J., Zallio, M., Domingo, L., Leifer, L.J.: Facets of Human-centered design: the evolution of designing. by, with, and for People. Auernhammer, J. et al. Preprint on Research Gate. https://www.researchgate.net/publication/355796639. (2022)
28. Buxton, B.: Sketching the user experience. Morgan Kaufmann, Burlington (2010)
29. Hartson, R., Pyla, P.: The UX Book. Process and guidelines for ensuring a quality user experience. Morgan Kaufman, Elsevier (2012)
30. Kalbach, J.: Mapping Experiences**:** A Guide to Creating Value Through Journeys, Blueprints, and Diagrams. O'Reilly, Springfield (2016)
31. Roto, V., Lee, J.J, Law, E., Zimmerman, J.: The overlaps and boundaries between Service Design and User Experience Design. In: Designing Interactive Systems Conferences 2021, DIS 2021, pp. 1915–1926 (2021)

32. Benion, D.: Designing User Experience. Pearson Education Limited, Upper Saddle River (2019)
33. Verganti, R., Vendraminelli, L., Iansiti, M.: Design in the Age of Artificial Intelligence. Harvard Business School, Working Paper 20–091 (2020)
34. Lockton, D., Harrison, D.J., Stanton, N.A.: The design with intent method: a design tool for influencing user behaviour. Appl. Ergon. **41**(3), 2010 (2010). https://doi.org/10.1016/j.apergo.2009.09.001
35. Lockton, D., et al.: Creating sustainable innovation through design for behaviour change (2010). http://www.ijdesign.org/index.php/IJDesign/article/view/2260/740#8 http://hdl.handle.net/2436/336632
36. Lambe, F., et al.: Embracing complexity: a transdisciplinary conceptual framework for understanding behavior change in the context of development-focused intervention. World Dev. **126**, 104703 (2020)
37. White, K., Habib, R., Hardisty, D.J.: How to SHIFT Consumer Behaviors to be More Sustainable: a literature review and guiding framework. J. Mark **83**(3) (2019). https://doi.org/10.1177/0022242919825649
38. Wendel, S.: Designing for Behavior Change. O'Reilly Media Inc., Sebastopol (2013). ISBN: 9781449367626
39. West, R., Michie, S.: A brief introduction to the COM-B Model of behavior and the PRIME Theory of motivation. Qeios (2020). https://doi.org/10.32388/WW04E6.2

EXPERIENCES. Can Experiences Be Measured?

Italian Cultural Institutions Across and Beyond Covid-19: Designing Digital Cultural Experiences in Extra-Ordinary Times

Ilaria Bollati[1(✉)], Valeria Morea[2], Federica Antonucci[3], and Marta Spanevello[4]

[1] Department of Design, Politecnico di Milano, Milan, Italy
ilaria.bollati@polimi.it
[2] Department of Architecture and Art, University Iuav of Venice, Venice, Italy
vmorea@iuav.it
[3] Department of Management and Law, Tor Vergata University, Rome, Italy
[4] FAI-Villa e Collezione Panza, Varese, Italy

Abstract. Covid-19 has accelerated the digital transformation of cultural institutions. They have tackled the temporary shutdowns of their spaces shaping digital cultural experiences, to go beyond their 'walls' and enter their audiences' homes with the aim of fostering existing relationships or creating new ones. Focusing on Italy, this research poses the question: how has the pandemic changed the design of cultural experiences? The five case studies track the evolution of cultural experiences during the health emergency. The assumption is that the pandemic has shaped the supply side as much as the demand, generating possibilities and scenarios for cultural experiences that could coexist with traditional modes. The cases are selected and interpreted based on a survey conducted from July 2020 to January 2021. The results suggest that online and onsite cultural experiences are converging, with important implications for accessibility and inclusion.

Keywords: Cultural Experiences · Digital Transformation · Cultural Institutions · Covid-19

1 Introduction and Literature Review

With the abrupt advent of covid-19, museums, theatres, and other cultural institutions faced, as much as any other societal party, an extraordinary circumstance, being obliged to shut their doors and repair to that through a predominantly online, socially distanced dialogue with their audiences. They had to quickly adapt their offer, thus partaking to the inevitable acceleration of technological transformation (Dal Pozzolo 2021; Sacco and Calveri 2021). Their newly developed digital formats have crowded the internet with virtual visits, artists in live streaming, auctions on Instagram, theatrical plays on Zoom, creative workshops for children, and much more (Massi and Turrini 2020).

Cultural institutions have reacted to the lockdown reaching out of their traditional walls, finding their audience at home. Research has promptly investigated the impact of covid-19 on the cultural sector, mainly through early policy analyses. In Europe,

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 513–525, 2024.
https://doi.org/10.1007/978-3-031-49811-4_49

studies have dealt with the negative effects of the abrupt shutdowns, tackled through welfare measures to support cultural and creative labour (Betzler et al. 2020, Comunian and England 2020, Eikhof 2020, Banks and O'Connor 2021). These investigations have focused on the government's support to the supply side of the cultural sector. Regarding the United Kingdom, Comunian and England (2020) point out that policy measures have concerned the economic sustainability of a sector that is inherently based on precarious labour, with covid-19 augmenting structural criticalities of the cultural and creative industries. In a comparative policy analysis, Betzler et al. (2020) have classified early aids to the arts and culture sector in the Netherlands, Switzerland, Slovenia, and Portugal as: employment-related measures, tax-measures, and stimulus measures. In August 2021, Banks and O'Connor (2021) edited an entire issue about the responses to the crisis in many countries across the globe, all addressing the state intervention (or non-intervention) in the sector in support of the artists, the institutions, and the other organisations. Eikhof (2020), in a pre/post pandemic investigation, has highlighted the consequences of the pandemic on the cultural workforce and its diversity, and has explored the perspectives of the sector in the aftermath of the crisis. Some have pointed out that more attention should be paid to the demand side of such a process, about which data lack, even though it is strictly connected with the design of the offer, being culture an experience good (Radermecker 2021). In fact, with few exceptions (see, for instance, Ceobanu et al. 2020; Feder et al. 2021), it seems that research has overlooked the ways in which covid-19 may have affected demand for cultural experiences and in particular how so in relation to the digital dimension. To fill this gap, this research explores the ways in which cultural experiences of cultural institutions have been impacted by the covid-induced digitalisation of, jointly, production and consumption. In particular, the research focuses on Italian case studies and refers to cultural institutions as the *luoghi della cultura* described by Italy's Codice dei Beni Culturali [Code of Cultural Heritage], article no. 101[1], namely: museums, libraries and archives, archaeological sites and parks, and monumental complexes. One reason for such a choice is certainly the familiarity of the authors with the Italian context and language that has enabled ease in navigating the data. Other reasons are the facts that Italy is country notably rich in cultural heritage[2], and, at the same time, it has been the country where covid-19 has impacted the hardest in the first phase of the outbreak and its lockdown policies have been draconian compared to the rest of Europe. The combination of these two conditions makes Italy a paradigmatic context to investigate.

Long before the pandemic, digitalisation was crucial for the cultural sector (Benghozi 2016, Towse 2010). While technological innovation, as a matter of fact, has continuously impacted the production and consumption of cultural and creative goods, the advent of the internet has changed that in a radical way, and research indulges in the investigation of copyright implications for the artists (Handke et al. 2016) and competition in markets for digitized cultural goods (Benhamou 2015). Digitalisation deals mainly with a new disintermediate form of art appreciation that has big consequences for the various actors of the industry. Artists and cultural institutions can reach their audiences easily and acquire

[1] Art. 10 dlgs 42/2004.

[2] At present, Italy has the highest number of Unesco sites: http://www.unesco.it/it/ItaliaNellUnesco/Detail/188.

data about them, new actors emerge such as digital platforms that change the institutional environment of gatekeeping and certification, new business models arise, and visitors can access the arts supposedly in a more interactive and democratic way (Massi et al. 2020). Heritage collections with a social rather than commercial purpose have embraced the digital transformation, on the one hand, through the digitalisation of their collections, making their artworks and artifacts available to online fruition (Borowieki and Navarrete 2017), and, on the other hand, through the going-online shift of art auctions and emergence of digital intermediaries (Arora and Vermeylen 2013). The investment in digital transformation is a consequence of a shift of cultural institutions' purpose from one of protection and conservation to one of accessibility and valorisation (Carù et al. 2020). Digital technologies have been adopted by heritage collections on site, and immersive installations have diffused, with consequences for the experience of the artworks, now mediated by digital devices. There are, however, multiple ways in which technology can be integrated with the site. Carù et al. (2020) identify various typologies of immersive installation based on the degree of connection with the original site and the integration between physical and digital elements. Their analysis of an experiential exhibition in Milan, that is, one with low connection to the site and low integration between physical and digital, highlights the role of technology as a facilitator of cognitive and emotional values, and at the same time they found that the social aspects of the experience were hindered by the highly immersive setting, whereas it has been argued that museums and similar institutions function as third places (Tate 2012). On-site digital technology has proven to work as a reagent, meaning that they amplify visitors and contents, and that they also enlarge the directions of the relations between consumers and contents and across media (Bollati 2021). In fact, while the impact of digitalisation is more evident in the markets for reproducible cultural goods, "even live performances of opera, ballet, spoken theatre and orchestral concerts have felt the impact of digitization and Internet, as they are digitally streamed and delivered by satellite in virtually simultaneous time to computers and, for better sound and visual quality, to venues such as cinemas" (Handke et al. 2017: 296). But and even if "It remains to be seen whether online dissemination will stimulate interest in these elite art forms"(ivi) some scenarios have already opened up, such as the perspective of co-production through crowdsourcing in the making of librettos, as described by Carbone and Trimarchi (2012). Given such premises, it seems particularly important to investigate how the digital elements of cultural experiences in cultural institutions have evolved during the pandemic-related lockdowns that have induced, and sometimes forced, digitalisation of a broad spectrum of practices, from work to education to leisure.

Data collected during the lockdown phases of the pandemic show the current state of the digital sphere and its adoption by cultural institutions and, consequently, shed light on how cultural experiences are evolving, both from the consumers' perspective and from the perspective of those who design such experiences. A research conducted by NEMO - the Network of European Museum Organisations - between March and April 2020 and repeated in November 2020 shows that, since the covid-19 breakout, 93% of European museums have increased their online services or created new ones. More than 75% of them have increased their social media activity, 53% have created new video contents and one third of the museums have allocated budget to develop their online

segment. However, museums that have hired dedicated personnel are no more than 7% of them. In addition, 40% declared to have simply adjusted the tasks of their staff to tackle the emergency (NEMO 2020). Looking closely at Italy, about which this research focuses, new evidence that cultural institutions were undertaking a digitalisation process was collected just before the beginning of the lockdowns by *Osservatorio Innovazione Digitale nei Beni e Attività Culturali della School of Management* of Politecnico di Milan. The research reports that before the pandemic, onsite and online experiences were clearly distinct: the former as the predominant mode of offering culture, the latter as an advertising or follow-up instrument, never as a part of the actual cultural experience, and mainly on social media, on which 76% of Italian cultural institutions were active (Politecnico di Milano 2020). Further research finds, however, that the pandemic has dramatically augmented the adoption of digital formats, including social media presence. Average number of cultural institutions' Facebook, Twitter, and Instagram accounts have doubled in March and April 2020 (Politecnico di Milano 2020). Nonetheless, the interaction between cultural institutions and their audience is still weary: only 24% of the cultural institutions who participated in the study have a strategy for digital innovation. Only 1 museum over 4 thinks about a long-term digital strategy (Politecnico di Milano 2020). During spring 2020, the Italian Ministry of Culture has conducted an extensive survey of museum visitors, to assess the impact of covid-19 on cultural consumption. The results show new perspectives on the future of cultural experiences. In fact, 75.5% of the respondents have experienced cultural activities online, via websites or social media, and 90% of them are satisfied with the experience and wish it continues to be offered. Moreover, 44.2% of visitors would continue to consume online even after covid-19 restrictions were lifted (Cicerchia and Solima 2021).

2 Materials and Methods

The purpose of this work is to understand how the pandemic has changed the design of cultural experiences as a consequence of a change in both their supply and demand due to the pandemic. The research tackles this by analysing five exemplary case studies (Farquhar 2012) that explain the evolution of cultural consumption in the digital age in which cultural institutions have been abruptly thrown out by the crisis. Although case study research does not allow for generalizability of results, this method is effective in producing insights rich in detail (Farquhar 2012). Considered that "case study research is ideal for looking at research questions which are closely connected to their context or situation" (Farquhar 2012, p. 8), it has been chosen as the most suitable method to achieve this research's objective, that is obtain in-depth knowledge of the way in which cultural experiences have evolved during the pandemic's emergency thus understanding future scenarios.

The assumption is that covid-19 has impacted the demand side as much as the supply, generating possibilities and scenarios for cultural experiences that could coexist with the traditional modes. As noted in the literature review, previous studies on the matter and the works on the economics of culture and the arts largely focus on how digitalisation has impacted artistic production, and collections' management. In regard to the literature that tackles the immediate effects of the pandemic, attention is mostly paid to the supply

side of the cultural sector. However, little has been investigated on how digitalisation, as accelerated by the pandemic, has impacted the experience of cultural heritage. Cultural experiences are the output of the productive process of cultural institutions; thus, they are a vantage point from which both cultural demand and supply can be investigated. This is supported by the fact that cultural experiences can be interpreted as experience goods. In fact, they are goods whose quality information is bundled with the product itself, making it hard for the consumers to assess their quality beforehand (Shapiro 1983) and, consequently, they are "stage experiences" in the experience economy as identified by Pine and Gilmore who assert that "While prior economic offerings – commodities, goods, and services – are external to the buyer, experiences are inherently personal, existing only in the mind of an individual who has been engaged on an emotional, physical, intellectual, or even spiritual level" (Pine and Gilmore 1998: 99).

The selection of the case studies is based on a preliminary survey developed to explore the potential of the digital in cultural institutions during covid-19 in Italy. To do so, we have conducted a double survey, one for institutions and one for visitors, designed in a way that the same topics could be understood from both the supply and demand sides. The survey revolved around the following questions: How can cultural institutions ally with digital technologies and create new encounters with their *central, occasional*, and *potential* (Bollo 2014) audiences? What opportunities have emerged for cultural managers? How can cultural experiences be designed for them to be fertile amplifiers and not mere filters? The survey has been organised to acquire information specifically for the different phases of the pandemic (before lockdown/post lockdown), and this enabled for a variety of scenarios to open due to the subversive, or at least catalytic, advent of covid-19. The surveys were online and have been diffused by the authors following a strategy that pursued random sampling, that is the way to achieve the most representative sample (Schreier 2018). At the same time, the dissemination of the surveys has occurred in a highly under-pressure contingence for the entire target population, that of an unprecedented global pandemic, that has negatively impacted the process of data gathering limiting the generalizability of the sample. The dissemination strategy has included distribution of the visitors' survey link on social networks such as Facebook and Instagram, in particular on Facebook's groups for survey dissemination and groups that promote cultural activities at large. Cultural institutions were, instead, a much more defined population thus possible to target in a more systematic way through direct emails and messages. Finally, the two surveys have been featured on Artribune (Ronchi 2020), a popular Italian arts and culture online magazine followed by both cultural consumers and institutions. The surveys have been online from July 2020 to January 2021 and reached 56 institutions and 658 visitors: thus, encompassing the two major lockdowns. For the purpose of this research, that is concerned with the latest trends in cultural experiences in Italy as induced by the lockdowns, a part of the survey has been directly utilised. In particular, we used the open-ended question "*what is the best online cultural experience that you know of during covid-19*" to obtain a relatively unbiased and bottom-up dataset of about 100 cultural experiences. More general questions of the surveys have been used to gain an overview of how cultural institutions and visitors have experienced the lockdowns. Based on this information, four key elements have emerged that have been then deductively applied to the selection and analysis of the case studies.

These key elements constitute two couples of opposite features: content vs. narration of the content and physical atmosphere vs. serendipity. To elucidate on the elaboration of such criteria, an overview of the study follows.

Among the institutions who responded to our survey, 94.5% of them have started digital actions to tackle the closing of their spaces. A more heterogeneous situation is offered by the visitors: 48.3% of the respondents has experienced culture online; 46.7% has not; 5% did not know about this possibility and, among this small percentage of respondents, 45% say they are interested in the option. The relationship of trust between institutions and users built before the pandemic seems not to be a necessary condition for cultural participation in the digital realm. This connotes the cultural consumer as one that is keen on experimenting, intrigued by a specific show or exhibition (82.4%) and who gets informed about the cultural options on social media (49.8%) and word of mouth (35.8%). Moreover, 88.5% of the institutions declare that their audience appreciates from-home cultural experiences but do not know precisely what the consumers like about that. In fact, a large part of them (42.3%) only collects basic information about their audience, such as the number of visitors or interactions on websites and social media. Instead, as previous research suggests (Bollati 2021), it would be important that each institution could assess qualitatively how their digital offer functions to design it increasingly better. In this perspective, the double survey has been functional to bring together the perceptions of both the institutions and the users. We have found that the most valued aspect of online cultural experiences is not the fact that it is free of charge, in fact only 28.3% of institutions and 29.9% of visitors believe so. Instead, the curatorial element of the digital experience is valued the most (89.1% of institutions and 61.8% of visitors), as well as the narratives (56.5% of institutions and 31.2% of visitors). One last appreciated aspect of digital cultural experiences during lockdown is the fact that one can switch it off at any time (33.4% of visitors). In addition, cultural consumption online implies, say 87.4% of visitors and 53.8% of institutions, that they are missing the *here and now*. In fact, the element of serendipity and the connection with the physical atmosphere are perceived as lacking by 47.5% of visitors but only 17.3% of institutions. The home experience showed how important is the one done in person, in fact 41.7% of visitors feel that they miss analogue visits and shows. This consciousness seems to steam some stress off cultural managers who may have realised that the digital experience is not a substitute but rather a complement to the onsite cultural experience, a concern that implies cannibalisation of products as stated in literature (Handke et al. 2017). Based on the materials derived from the above-mentioned survey and the hypothesis that cultural experiences can be positively cross-pollinated by the digital instead of being substituted by it (Bollati 2021), the next section presents a selection of case studies emerging from the responses to the surveys and further desk research, as additional support to the primary data.

3 Case Studies: The Trials of Cultural Institutions Towards Shaping a New Offer

Based on the insights gained by means of the mentioned survey, the analysis has traced a process of sophistication that the design of digital cultural experiences has undergone during the pandemic. In addition to that, one question of the surveys, namely *what is*

the best online cultural experience that you know of during covid-19? allowed us to collect about 100 different experiences. From this list, we selected five exemplary case studies based in Italy. Thus, we identified five key elements of the process and then deductively applied them to the pool of cases to interpret them and answer the research questions. These elements, or criteria, are directly derived from the primary data about the cultural experiences during the lockdowns, as shown in Sect. 2. The criteria form the ends of two spectra of phenomena detected. At one end, we identified a tension between the attention for the artistic content (that is, the inner core of the experience) and the way such contents are narrated and how the experience is designed. At the other end, a contrast lies between the absence of the physical atmosphere of the space and the lurking of serendipity in digital experiences as opposed to the in-person visit. Such opposite poles - content *vs.* narration of the content, and physical atmosphere *vs.* serendipity - represent the key features that our respondents identified as what they missed the most or paid most attention to during the crisis. The following section delves into the five cases that exemplify the process underway, to which the additional element of time is added, to also map the evolution of the design of digital cultural experiences. In fact, we found that the degree of sophistication and integration of digital and analogue elements increases in more advanced phases of the lockdown, as a consequence of a process of adaptation to the new circumstances. The five cases are located in Italy, to pursue contextual comparability of both anti-covid measures and cultural environment. The cases selected are: *Le Passeggiate del Direttore*, from Museo Egizio of Turin; *The Sky in the Room*, at Fondazione Trussardi, Milan and *Aria* at Palazzo Strozzi, Florence; *Opere al Telefono,* from Fondazione Palazzo Magnani, Reggio Emilia; *Il Filo Invisibile,* by Teatro Franco Parenti in Milan; and finally *BreraPLUS +*, by Pinacoteca di Brera in Milan.

3.1 Le Passeggiate del Direttore, Museo Egizio, Turin

Museo Egizio of Turin is probably among those who have stood out in terms of digital presence during the first lockdown. To reach out to their audience, the museum has translated online the *Passeggiate del Direttore* [*Walks with the Director*], originally meant to be a physical tour for no more than 30 persons, once a month, to a digital walk uploaded on social networks, hence with a much larger user-base. Room after room, it has been possible to virtually visit the museum guided by its director. A simple format yet promptly provided and effective in its yield. Many respondents of our survey, in fact, based in other regions of the country, have identified this as their favourite experience. Given the simplicity of its design, and the passive rather than active role of the visitor in the experience, *Passeggiate del Direttore* has performed well in reaching both loyal and new audiences. The physicality of the director walking in the museum gave a tangible twist to the home experience. As soon as the museum reopened months later, its tickets went sold out.

3.2 *The Sky in the Room*, Fondazione Trussardi, Milan and *Aria*, Palazzo Strozzi, Florence

After some months of lockdown, at the beginning of summer 2020, museums have reopened gradually, allowing a limited number of visitors at a time. At this stage, the challenge is how to design interesting experiences for a few people, with social distancing and other restrictions, without losing the atmosphere of the space and the magic of being *here and now*. In this period, between June and October 2020, many institutions developed physical experiences that also involved a digital phase, be it for the booking process or the organisation of the visit itself. Artistic projects like *The Sky in a Room* by Icelandic artist Ragnar Kjartansson, promoted by Fondazione Nicola Trussardi between September and October 2020, have replied to the difficulties of lockdown by means of nonstop performances. In fact, for about a month, professional singers have performed an arrangement of Italian songwriter Gino Paoli's popular *Il cielo in una stanza.* The artists sang the song for six hours per day, with no interruptions, on the pipe organ of San Carlo al Lazzaretto Church, as if it were a lullaby, transforming the interpersonal restrictions in an intimate situation. Similarly, Argentinian artist Tomás Saraceno presented an exhibition at Palazzo Strozzi in Florence in September and October 2020. Every Monday, for two hours, an intimate, individual experience was made available in which visitors could consult an oracle and a psychotherapist. In both cases, the digital becomes functional to the cultural experience in its intimacy. It anticipates the experience, enables it, so that it can happen physically yet according to the current restrictions, to make this a private form of cultural consumption although not from home.

3.3 *Opere al Telefono*, Fondazione Palazzo Magnani, Reggio Emilia

At the beginning of the second wave of contagion, that coincided in Italy with a second period of strict lockdown, cultural institutions were more aware and perhaps better prepared about the closings and the potential opportunities of digital technologies. As a consequence, they experimented more with the design of their cultural experiences. A case that exemplifies this phase is *Opere al Telefono* at *Palazzo Magnani* in November 2020. The project is inspired by Italian poet Gianni Rodari's *Favole al Telefono* (Rodari 1962). As the author used to tell bedtime stories to her far away daughter, the Foundation's staff would narrate the photographic exhibition *True Fictions*, on the phone, every Wednesday from 3 to 5 pm, to their 'visitors'. The aid of low-tech support let the institution set a bilateral interaction with their audience, who was led by the format itself, to talk to the staff and the experts, just like any informal phone call. People would ask questions about the artworks, and, at the same time, this constituted an immediate feedback to the institution, that could collect important information about what interests the audience. Such feedback is crucial for future design of experiences and set ups. The visitors acquire knowledge and leave traces behind. In this example, technology is not at the centre of the show. Rather, it enables communication, mutual listening, and cross-pollination, including the fringes of the audience who may resist digital installations.

3.4 *Il Filo Invisibile*, Teatro Franco Parenti, Milan

Like the previous, the third case selected belongs to the second lockdown. In a virtual 26 seats theatre, play director Andrea Rizzolini places a special jukebox that merges illusionism, performance, and philosophy. The purpose is to narrate and evoke five imaginary tales that involve the audience. Each tale is tied by an invisible thread that is only revealed at the end of the play and invites reflection upon the topic of distance and togetherness beyond covid-19 restrictions. After buying a ticket for the show, the audience can join the play from home with their families and friends. Each participant receives, some days before the event, an envelope containing all that will be needed to partake to the performance. This practice rewrites the show anew, based on who attends the Zoom meeting, in a process of generation of contents by users. Contents are not prepared and presented online. Rather, they are conceived in the digital dimension, putting forth radically new narrations regarding time, habits, scenes, and costumes. The interaction with the audience itself becomes the plot of the play, in a new dialogue between the observer and the observant that invites them to act and participate. Even those who are relatively new to performing arts are brought closer to them, in their comfortable domestic dimension. In addition, the use of digital technologies is nurtured and mitigated by analogue features such as the prep materials posted at home: a letter from the director of the play, some objects, the envelope itself. They make the atmosphere of a physical space that is missing, instigate curiosity and anticipation, and foster willingness to participate.

3.5 *BreraPLUS +*, Pinacoteca di Brera, Milan

The last example is *BreraPLUS +,* a platform that completes the experience of the Pinacoteca di Brera with multimedia contents, documentaries, special shows, concerts, and premières. In sum, *BreraPLUS +* allows for a nonstop update about the institution. Based on three segments, *doc*, *spot,* and *live*, the digital dimension is a complement, not a substitute, of the physical experience in time, space, contents, and narratives. In fact, it answers to the need for aperçu, material close-ups on some works of art of the collection, and other cross-media events. *BreraPLUS +* was accessible for free until early 2021. This was the most frequently mentioned experience in the survey. Since then, its access is connected to the purchase of a ticket for the Pinacoteca. A price scheme for this ticket has also been implemented, proving the platform to be a part of a larger, long-term strategy. Those who buy a ticket now can access the physical gallery and the digital platform for three months, as many times as they wish. This changed paradigm of consumption (and production of the cultural offer) is emphasised by the digital dimension, that nonetheless does not overshadow the physical experience. In fact, the contents for the platform do not replicate or merely disseminate the knowledge treasured by the Pinacoteca. Instead, they are created *ad hoc*, with great attention to the curatorial aspects of the digital experience. Consequently, new knowledge is produced for the platform. Moreover, such a novel approach to design cultural experiences facilitates the return of visitors, who may not be habitué or geographically close.

4 Discussion and Conclusions: Digital Voyage of Discovery, Design with Care

This paper has demonstrated how cultural institutions in Italy have increasingly modelled the design of their digital experiences during the lockdown. At first, museums, theatres, and analogous institutions have felt the urge to react quickly to the shutdown of their spaces. In doing so, they have proposed simple elaborations. Over time, as the crisis showed persistence, they have understood the development opportunity of the lockdown and accepted the challenge of a real integration of digital and analogue elements. Among the visitors who responded to the survey, 34.7% declared that they would keep on consuming culture online after covid-19. Similarly, 57,7% of the institutions are willing to change priorities and build a long-term digital strategy that would not just add depth to the visits, but one that is able to instigate new encounters as well as information exchange, in the perspective of going beyond the engagement of the existing audience, thus aiming at augmenting the visitors' base.

The survey has helped mapping the experiences and delineate what scenarios open regarding potential strategies that will lead tomorrow's cultural experiences based on the renewed needs, expectations, and objectives of both visitors and institutions. The results of the survey and the cases selected accordingly suggest that, while the importance of tailor-made experience design still stands, the process initiated by the pandemic is generally shared and is based on more attention to the audience and augmented intuition and awareness of the possibilities brought by new technological means. The key results of the analysis of the case studies can be grouped in three main branches:

- **Increasing value of narratives.** Initially, most of the institutions reacted by merely shifting the medium of the existing contents, such as online archives (Trocchianesi and Zanella 2021). With the enduring lockdown a sense of awareness about the importance that culture could not wait for the pandemic to end has emerged. What counts is not so much the cultural institutions' simple online presence and free availability on the web, but telling a story that binds them, that makes them truly available to the visitor, cognitively and emotionally. The five cases selected, and before that proposed by visitors and institutions, are a clear example of this. In fact, narration plays a leading role in all the cases studied. Their narratives have been designed - with different intensities - *ad hoc,* not just respecting the rules of digital and distanced consumption but using them to their own benefit.
- **The idea of meeting halfway.** The persistence of the pandemic condition and the need for multiple and continuous lockdowns led the visitor to perceive some key deficits during the online experience. As previously noted, the public mostly felt a lack of atmosphere - usually generated by the encounter with the *hinc et nunc* of the artworks (Benjamin 2011[1935]) to be found in physical experience - and an absence of serendipity - proper to the encounter with other people. *The Sky in the Room*, *Il Filo Invisibile* and *Opere al Telefono* proposed different ways to deal with this issue. The *Sky in the Room* has worked on the spatial atmosphere and intimate recollection of the visitor, *Il filo invisibile* has proposed a new mode of encounter between the spectators during the show itself and has recreated a domestic atmosphere in a shrewd dialogue between online and onsite. Finally, *Opere al Telefono* has investigated a new

low-tech and oral serendipity between institution and visitor/listener. In this regard, technology and traditional cultural experience have met halfway. Thus, the forced shutdowns as well as the incremental and cautious reopening may have stimulated the emergence of a new type of cultural experience that is neither fully space-less, digital, nor fully traditional.

- **Increasing trust of institutions towards the new means available**. The lack of encounters between places and visitors soothed institutions' immediate fear of conveying a mistaken message that the online experience is an easy replacement for the physical experience within the institution (Mandarano et al. 2008). Over time, they understood how much the online experience could be seen as a trigger for subsequent in-person enjoyments or post-experience insights, capable of stimulating relaxed and curious exploration. The threat of product cannibalisation has turned into the opportunity of audience development and, potentially, of digital alphabetisation and inclusion. The process of incorporation of the digital elements is one of incremental integration of that into the traditional means, proving that institutions have learnt how to master technological means. Over time, the museums, theatres, and similar institutions surveyed have familiarised with alternative ways to convey their collections to their and new audiences, creatively responding to the destructive force of the virus.

A question to the visitors asked to associate their image of a cultural experience to either an open book, a *piazza* of encounter, a sacred untouched temple, an exclusive club, or a voyage of discovery. It is no coincidence that 72.9% of the visitors associate the cultural experience with a *voyage of discovery*[3], introducing almost an oxymoron in times of lockdown. Through digital technology, a sound, a word, a colour, or an image can open, on the one hand, to explorations, albeit from home, in both space and time, and, on the other hand, to new components invisible to the 'naked eye' that amplify senses and meanings. Cultural institutions have learnt, amplified their horizons, and leveraged on a condition in which consumers were induced to access culture online. Museums, theatres, archaeological sites, libraries, and archives may have started a new chapter of their exhibitions' productions. At the same time, their reach out actions may have functioned as initiatives of inclusions both in terms of accessibility and digital literacy. In fact, the evolution of the design of digital cultural experiences testifies a learning process in which the institutions have become increasingly at ease in integrating the analogue and the digital. In this sense, the case studies presented here could constitute best practices for cultural policy. For this to happen, cultural managers, curators, and artists are required to face new paradigms of consumption without translating them into the mere pouring of endless stocks of digital content, according to pre-packaged methods and software. Only a versatile and original use of technology, when appropriately modulated, can lead to the improvement of the existing experience and the meeting with new audiences. There is a lot at stake, and it is necessary to gamble with wisdom and vision, distancing oneself from easy prejudices or excessive trust in an uncharted terrain.

[3] The authors hint at Proust's idea of the voyage of discovery, that does not consist in seeking new lands but having new eyes. Such a statement seems a contradiction and at the same a good description of the cultural experiences as they have adapted to and evolved as a consequence of the covid-19.

References

Arora, P., Vermeylen, F.: Art markets. In: Towse, R., Handke, C. (eds.) Handbook on the digital creative economy, pp. 322–329. Edward Elgar Publishing, Cheltenham (2013)

Banks, M., O'Connor, J.: Editorial: art and culture in the viral emergency. Cult. Trends **30**(1), 1–2 (2021). https://doi.org/10.1080/09548963.2021.1882063

Benhamou, F.: Fair use and fair competition for digitized cultural goods: the case of eBooks. J. Cult. Econ. **39**(2), 123–131 (2015). https://doi.org/10.1007/s10824-015-9241-x

Benjamin, W.: L'Opera d'Arte nell'Epoca della sua riproducibilità tecnica [Original title: Das Kunstwerk im Zeitalter seiner technischen Reproduzierbarkeit]. Einaudi Editore, Torino (2011 [1935])

Betzler, D., Loots, E., Prokůpek, M., Marques, L., Grafenauer, P.: COVID-19 and the arts and cultural sectors: investigating countries' contextual factors and early policy measures. Int. J. Cult. Policy (2020). https://doi.org/10.1080/10286632.2020.1842383

Bollati, I.: Cultura e società digitale. Filtri e dosi raccomandate, Milano, Corraini Edizioni (2021). ISBN: 9788875709488

Bollo, A.: "Cinquanta sfumature di pubblico e la sfida dell'audience development. In: De Biase, F. I pubblici della cultura. Audience development, audience engagement, pp. 163–180. Milano, Franco Angeli (2014)

Borowiecki, K.J., Navarrete, T.: Digitization of heritage collections as indicator of innovation. Econ. Innov. New Technol. **26**(3), 227–246 (2017). https://doi.org/10.1080/10438599.2016.1164488

Carbone, A., Trimarchi, M.: Opera 2.0: crowdsourcing the stage. In: Bertacchini, E., Bravo, G., Marrelli e, M., Santagata, W. (eds.), Cultural Commons. A New Perspective on the Production and Evolution of Cultures, Edward Elgar, pp. 228–240 (2012)

Carù, A.: piergiacomo mion dalle carbonare, maria carmela ostillio, chiara piancatelli. "The impact of technology on visitor immersion in art exhibitions. Evidence from the Modigliani Art Experience exhibition. In: Massi, M., Vecco, M., Lin, Y. (eds.). Digital Transformation in the Cultural and Creative Industries: Production, Consumption and Entrepreneurship in the Digital and Sharing Economy (1st ed.). Routledge (2020). https://doi.org/10.4324/9780429329852

Ceobanu, I.,Matei, S., Oană, J.: Trends in cultural consumption during the pandemic, Research Department of the National Institute for Cultural Research and Training (2020)

Comunian, R., England, L.: Creative and cultural work without filters: covid-19 and exposed precarity in the creative economy. Cult. Trends **29**(2), 112–128 (2020). https://doi.org/10.1080/09548963.2020.1770577

Dal Pozzolo, L.: il patrimonio culturale tra memoria, lockdown e futuro. Milano, Editrice Bibliografica (2021)

Eikhof, D.R.: COVID-19, inclusion and workforce diversity in the cultural economy: what now, what next? Cult. Trends **29**(3), 234–250 (2020). https://doi.org/10.1080/09548963.2020.1802202

Farquhar, J.D.: Case Study Research for Business. SAGE Publications, London (2012)

Feder, T., McAndrew, S., O'Brien, D., Taylor, M.: Cultural consumption and covid-19: evidence from the taking part and covid-19 cultural participation monitor surveys. SocArXiv. August 31 (2021). https://doi.org/10.31235/osf.io/x9dbv

Handke, C., Stepan, P., Towse, R.: Cultural economics and the Internet. In: Handbook on the Economics of the Internet. Edward Elgar Publishing, Cheltenham, UK (2016). https://doi.org/10.4337/9780857939852.00014

Mandarano, N., Pagliaro, F., Mataloni, C.: "Fuori orario: i musei e la loro vetrina sul web, ROLSA, Rivista Online di Storia dell'arte, Dipartimento di Storia dell'Arte dell'Università di Roma "La Sapienza", vol. 9 (2008)

Massi, M., Vecco, M., Lin, Y. (eds.). Digital transformation in the cultural and creative industries: production, consumption and entrepreneurship in the digital and sharing economy (1st ed.). Routledge (2020). https://doi.org/10.4324/9780429329852

Network of European Museum Organisations. Survey on the Impact of the COVID-19 Situation on Museums in Europe Findings and Recommendations. Accessed 30 June 2021 (2020). https://www.ne-mo.org/news/article/nemo/nemo-report-on-the-impact-of-covid-19-on-museums-in-europe.html?

Osservatorio Innovazione Digitale nei Beni e Attività Culturali del Politecnico di Milano. Accessed 30 June 2021 https://www.osservatori.net/it_it/osservatori/comuni-cati-stampa/innovazione-musei-cultura-digitale

Pine, J.B., Gilmore, J.H.: Welcome to the experience economy. Harv. Bus. Rev. **76**, 97–105 (1998)

Radermecker, A.-S.: Art and culture in the COVID-19 era: for a consumer-oriented approach. SN Bus. Econ. **1**(1), 1–14 (2021). https://doi.org/10.1007/s43546-020-00003-y

Rodari, G.: Favole al telefono, Collana Libri per ragazzi n.7, Torino, Einaudi (1962)

Ronchi, G.: Quattro ricercatrici lanciano un questionario per fare il punto su musei e pandemia. Artribune, 15th December 2020 (2020). https://www.artribune.com/arti-visive/2020/12/questionario-musei-pandemia/

Sacco, P.L., Calveri, C.: La trasformazione digitale della cultura. Milano, Editrice Bibliografica (2021)

Schreier, M.: Sampling and generalization. In: Flick, U. (ed.) The SAGE Handbook of Qualitative Data Collection. vol. 33, Sage, London (2018). https://doi.org/10.1007/978-3-319-54672-8_15

Shapiro, C.: Optimal pricing of experience goods, The bell journal of economics, vol. 14, no. 2 (Autumn, 1983), pp. 497–507 (1983)

Simon, H.: The sciences of the artificial, 3rd ed. MIT Press, Cambridge (1996)

Solima, L., Cicerchia, A.: (eds.) E ora…? Primi risultati dell'indagine condotta sui pubblici dei musei italiani durante il lockdown", Mibact – Dg Musei, dattiloscritto (2020). https://doi.org/10.13140/RG.2.2.25586.73929

Tate, N.B.: Museums as third places or what? Accessing Soc. Reser. Museums Soc. Issues **7**(2), 269–283 (2012). https://doi.org/10.1179/msi.2012.7.2.269

Trocchianesi, R., Zanella, F.: The design culture: actions and narratives between archives and exhibitions. DIID. DISEGNO INDUSTRIALE INDUSTRIAL DESIGN. ISSN 1594–8528. - XVIII:73 (2021), pp. 60–71 (2021). https://doi.org/10.30682/diid7321e

Beyond Visualisation Data as Raw Material for Uncoded Experiences

Lucilla Calogero(✉)

Università Iuav di Venezia, Venice, Italy
lcalogero@iuav.it

Abstract. In the context of our evolving data-driven society, controlling the current abundance of data and the resulting flow of information does not circumscribe actions from disciplinary boundaries. Many recent theories factually underline this fact contributing significantly to the definition of valuable tools, methodologies, and processes. Numerous cross-disciplinary contributions support an ever-expanding field of knowledge in its many applications, the benefits of which are evident from an economic, social and cultural perspective. Furthermore, they seem to reveal the potential of a material transformation of data: re-materialising data, giving it physical shape and staging it in public spaces to create more emphatic relationships. This plastic experience would make people feel the data, not just watch and observe it. The paper proposes an analytical framework, helpful in exploring the opportunities offered by data design: what technological innovations make the development of new data communication languages possible? What spatial dimension does the experience provide? What value, what meaning do they bring? The framework offered here intends to be a thinking tool and inspire renewed data interaction design practices. A better understanding of what interaction in data design is, and how it can enrich the quality of interaction in data-informed product-service systems which empower those who use them. The goal is to open up the dialogue amongst parties interested in making the human explicit in the data ecosystem.

Keywords: data design · narrative · physicalisation · sensification

1 Design Contribution in the Context of Data Literacy

Similar to the history of other literacy initiatives, data literacy requires behavioural change [4]. The invention of the printing press created the need for universal text literacy; likewise, the need to manipulate considerable amounts of large numbers created the need for mathematical literacy; the ubiquity and relevance of photography, film and digital drawing tools posed the need for visual literacy [7]. Similarly, with the increasing availability of large data sets, it is possible to draw a parallel with the compelling need for universal data literacy that goes from the understanding of data to the use of visualisations and other enabling systems for the transformation of information into knowledge. Like other literacies, data literacy aims to promote better communication and collaboration, empower users to understand their world, establish individual self-efficacy, and

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 526–533, 2024.
https://doi.org/10.1007/978-3-031-49811-4_50

improve decision-making in many contexts. Data literacy also allows laymen not to be reduced to the mere role of passive data producers. Corrall [12] shows how the definition of data literacy constitutes a "wicked problem": the author combines the multiple definitions of data literacy formulated by scholars to demonstrate the multifaceted and interconnected nature of this definition problem. It may be helpful to note that Buchanan [9] has previously framed the nature of design in a similar manner. In the same vein, Norman [26], echoing the "wicked problem", refers to a social or cultural problem that is difficult or impossible to solve due to its complex socio-technical nature. In the variety of interdisciplinary contributions that experts can make to help in the development of tools and processes to support this new knowledge, design is understood in its "sense-maker" characteristic [22, 25], its multifaceted naivety and its multiverse applications [3, 15]. As such, design can play a crucial role in facilitating the process of data literacy as a qualitative driver of knowledge communication, where the focus lies not in the final communicative artefact – technical or aesthetic – but in the underlying process of transforming input data into a communication product or experience. On the one hand, design can help solve the formalisation and visual expression of masses and data flows. On the other, it can operate in order to detect new directions and scenarios for the use of data, exploring ways to translate their variable trends, and using a plurality of communication solutions on a macro and micro scale, supporting and facilitating innovations in terms of meaning and value production.

Beyond the traditional models of visual representation of data that come from statistics, which emphasise the "presentation of data", design can give coherence and structure to the discourse originated by alphanumerical sequences – which are neither accessible nor immediate to understand. Bihanic states that "design provides real spaces of re-presentation" [5], thus facilitating a more sensitive interpretation of the dynamics of relationship between data, and providing valuable devices for detecting meaningful forms of relationship. By experimenting with emerging interactive technologies, materials and innovative processes, design produces a plurality of communication solutions and languages capable of supporting and facilitating innovations in meaning and value production. It is interesting to observe how design intervenes in favour of sense-making from data accumulation.

2 Expanding User Experience in Data Design Beyond Visualisation: The Lens of HCI

Design methodologies incorporate human-centred approaches, encompassing the dynamic and appropriate context involved in data processing, synthesis and communication. If design from the accumulation of data supports sense-making processes, the humanistic focus of the intervention facilitates the transmission of the qualitative value of data [11]. Such an approach promotes data literacy, which Bhargava understands as "the desire and ability to engage constructively in society through and with data" [4]. As already noted, design methodologies and tools contribute to the configuration and arrangement of a space appropriate to host different experience forms and relationships between the user and data.

At the root of understanding data literacy and designing for inclusion is an urgent need to rethink approaches for the design, creation, and support of data-driven systems that are more human-centred and based on inclusion, empathy, and responsiveness. Contextual, human-centred approaches are arguably critical – and often absent – elements in the design and development of data-related activities [4].

The reference to the experiential dimension to which interactive artefacts give rise represents a focus of the most recent philosophical, scientific and medialogical discourse. In this case, the concept of experience is to be understood in the Deweyan meaning, that is, as that which allows for factual and reciprocal interaction with the environment, oriented toward a sense of responsibility and participation toward solving society's problems. Such attention resulted in the "experiential turn", which has led to a progressive shift towards the centrality of the user's experience, in lieu of supports, techniques, and technologies. There has been a shift in the design field from techno-centric approaches to design to developing methodologies and viewpoints centred on the user experience. In the field of user-experience theory, Hassenzahl [18] proposes research methods that lean towards an approach called "experience design". These methods can identify individuals' and groups' complex and nuanced needs, challenges, and aspirations within a data ecosystem. Discovery and learning, related to experience, are central to human-centred approaches. Empathy is one of the necessary tools for understanding the experiences of others. Furthermore, it is important to take into account the increased attention given to the deepening of the notion of immersiveness. The primary interaction strategy for the use of data is measured by the possibilities offered by the most recently developed platforms, that are not limited to visual representations but also include mobile devices and platforms for the experience of "immersive environments." This has been fostered in part by the possibilities granted by technological development and the advantages of more excellent distribution and greater accessibility of systems and devices to enjoy immersive environments. In these cases, physical interaction emerges from the two-dimensional *mise-en-scène* of the monitor and pervades, overlapping like a layer of knowledge, the actual space. This brings new challenges to the idea of witnessing, which can be juxtaposed with the ideas of presence and personalisation. Such reassessment could be interpreted in fact as a natural broadening of the field by the data lifecycle concerning the translation stage. With mindful attention to the explicit, implicit, and unconscious needs of different individuals and groups, appropriate activities, tools, supports, and communications for data and data-informed actions can be designed and supported [4].

With technological innovations, new communication languages for HCI have been designed, developed and spread. Throughout history, as a result of this process, different types of interactive experiences have emerged. This led, to a greater or lesser extent, to innovations in meaning and behavioural changes. Since the objects of data design are the user experience and the environmental dimension in which it takes place, and considering the above considerations, it seems appropriate to explore the topic of human-data interaction through the lens of HCI. The evolution of HCI has been traced by considering the technological innovation in terms of hardware and software, the development of the language that made HCI possible and, simultaneously, the innovations – in terms of meaning and behaviour – that have been introduced [2]. The idea is to use the same

criteria to analyse a selection of case studies in which different types of Human-Data Interaction can be identified and, thus, different experiences.

3 Framework Analysis

Data visualisation is traditionally regarded as a tool for exploring data and making conjectures. Historically, its roots lie in the domain of scientific disciplines, where they are created by and for the experts. Data visualisation thus represents the result of an analytical process. Taking "data as raw material" [26] implies knowing its specific properties and uses. The specific characteristics underlying data design can be used to support the production of different forms of value.

The following framework of analysis proposes a reading of the state of the art of Human-Data Interaction through four dimensions: what technological innovations enable the development of new data communication languages? What technology innovations in hardware and software allow us to interact with data in a different way? Which spatial scale of experience does this offer? What value, what innovations of meaning does it bring? The suggested framework attempts to "establish alternative cultural decisions as engines of social transformation through design" [15]. It aims to empower the data design process by prefiguring a user experience that appeals to the data illiterate. The data illiterate is an individual who understands, explains and documents the usefulness and limitations of data by becoming a critical consumer of data, controlling their data journey, finding meaning in data and acting upon it. The data-literate individual can identify, collect, evaluate, analyse, interpret, present and protect data. Similar considerations and analyses have already been made from the visual interaction required in the case of data visualisation [14, 33]. However, several projects demonstrate that the possibilities offered can expand the interaction with data beyond mere visualisation.

Data are considered immanent presences, ductile, malleable and endowed with significant plasticity. Such concrete data design practices take on visual or physical form and static or dynamic behaviour to the aggregations, fluctuations and circulation. In this sense, data can be considered a raw material for designing experiences. In the case studies considered below, it is possible to observe how data design intervenes by organising physical or digital spaces capable of embodying immaterial data.

4 Data as an Experiential Interface to Innovations in Meaning and Change of Behaviour

Based on the above premises, a selection of case studies proves how designers are expanding the significant scope of data visualisation [34] and developing targeted design interventions.

Stating "Space junk has increased in recent decades and collisions could increase if the problem is not kept under control", the Space Junk web app, designed by Federica Fragapane for the BCC [16], represents space debris in orbit, classified according to the type of space object and organised by its average distance from Earth. Each type of debris is also quantified by its mass in tonnes. Scholars have stumbled upon the concept

of "data narrative" [23] as, through a humanistic approach, the intent to 'give human life to data' combines traditional codes of data visualisation with cognitive studies on perception. The result is a renewed visual syntax. In this case, human-data interaction brings about an epistemic value; the role of design facilitates the interpretative, critical and expository use derived from data in order to foster the production of new knowledge.

Similarly, in Plastic Air [24], Giorgia Lupi designs an interactive data experience produced in collaboration with the Google Arts and Culture project. The experience provides a lens through which it is possible to visualise and explore – on the web – the invisible plastic particles always present in the atmosphere surrounding us. It further considers how they impact the environment and our health. In this case, the value proposition is poietic, as data as raw material relies on a more exploratory and heuristic experiential logic.

Another linguistic development fostered by technological innovation has been called "data physicalisation" [20]. Data physicalisation can be experienced through physical and material forms, conveying information through unusual physical paradigms. Digital technologies have undoubtedly enhanced the possibilities of the visual representation of data. In contrast, humans have historically used physical representations of data – consider hourglasses, ancient notational systems, or mercury thermometers. The online archive Dataphys [13] collects examples of this type of visualisation and traces its history. There seems to be a resurgence of "data physicalisation" due to the use of technologies, new materials and processes. For instance, digital fabrication techniques such as 3D printing and digital milling may produce physical forms from databases. It is the case of Emoto by Moritz Stefaner [31]. Emoto is an installation designed during the 2012 London Olympics. It started with a web application that monitored public engagement via Twitter and then returned the results by creating an offline material data sculpture. The value proposed here is also poietic, in that using data as raw material is based on an exploratory and heuristic logic.

Environmental projects reveal data in the context of the natural environments around us, often exploring the use of natural processes. The following case introduces another valuable language: "data sensification" [19]. In this case, data acquire environmental dimensions in which the emphasis shifts to how it interacts with various inputs provided by users or sensors. The public site-specific installation Orbacles designed by TenxTen, Minn Lab [32], consist of three spherical environments that connect the citizens of Minneapolis to the phenomena of climate change through the behaviour of birdlife in the surrounding area and the language of the senses. The data design proves helpful as a device for documenting a natural phenomenon and speculating on the future. Orbacles facilitates the communication of a species' decline and migration related to the effects of climate change. Each of the 147 bird species found in Minnesota can be accommodated because the covers are of a size proportional to the length and wingspan typical of the species – a nesting box, feeder or rainwater reservoir.

Another case of "data sensification" [19] is where data acquire environmental dimensions, in which the emphasis shifts to the interaction modes with the inputs provided by the users. Dustmark/Staubmarke [29] is an installation for the public space of Stuttgart, a city particularly affected by air pollution. The project displays air pollution by drawing attention to the patina on the surfaces of the city. The dust marks are made in reverse

graffiti – a sensitive material – making the accumulated pollution visible by partially removing it. The process draws attention to dust as a concrete material rather than abstract numerical data. In the following months, the dust marks will vanish, as new dust will accumulate in the areas of the sign that were cleaned.

Applied data automation introduces physical platforms that use automation and robotics to encode data dynamically and interactively. The case of Surfacing Women in Smithsonian History [17] experimented with the development of tools for machine learning to explore the history and contributions of women in science. Automation applied to data promotes the production of new knowledge and thus epistemic value, but also praxeological value, as it encourages the discovery of new methods for organising museum archives. This represents just one of many cases of methods applied to archive storytelling [8]. We can say it is a participatory language that shows how designers invite users to create new data configurations, allowing them to encode or reveal data through their interactions with a piece, material or other people. In the same way, Surprise Machines [29] is a visual investigation of the archives of the Harvard Art Museum that takes the form of an installation. The project aims to organise the collections of the museum, with the goal of opening up previously unexplored sections of the multitude of objects that comprise them. This process makes use of algorithms capable of configuring visualisations from the public's gestural input on the interface. The body of the visitor becomes a kind of "choreographic interface" [29] for interacting with the collection. This system allows visitors to move through the visualisation through total body interaction.

5 Humane-Centred Data Design?

Each of these approaches involve precise design solutions that affect the design and production processes, but also the tools and skills needed to create the connection between the designer, the user, and the data. One could argue that humane-centred data design is about more than just the individual, because it extends to group dynamics in the social context. Data designed based on their entire lifecycle could redeem the position of human beings from their position as passive producers of data, giving people the capacity to act within these data systems; the purpose of expanding data literacy is to be understood in this sense.

References

1. Ackoff, R.: From data to wisdom. J. Appl. Syst. Anal. **15**, 3–9 (1989)
2. Au, I.: The future of human-computer interaction. www.youtube.com/watch?v=t_ZzhadA3DY. Accessed 22 Feb 2022
3. Bertola, P., Manzini, E.: Design multiverso. Appunti di Fenomenologia del design, POLI.design, Milano (2004)
4. Bhargava, R., et al. Beyond data literacy: reinventing community engagement and empowerment in the age of data. data-pop alliance white paper series, Harvard Humanitarian Initiative, MIT Media Lab and Overseas Development Institute (2015)
5. Bihanic, D.: Data Design: Les Données Comme Matériau de Création. Gallimard, Paris (2018)
6. Bihanic, D.: New Challenges for Data Design. Springer, Heidelberg (2016)

7. Börner, K., Bueckle, A., Ginda, M.: Data visualization literacy: definitions, conceptual frameworks, exercises, and assessments. In: Proceedings of the National Academy of Sciences of the United States of America, vol. 116, no. 6, pp. 1857–1864 (2019). https://doi.org/10.1073/pnas.1807180116, www.pnas.org/content/116/6/1857, Accessed 22 Feb 2022
8. Briones, M., Mauri, M.: Alternative narratives data visualization archive. In: CUMULUS Conference Proceedings series, vol. 2, pp. 3931–3944 (2021)
9. Buchanan, R.: Wicked problems thinking in design. Des. Issues **8**, 5–21 (1992). https://doi.org/10.2307/1511637
10. Ceppi, G.: Il design dell'esperienza. In Bertola P., Manzini E. (eds.), Design multiverso: appunti di fenomenologia del design, pp. 179–186, Poli.Design, Milano (2006)
11. Ciliberto, G.: Data visualization as a qualitative driver in knowledge communication: an interpretative framework. In: Cumulus Conference Proceedings Roma 2021, vol. 2, pp. 754–771, Roma (2021)
12. Corrall, S.: The Wicked Problem of Data Literacy: A Call for Action. In: LILAC. The Information Literacy Conference, Nottingham (2019)
13. Dataphys, dataphys.org/list, Accessed 12 Mar 2022
14. Dimara, E., Perin, C.: What is interaction for data visualization? IEEE Trans. Vis. Comput. Graph. Inst. Electr. Electron. Eng. **26**(1), 119–129 (2020). https://doi.org/10.1109/TVCG.2019.2934283
15. Escobar, A.: Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds. Duke University Press, New York (2018)
16. Fragapane, F.: Space Junk for BBC Science Focus, www.behance.net/gallery/81688575/Space-Junk-BBC-Science-Focus (2019). Accessed 12 Mar 2022
17. Harmon, E., Cherny, L., Digital curators at smithsonian libraries and archives with google arts & culture lab, surfacing women in smithsonian history (2022), https://experiments.withgoogle.com/women-in-smithsonian-history, Accessed 22 Feb 2022
18. Hassenzahl, M.: Experience Design: Technology For All The Right Reasons. Morgan&Claypool Publishers, San Rafael (2010)
19. Hogan, T.: Data Sensification: Beyond Representation Modality, Toward Encoding Data in Experience. Presented at the DRS 2018 Design Research Society, University of Limerick, Limerick (2018)
20. Hogan, T., Hornecker, E., et al.: Tangible Data, explorations in data physicalization. In: Proceedings of the Tenth International Conference on Tangible, Embedded and Embodied Interaction, pp. 753–756 (2016)
21. Hogan, T., Hornecker, E.: Towards a design space for multisensory data representation. Interact. Comput. **29**(2), 147–167 (2017)
22. Krippendorff, K.: On the essential contexts of artifacts or on the proposition that design is making sense (Of Things). Des. Issues **5**(2), 9–39 (1989). https://doi.org/10.2307/1511512
23. Lupi, G.: The New Aesthetic of Data Narrative. In: Bihanic, D. (ed.) New Challenges for Data Design, pp. 57–88. Springer, London (2015). https://doi.org/10.1007/978-1-4471-6596-5_3
24. Lupi, G.: Plastic air for google arts and culture project https://artsexperiments.withgoogle.com/plasticair/ (2021). Accessed 12 Mar 2022
25. Masud, L., Valsecchi, F., Ciuccarelli, P., Ricci, D., Caviglia, G.: From data to knowledge - visualizations as transformation processes within the data-information-knowledge continuum. In: 14th International Conference Information Visualisation, pp. 445–449. London (2010). https://doi.org/10.1109/IV.2010.68
26. Mauri, M., Colombo, G., Briones, A., Ciuccarelli, P.: Teaching the critical role of designers in the data society: the density design approach. In: Börekçi, N., Koçyıldırım, D., Korkut, F., Jones, D. (eds.), Proceedings of DRS Learn X Design 2019: Insider Knowledge, pp. 183–195, Ankara, Turkey: METU Department of Industrial Design (2019). https://doi.org/10.21606/learnxdesign.2019.12046

27. Norman, D., Stappers, P.: DesignX: complex sociotechnical systems. She Ji: J. Des. Econ. Innov. **1**(2), 83–106 (2015). https://doi.org/10.1016/j.sheji.2016.01.002
28. Offenhuber, D., Campbell, B., Samsel, F.: Dietmar Offenhuber: collaboration via the many traces our data sets leave behind. IEEE Comput. Graph. Appl. **40**, 120–126 (2020). https://doi.org/10.1109/MCG.2020.3007058. https://offenhuber.net/project/staubmarke-dustmark/, Accessed 12 Mar 2022
29. Rodieghiero, D.: Harvard Art Museums, Surprise Machines (2022), dariorodighiero.com/Surprise-Machines-for-Harvard-Art-Museums, Accessed 12 Mar 2022
30. Ruecker, S., Radzikowska, M., Sinclair, S.: Visual Interface Design for Digital Cultural Heritage: A Guide to Rich-Prospect Browsing. Routledge, London (2011)
31. Stefaner, M.: Emoto, archive.stefaner.eu/projects/emoto/ (2012). Accessed 12 Mar 2022
32. Ten x Ten, MINN LAB, Orbacles, www.tenxtenstudio.com/orbacles (2017). Accessed 12 Mar 2022
33. Tominski, C.: Interaction for visualization. Morgan & Claypool Publishers, New York (2015)
34. Viégas, F.B., Wattenberg, M.: Artistic data visualization: beyond visual analytics. In: Schuler, D. (eds.) Online Communities and Social Computing. OCSC 2007. Lecture Notes in Computer Science, vol. 4564, pp. 182–191. Springer, Berlin (2007). https://doi.org/10.1007/978-3-540-73257-0_21

Designer and AR Technology: The Relationships Between the User and Virtual

Antonio de Feo(✉) and Luca Casarotto

University Iuav of Venice, Venice, Italy
antoniodefeo94@gmail.com, luca.casarotto@iuav.it

Abstract. A good communication strategy of an artefact must connect a multitude of elements, both in terms of content and shape, and make them become a vehicle between the company and the consumer. The proposed contribution, resulting from the "Meta 4.0" research, suggests an exploration of innovative methodologies, tools and technologies to communicate and sell a product. In the context of the Industry 4.0 aims, the proposal is that technologies associated with the virtualisation of scenarios and products - augmented and virtual reality - can be useful tools and possibilities for achieving the required aim. In fact, the adoption of augmented and virtual reality technology in the context of communication would facilitate cognitive processing on the part of buyers, making them more interested in a product. The contribution explores the practice of vision through transformative technologies as a relational, cognitive and sensory expertise, attributing to the designer the role of interlocutor in the dimension of the visual imaginary in the duality between virtual and real. Therefore, designing the virtual in an incessant desire to find innovative experiential dimensions with the media, to make visible the centrality of the individual in the relationship between subject and transformative technology. The practice of vision refers to the actual conditions of viewing, including the social conditions of perception, which are the subject of anthropological research. The aim is to present the basis of a theorised language that defines possible intervention scenarios for the figure of the designer within the design of the intangible image.

Keywords: Industry 4.0 · Transformative technologies · Reality and Virtual · Product and representation · Augmented and Virtual Reality

1 Introduction

The adoption of augmented reality in the communication and marketing of products related to furniture design facilitates users' cognitive processing and makes them more likely to buy. Although not very widespread, augmented reality is also currently used in product communication. If a product is virtually in the home, then the consumer has more knowledge of dimensional and technical parameters. In this way, the user can have a different experience that will motivate them to purchase. This concept was the basis of the research "Meta4.0 - Possibilities and potential of design for Industry 4.0", it investigates the practice of vision through augmented and virtual reality (AR and VR) and

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 534–543, 2024.
https://doi.org/10.1007/978-3-031-49811-4_51

how the designer plays the role of interlocutor and director in the relationships between virtual and real. The hypothesis is to arrive at a theoretical and practical definition of the possibilities, knowledge, methods and tools useful for a designer. The aim is also to provide a working and knowledge tool for SMEs to correct the use of AR and VR technologies. Through the case study in collaboration with the company Delka S.r.l. and the prototyping of an AR application, it was possible to theorise the users' perception of AR and identify the perceived factors of spatial presence and virtual intrusiveness.

A methodology was also defined so that SMEs could take advantage of AR and VR technologies. The research aims to understand how these technologies could be used by companies. Augmented reality could support the customer in arranging the furniture, but also supplementing user and assembly manuals and helping with assembly. The link between the virtual and real components plays a central role in the theoretical analysis carried out, a continuum between what surrounds the user and what the software superimposes on the real. The designer must understand and know both the virtual and the real world. Through new tools and knowledge, he has to redesign the virtual so that there is a proper interaction between the two worlds and he has to know how this knowledge can be integrated into the field of marketing and e-commerce 4.0.

Transformative technologies allow the user to live and experience a new reality. These experiences can generate strong suggestions that can induce an awareness capable of triggering a paradigm shift [14]. Indeed, AR engenders user experiences that can produce a new consciousness in human beings. It leads him to define new scenarios, attitudes and values. But these technologies mustn't forget the past. Even if they are being used in the communication field, they must retain the references to the relationship with the man that is typical of photography (Figs. 1 and 2).

Fig. 1. Virtual image design example in AR

Fig. 2. Prototype of AR app developed for Delka srl.

Furthermore, the designer must be able to govern the project without being overwhelmed by technological possibilities. Indeed, the profound emotional experiences generated by AR and VR allow the user to develop a greater awareness of physical and social reality. This allows new meanings to be attached to things and products. The paper presents a survey of the historical and critical investigation of the role of transformative technologies and, specifically, how augmented reality is a communication tool for marketing a product. AR is a virtual reality in which digital devices are used to superimpose additional sensory information (sounds, objects, avatars, graphics, labels) onto the real world (Table 1).

Table 1. Design matrix for the virtual image

Category	Action	Role
Person	Interaction	Functional
Scene	Addition	Non Functional
Object	Subtraction	Paradoxal

The practice of vision refers to the actual conditions of looking, including the social conditions of perceptual regimes, which are the subject of anthropological research [13]. A common sense belief is that vision is the action of an individual confronted with the representation of reality [1]. The different approach that the research wants to highlight considers vision as a social and cultural activity, a practice that is based on and conditioned by learning and the specificity of environments and artefacts. The mode of viewing an image, whether tangible or non-tangible, becomes a form of tacit knowledge among humans. It is incorporated and acquired through cultural and relational

learning, thanks to which we tend to apply our modules of interpretation of reality in a non-conscious way [19].

The contribution investigates how AR can become a helpful tool for communicating an artefact, material and immaterial service [5] and develops a network of elements between historical, archival and technological aspects, historically and critically investigating the role of the designer and its relationship between technology and society.

2 The Space Between the Real Subject and the Virtual Projection

The research investigated human perceptions of AR technology, identifying which perceptual factors of spatial presence and how these can positively affect the user. Furthermore, research has investigated the effects of the virtual on the user. The aim is to foster the development and application of these technologies. In the research programme, it was relevant to understand the role of the spatial dimension and the relationships between subject and representation [15].

From the case studies found, the presence of an empty space between the subject and its representations is evident: between eyes and words, between eyes and images and between the user and the display [8]. This space between the real subject and the virtual projection is where the experience manifests itself and, thanks to technology and design, a new reality is configured.

The contribution presents an initial definition of a design matrix for the virtual image, understood as the tool that defines possible future scenarios of intervention for the designer within the design of projects with augmented reality technology. The contribution highlights how intangible image design is linked to current technologies and innovative solutions.

Scientific literature shows that augmented reality causes a sense of deprivation of control over personal information, leading to increased perceived intrusiveness. Therefore, AR technology is relatively new to society and peer this unfamiliar when experiencing it for the first time. This induces an unpleasant feeling by increasing perceived intrusiveness. Furthermore, the AR application will project virtual products and information into the surrounding environment so the user may perceive this as too close to their physical world, increasing the perception of intrusiveness. Intrusiveness induces negative emotions, such as irritation and annoyance, which negatively affect society's reactions, causing reactivity towards the technology.

The AR and VR technologies are increasingly asserting themselves within the Marketing 4.0 sector through new ways of conceiving advertisements compared to standard online ads and through an innovative way of communicating and marketing products, especially in furniture design, fashion and personal accessories. Augmented reality can arouse positive attitudes towards the brand by stimulating the buyer to purchase.

After Apple's launch of ARKit in 2017, and more generally in all mobile stores, there are more and more apps exploiting AR. Especially in the Business to Consumer market, many international brands are boosting their e-commerce with this technology. Among the first is the Ikea brand which, within its application, makes it possible to display the product catalogue directly inside the customer's flat.

This allows the user to be facilitated in the purchase and choice of the product, but also to already have an interaction with the product and the brand, experiencing, before the purchase, the experience of already owning the furniture.

This allows the user to be facilitated in the purchase and choice of the product, but also to already have an interaction with the product and the brand, experiencing, before the purchase, the experience of already owning the furniture. In fact, from the literature analysed and a review of user tests carried out, it emerged that AR adds a new dimension to the product experience with two characteristics: the first is the superimposition of virtual content on reality; the second is that virtual objects are interactive and displayed in real-time. AR technology, therefore, is also able to arouse positive attitudes towards the brand by stimulating purchases.

But of central importance remains the link and interaction between the virtual and real components. This immersion of virtual information must, however, remain part of reality and not exceed it, or else it will be perceived negatively. Good design must take account of this limit that cannot be defined by technology. The research aimed at finding the functional elements of experience within the design of non-tangible images. Indeed, the scientific literature shows that augmented reality has limitations and problems concerning the interaction between users and technology. User tests carried out by studies on AR apps show that it can cause a sense of deprivation of control of personal information, making the user perceive even disturbing contexts to the point of losing the very perception of reality. In addition, it was found that for inexperienced or first-time users, it induces an unpleasant feeling that increases the perceived sense of intrusiveness.

When the AR application projects virtual products onto consumers' faces or into an environment by creating too much proximity to the personal sphere of the inexperienced user, it has the perception of intrusiveness. This intrusiveness induces negative emotions, such as irritation and annoyance. This negatively affects consumer reactions, causing negativity towards technology. Perceived virtual intrusiveness is defined as the cognitive reaction towards media or advertising that evokes feelings of annoyance or irritation. Similarly, AR can evoke feelings of intrusiveness. To avoid this it is advisable that users first see themselves, then at virtual images and that gradually increases. They can be viewed in steps. This gradual construction of the image is perceived by the user as a control of the technology that is thus not perceived negatively.

Research has understood how anthropomorphism and the staging of humane communication [6, 7] support designing virtual images with AR technology. The paper presents a design model to be used when defining virtual scenarios to break down the sense of perceived intrusiveness. If the design is a discipline capable of envisioning a new reality, then it is the designer who must understand how tools can become useful tools for communicating virtual products.

3 From Photography to Augmented Reality

AR technology can bring to life and experience a new reality, and these experiences can induce an awareness that can push the subject toward change and the possibility of experiencing emotions [11]. It is, therefore, necessary that these technologies, and their communicative functions, do not forget the research base related to the relationship

between product and human, proper to photography because it is on these that design must be based.

Since its discovery, photography has been a tool for communication. As early as the late 19th century, photography lent itself to industry to tell the story of technological and cultural advances and social innovations taking place. Then with the Bauhaus, from being a storytelling tool, photography began to become a tool for representing artefacts. Since the Weimar School, photography increasingly begins to become a tool for telling the story of technological innovation and the form of artefacts. The research conducted examined how photography for design, has been used in different ways. Photographers such as Willi Moegle, Hans Finsler, Aldo Ballo and Marirosa Toscani, and Lucia Moholy have represented design objectively and pragmatically. Others such as Wolfgang Siol, Erich Consemüller, Mauro Masera, or Giorgio Casali, on the other hand, have emotionally photographed the artefact, bringing out a design related to action, with ambient shots and with the presence of people. Two different approaches to design photography, one more related to objective photography and one more interpretive, in which the photographer interprets the object and creates a scene and then photographs it [7]. To give a critical reading to these aspects of the research, we used the Barthesian interpretation, especially the elements of *Studium* and *Punctum*, proposed by the author in the essay "Camera chiara" [1]. The French author defines *studium* and *punctum.*

The *studium* is part of a visual awareness gained through experience. It allows a careful reading of the photograph, in which the *spectrum*(photographed element) is understood and read from the side of the spectator who will decide, then, to appreciate the image as it stands. If the *spectator* (observer of the photograph), after observing it, does not understand the concept, there will be nothing left. It is only through the *studium* that he appreciates the composition and the lighting that the photograph communicates. The *spectator*, through effective communication by the photographer, understands the image well and what he wants to communicate: the beauty of the object, the innovative material, and the use and iconicity of the subject.

Conversely, the viewer will be impressed if there is *punctum* in the photograph, an element that breaks the relationship between the photographer and the viewer. At the moment when the operator (the photographer) loses control of the scene, the spectrum moves and something only reach the spectator: this is the *punctum.* The uncontrolled pervades the image and reaches beyond the photograph. The *punctum* overwhelms the spectator and, unconsciously, he too becomes a participant and spectrum of the scene. *Punctum* is not common, it is not for everyone, although it has multiple readings. In a photograph, there is only one studium but there can be multiple *punctums.* Small details that, thanks to the spectator, bring the photograph to an inexhaustible source of emotions.

Inserting *punctum* into a photograph is seemingly impossible because it is unconscious, and unconsciously it lives in the image as it does in the viewer. Through an emotional openness on the part of the *spectrum* and the *spectator*, the *punctum* manifests itself simultaneously in both, causing them to become accomplices in a single emotion.

Through iconographic, critical and historical analysis, the research identified recurring *punctum* elements in design photographs, and after cataloguing, schematizing and summarising them, the study produced a design matrix. An attempt was made to apply

this matrix to AR technology to define possible methods and tools for designing the virtual. Through knowledge, an attempt was made to define a designed interaction between the two worlds [15]. An attempt was then made to define some design paths for the designer.

Very important is the link between the virtual and real components, in the relationship between what surrounds the user and what the software brings into the real [11]. However, this data immersion must be integrated into the world [18]. In AR, the user must be able to move around the environment because in AR reality it is the perception of the real that allows him to stay in touch with reality and direct his actions. The paper proposes to define a methodology for understanding how the discipline can help the designer in the use of these technologies, precisely through a conscious design of the virtual [17].

4 Tools for Creating Virtual Images

The research aim is to define methods for designing with AR technology based on theories of photography [1]. Grammar was to be defined by paying attention to human perception and the relationship between society and the representation of the virtual. The research aim is to define methods for designing with AR technology based on theories of photography [1]. Having defined what are the factors of human quantity useful to humanise and anthroposophists [17] an attempt was made, through representations of designed intangible components (*punctum*), to establish what are the characteristics of AR.

A historical reconnaissance of photography was carried out to have a visual and theoretical collection that holds together the designs of different product photographers. It was analysed how in photography there is a design dimension of the image both real and virtual, understanding virtualisation as non-realistic. Therefore, research was carried out that aims to bring out the design-ness to propose methodological design guidelines that can be applied to make virtual images. Among the authors analysed, a reconnaissance of the archives of photographers Aldo Ballo, Giorgio Casali and Mauro Masera, as examples of what was photography for design, was carried out, and for each photographer and photo analysed, the elements of image design were identified. They were then associated with the *punctum* feature by finding the recurring elements.

Once the output was defined, we continued through bibliographic and iconographic research to define the actions and methodologies useful to identify the matrix of elements to support the design of the virtual image. The definition of the human quantity factors in the matrix is the result of an analysis of scientific papers and the identification of the elements present in photographs, videos and graphics.

The matrix is divided into three macro-areas (category, action and role), and for each, there are as many elements. When The designer designs a virtual visualization of a scene and needs to place elements within it, he or she can start based on this schema. Being based on the concepts of photography, the designer can find useful references to be more communicative because then there will be both *studium* and *punctum* elements. Inserting elements such as a person, scene, or object, and having them act (interaction, addition, or subtraction), defining them a role (functional, non functional, or paradoxal) allows one to generate a combination that works and has already been tried and tested

in photography. The history of photography serves as a foundation as AR technologies allow much more information to be communicated, thus facilitating cognitive processing by the viewer.

A website (https://sites.google.com/view/ar-toolkit) was also planned that can help designers define a communication and marketing strategy with AR. This tool allows designers and SMEs to set the sales method of the product and guide them in information regarding the technology. The toolkit also presents guidelines for designing and prototyping an AR application. Starting from the type of business and communication, the SME can make a prototype of its AR application.

During the research, the matrix and the website were constantly tested with the company Delka srl. During testing, several improvements emerged which were then implemented, such as identifying the purpose of the communication: (I) B2C for the consumer, (II) B2B for the retailer and (III) B2C and B2B for the fitter.

The website also provides an understanding of how AR works and how to use it, e.g. one can: (I) superimpose virtual content on physical content, (II) interact with the product, and (III) have virtual objects in a fixed position.

Delka srl thus allowed its users to observe a product in their own home or office. Thus, users saw the dimensions of the products and were able to create compositions with the furniture present or all virtual. Another test allowed us to understand how AR technology can serve to assemble the product. This experiment was helpful because the support given to the user was efficient and it was not difficult to understand the steps.

The toolkit aims to raise awareness of AR and VR technology among SMEs and designers by highlighting how, with a focus on the furniture industry, these can be used in communicating and marketing a product. It also suggests a methodological approach and framework for developing a mobile app to use AR.

Communication achieved through the matrix and toolkit can reduce intrusiveness and improve the effectiveness of AR technology for marketing a product. The research found that aspects such as the spatial dimension, the design of an empty space, and the relationship between the user and virtual space are issues that could be investigated further.

5 Conclusion

Today, there are many areas of interdisciplinary research that take into account the relationship between technology, neuroscience and visual models, and they all offer the possibility of investigating new theories in which looking is preparing for different models of representation [8]. The contribution presented the results of a research that saw AR technology as an innovative communication tool and as such, it was necessary to prepare design guidelines. The research led to the definition of a design matrix for the virtual image. The designer can now use these tools to communicate an artefact or an asset.

The proposed matrix for designing the virtual image makes it possible not to lose the progress made in the history of photography but to develop new scenarios based on established theories. The interest in representation theory thus finds its place in connection with the past and in the design discipline itself.

Watching is not merely the reduction of a relationship between perceptual stimuli and the processing of virtual information, the process is much more complex and involves a design approach that brings together the real, virtual, perception, technology and message and must therefore involve a designer.

If it is the designer who has to design these new realities, he or she must be able to control the physical and virtual space and timing of the experience. In a society with so many changes, it is necessary to know the experiences of the past in order to have a basis for the future and to avoid having to experiment with each new technology from scratch.

References

1. Barthes, R.: La camera chiara. Nota sulla fotografia. Einaudi, Torino (2003)
2. Bisogni, M.: Realtà aumentata. Per la comunicazione di prodotto. Tecniche Nuove, Milano (2004)
3. Bollmer, G.: Empathy machines. Media Int. Aust. **165**, 63–76 (2017)
4. Bolter, D., Gromala, D.: Windows and Mirrors. Interaction Design, Digital Art, and the Myth of Transparency. MIT Press, Cambridge (2003)
5. Bonini Lessing, E., Bosco, A., Bulegato, F., Scodeller, D.: Il design come bene culturale. MD J. **4**(8), 6–15 (2019)
6. de Feo, A.: La fotografia humana per il design, tesi di laurea magistrale, relatore Alberto Bassi, Università IUAV di Venezia, corso di laurea specialistica in disegno industriale del prodotto, a.a. 2018–19, (2019)
7. de Feo, A.: Photography testimony of artisanal values. The boat project as a historical memory of the Mediterranean. PAD, Pages on Arts Design. **21**(14), 282–306 (2021)
8. Faeta, F., Fragapane, G. D.: Forme e Modelli. Corisco Edizioni (2010)
9. Khanna, A., Khanna, P.: L'età ibrida. Il potere della tecnologia nella competizione globale. Einaudi, Torino (2013)
10. Lowgren, J., Stolterman, E.: Thoughtful Interaction Design: A Design Perspective on Information Technology. MIT Press, Cambridge (2007)
11. Maldonado, T.: Reale e virtuale. Feltrinelli, Milano (2005)
12. Manzini, E.: Design When Everybody Designs. MIT Press, Cambridge (2015)
13. Marazzi, A.: Antropologia della visione. Carocci, Milano (2008)
14. Riva, G., Gaggioli, A.: Realtà virtuali. Gli aspetti psicologici delle tecnologie simulative e il loro impatto sull'esperienza umana. Giunti Psychometrics, (2019)
15. Sharp, H.: Interaction Design: Beyond Human–Computer Interaction. Wiley, Hoboken (2019)
16. Sontag, S.: Sulla fotografia. Einaudi, Torino (2004)
17. Van Esch, P., Arli, D., Gheshlaghi, M.H., Andonopoulos, V., von der Heidt, T., Northey, G.: Anthropomorphism and augmented reality in the retail environment. J. Retail. Consum. Serv.Consum. Serv. **49**, 35–42 (2019)
18. Wiesing, L.: Artificial Presence. Philosophical Studies in Image Theory. Stanford University Press, Redwood City (2010)
19. Wollheim, R.: Vedere-come, vedere-in e rappresentazione pittorica, L'arte e i suoi oggetti, Christian Marinotti (2013)

The Robotic Service Objects. Design Approach for the Multidimensional Evaluation of Robotic Aesthetics

Claudio Germak and Lorenza Abbate(✉)

Politecnico di Torino, Turin, Italy
{claudio.germak,lorenza.abbate}@polito.it

Abstract. With the growing popularity of service/social robots in different contexts and for many users, it becomes one of the future challenges for research to achieve a higher level of acceptability through the characterisation of the interaction with the machine, both from an expressive and functional point of view. A characterisation will depend on the type of user, work context and tasks to be performed by the machine. In this scenario, telepresence robots require an in-depth characterisation study, as they are machines intended to represent the extension, and therefore the personality, of remote subjects, mediating their communication. Through an analysis of case studies, this paper aims to provide an overview of approaches to telepresence robotics's physical and/or cognitive characterisation. The use and application contexts dynamics will be explored to build support for experimentation.

Keywords: Human-robot interaction · Aesthetics · User Experience · Telepresence design approach · Personalization · Embodiment design

1 Introduction

Service/social robots, often clustered in the same category, are gaining popularity, particularly in health care, home care and education. Although the differences appear nuanced, the former (service robots) are purely functional machines, while the latter (social robots) develop stronger interpersonal skills. From the most specific services offered in terms of order execution to more complex cognitive processing, the service/social robot possesses its physical form (a body) and a communication system based on sensory properties expressed at different levels: capable of speaking, touching, gesturing, pointing, even expressing emotional reactions. Bartneck & Forlizzi [1] define a social service robot as "an autonomous or semi-autonomous robot that interacts and communicates with humans by following the behavioural norms expected of the people with whom the robot is intended to interact." Therefore, these robots take on different identities depending on their functional role and the context for which they are designed. In other words, they possess an overall form (the Anglo-Saxon form) that is not only determined by the sophisticated technologies used here but is the result of well-defined design choices [2]. The service/social robot, as an intelligent machine to entertain, assist, and educate, or as a telepresence robot to communicate with people at a distance, is perhaps the object with the most complex system of interaction with humans. It is a system that can offer

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 544–552, 2024.
https://doi.org/10.1007/978-3-031-49811-4_52

different performances, the impact of which has to be measured through the degree of acceptability of the robot by the people who interact with it, obviously divided into categories: children, adults, the elderly, the frail, etc. The aesthetics of the machine, which in this category of the robot is determined by a complex of relationships not only of a somatic character but also of a sensory and interactive nature, has its fundamental importance [3]. In robotics, the concept of functionality proper to industrial objects extends to the semantic nature of formal and interaction relations, with the primacy of embodiment, i.e., the principle of the embodied mind, where human reactions arise from a complex interweaving of mind, brain and body [4].

In this multidimensional direction that places at the basis of the morphological reading of the robot the integration of interaction and expressiveness of the body, there are several studies of an anthropological and psychological nature that inform us about the requirements for the acceptance and adequacy of certain forms without, however, systematizing all the elements that contribute to a descriptive synthesis of the methodologies for their measurement.

The research, therefore, aims to present a series of approaches aimed at characterizing telepresence robots through the analysis of case studies in the literature to identify the directions that telepresence should take in the future. These robots enable remote communication between people so they can fully experience individual, group, and remote spaces through the functions and features they possess motion, screens, sensors, and voice commands [5]. This task raises questions about the characterization of the machine depending on who experiences and shares it.

2 Enhanced Human-Robot Interaction and Human-Robot-Human

In the case of telepresence, human-robot-human social interaction is a dynamic and complex phenomenon influenced by specific factors such as socio-cultural context and past experiences. Therefore, most scholars think that in order to create a positive interaction between the robotic machine and the user, especially in the case of telepresence, it is necessary to introduce the concept of "humanized natural" through the reproduction of only some traits and behaviours that belong to humans [6]. This, on the other hand, is not the case at the two opposite extremes of robotics: at the bottom, household appliance robots, generally characterized by a curated but aseptic design expressiveness, typical of tools subjected to a good design process; at the top, humanoid laboratory robots such as iCub, designed by IIT Istituto Italiano di Tecnologia, a reference model for recent application experiments such as RoBee, the first Italian cognitive robot intended for Industry 5. 0 (Oversonic Robotics), equipped with anthropometric dimensions and somatic features almost identical to the human standard, to better contribute to the performance of tasks that are not repetitive but require great precision (pick and place) and cognitive performance (facial recognition).

In the less performant, social and service robots, including telepresence robots, we find examples of humanizing aesthetics that look to the human model according to three scalar design attitudes: copying, quoting and allusion.

In the direction of humanoid copying are perhaps the digital technologies that today allow for novel explorations: among them is Furhat Robot (Fig. 1), a rear-projected

robotic head that can be modelled after a range of human likenesses through the choice of skin colour, expression of the eyes, mouth, and nose [7]. Experiments that could, in part, be introduced into telepresence machines as well, where the goal of greater acceptance of the robot as a mediating element in human-to-human relationships at a distance is driving research to explore different levels of characterization, most of which use quotation and allusion, particularly in body definition.

Fig. 1. The Furhat Robot (2022) designed by the start-up Furhat Robotics.

The robot Pepper, equipped with a humanoid body and a screen for communication, cites some elements of its human appearance and behaviour (movement and voice) in a comic key. Others, however, depart from the quotation through a formal simplification of the body, which we call allusive. As a result, human features are present only partially, as in Ava Robot (mainly for the hospital context) and Temi (for housing and entertainment) to minimal ones like Double, where the machine is reduced to a few components: a screen representing the head, an adjustable rod for the body, and wheels as feet.

3 Approaches to Telepresence Machine Characterization

The formal reduction that is characteristic of this new generation of telepresence robots, however, brings with it a need of an opposite sign to their minimalist conception: characterization. We are witnessing a phenomenon that had already presented itself with serial design objects and that had led the industry to manufacture differentially from the standard, as a response to the demand for products that are more familiarizing with each specific user but also adapting to different contexts: in other words, custom design [8]. The characterization of social robots, from the hardware point of view, has led researchers to explore different possibilities to transform the morphology of the machine's appearance. This is a complex concept, away from references to taste, thus also to style, which looks at design as a multidimensional expressive language beyond the actual form, a

concept that also applies to robotic design: “a path to the non-thing, where form is immaterial” [9].

The modes of characterization are of course many: from the robotic kit that allows the controlled transformation of the machine directly by the user to spontaneous characterization by adding physical elements to the embodiment of the machine, such as tattooing a body or customizing one’s smartphone to enhance interaction and empathy with the machine [10]. The research, from the perspective of characterization affordance, is also tasked with exploring ways to make the robot’s appearance more consistent with the context of the activity. The motive stems from the observation that, particularly in telepresence, identical machines now operate in fields as diverse as hospitals, care, commercial, and education. Therefore, characterization becomes a central value in telepresence as it can enhance the identity of the remote person to achieve appropriate work cooperation, caring assistance or hands-on learning. This complexity is associated with the two simultaneous roles that the telepresence robot assumes in the task. For the remote operator it is a human proxy, while for the co-located interlocutor it is also a physical machine, which is at the same time and increasingly indestinguishably, embodiment and body.

4 Methodology

This section will discuss different approaches to research on the characterization of human-machine-human interaction (telepresence) through an analysis of case studies that represent milestones in this direction. Several experiments characterizing the telepresence machine have appeared in the literature in recent years, distinguishable into four main approaches. The first is the *spontaneous* one, in which the robot, through spontaneous initiatives, acquires anthropomorphic characteristics. The second is the *playful one*, where the user chooses his or others’ configuration through construction kits. The third is an *anthropometric* approach in which the robot reproduces known human dimensions; finally, *mediated reality*, where the user’s identity is expressed through different modalities. Indeed, by acting on the material and digital interface of the robot, it is possible to give the machine gender identity and character, where the body (head, torso, and limbs) and sensory communication (looks, gestures, and voice) become the protagonists of the interaction.

4.1 Spontaneous Design Approach: *I’m Wearing What I Want*

Several studies on the introduction of telepresence robotics in social contexts show spontaneous characterisation initiatives of the robot through the introduction of the dress. The machine wears T-shirts, togas, hats, ties, necklaces, and wigs to acquire more distinctive traits of the subject at a distance. In the study by Fitter et al. (11), the impact of personalisation on clothing was measured. The results showed an appreciation on the part of remote users and the perception on both sides of a humanising effect of the machine. This, however, did not exclude the appearance of feelings of discomfort, especially for in-presence users, associated with the Uncanny Valley [12].

Indeed, when representation becomes stereotypical, it can evoke feelings opposite to the quest for characterisation: standardisation vs customisation.

Among the work on the personalisation of the telepresence machine, the one presented-to by Tsui et al. [13], through the VGo robot, experiments with some modes of communication closer to users with co- cognitive and motor disabilities, in addition to the ease of driving. In summary, these are two proof of concept machines, Margo, and Hugo, characterised by distinctive and easy-to-read symbols such as a Hawaiian shirt for the former and a tie for the latter.

This approach can also be found in the educational sector. This is the case with the study by Han & Conti [14], who, to investigate the factors determining the acceptance of the telepresence machine, made the robot wear a T-shirt to impersonate the student at a distance. Indeed, it has been shown that people are more likely to interact with robots whose personality conforms to their role [15].

4.2 Playful Design Approach: *Building Myself*

The characterisation in telepresence assumes an increasingly important role, as it is a factor in the interpretation of the individual's personality. As a result, initiatives for do-it-yourself construction are emerging, as in the case of Smartipresence (Fig. 2), made by The Crafty Robot, a low-cost telepresence robot associated with a smartphone. The small cardboard robot is designed to support one's smartphone, which enables remote communication via audio, video and movement. Smartipresence was created as an expansion of the Smartibot kit, where the user can build his or her robot with printed circuit boards, motors and a battery, choosing the physical cardboard embodiment from several available characters.

Fig. 2. Av1 Robot by No Isolation designed for education technology for inclusion.

My Classroom Robot [16] was realised in this direction as an interactive game led by players (the students) operating a telepresence robot in a virtual classroom. The aim was to explore the use of telepresence robots for K-12 education. The virtual environment allows for fast and flexible experimentation with different telepresence solutions, familiarising the students with the interaction between the machine and the remote subject. With this experience, the students became familiar with the topic of personalisation through different tools. These include the light signals emitted by the robot for non-verbal communication, which makes the interaction more functional and expressive.

4.3 Anthropometric Design Approach: *I Am as You See Me*

The need to represent a subject at a distance through a robot has led designers to consider certain anthropometric elements for the natural presence of the robot. These include flexibility in height, a feature that some commercial robots offer (e.g. Double Robot, Beam +, Ava robot), to activate a conversation on par with the human individual [17].

However, expressing one's personality at a distance has also been interpreted by reproducing images that are as realistic and faithful to the human body as possible. This is the case with the Large Screen Mobile Telepresence Robot and Mixed Reality Window prototypes [18]. This is a family of products where large screens are integrated into robotic systems capable of moving in remote environments. Working at full scale, it is possible to imagine new strategies for Mixed Reality and ubiquitous computing for the not-too-distant future. By allowing remote users to participate and superimpose their images and content directly onto the two-way window, accessibility to these spaces is greatly expanded in ways that are not strictly related to physical proximity.

The use of an anthropometric approach has also been used in the Profesor Avatar holographic projection system [19], a telepresence model developed at the Tecnológico de Monterrey that combines the use of real-time holographic projection and telepresence robots. The subject's image at a distance is projected in real-time and at full scale through a screen that allows the lesson to be followed where there are problematic geographical situations, environmental insecurity, and high travel costs. Furthermore, telepresence specialists, tutors and students interact in real-time, exchanging knowledge and experience in different contexts. Hardly probable but possible, holography presents itself as the future goal of remote telepresence: a robotic representation of the individual in 3-D, full-scale, and capable of moving through space as most social/service robots allow today.

4.4 Mediated Design Approach: *See-Through*

The mediated reality in telepresence represents one of the most relevant approaches in this field; think of telemanipulation applications where a machine reproduces them in a remote environment through replicating human movements. This approach has also been applied to telepresence social robots such as the AV1 Robot, capable of imitating presence through the robot's body acting as a representation. The applications of this robot are intended for the school context where the robot represents the child or adolescent in the classroom. Children can control the robot's head, the direction of the camera in the classroom and the microphone and decide whether it is open for communication or

mute and 'raise their hand' by switching on the light at the top of the robot's head. This type of robot design implies that the child cannot move within the remote space and is therefore always dependent on the other students [20]. This customisation is provided by the interface created by the remote user's movements.

From the perspective of a mediated approach, the study conducted by Luria et al. [21] shows an advancement in the concept of re-embodiment of the machine, communicating through the design of eyes and audio. The work aims to map the design space of social presence flexibility to help designers and researchers understand how to design conversational agents and social robots for personalised interactions.

5 Conclusions

The development of social robots will continue to grow at a strong rate, even during the Covid-19 pandemic. Against this backdrop of future uncertainty, telepresence robots will gain strategic relevance to communicate with humans at a distance.

For these reasons, the degree to which the machine's appearance matches the context and the actions to be performed will be crucial to the acceptance and introduction of robots with a role and appearance consistent with the assigned context and task. In addition, the shape, size, and technologies used will require human-centred design considerations to enable the design to meet the needs of the various stakeholders. On the one hand, the remote user manifests his/her presence through the robot; on the other hand, the in-presence actors interact directly with the robot. The analysis of the case studies revealed the need to establish specific criteria for characterizing the machine according to the context and the tasks to be performed. The physical characterization of the machine (body) is an aspect that is still under-explored, except for small spontaneous and playful design interventions. However, it is hoped that solutions allow the conformation to be modified through actions left to the discretion of the users and the subject at a distance. Just think of the school context and child users, where the physicality of the machine is crucial for good interaction. At the same time, we are witnessing in the marketplace the proposal of machines that are increasingly an expression of formal synthesis and mediated reality, certainly more aimed at an adult audience. Reflections such as these require further (and rapid) experimentation from the perspective of design thinking to increase a conscious diffusion of telepresence tools that are also consistent with users' needs and different contexts of use.

References

1. Bartneck, C., Forlizzi, J.A.: Design-centred framework for social human-robot interaction. In: 13th IEEE International Workshop on Robot and Human Interactive Communication (IEEE Catalog No.04TH8759), RO-MAN 2004, pp. 591–594 (2004). https://doi.org/10.1109/ROMAN.2004.1374827
2. Gemeinboeck, P.: The Aesthetics of Encounter: a relational-performative design approach to human-robot interaction. Front. Robot. AI **7** (2021). https://doi.org/10.3389/frobt.2020.577900
3. Colle, A., Gaudl, S.E.: Non-zoomorphic robots: the role of aesthetics in social robotic design (2020)

4. Shapiro, L.: The mind incarnate, Bradford Books, Denver (2004)
5. Rae, I., Venolia, G., Tang, J.C., Molnar, D.: A framework for understanding and designing telepresence. In: Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing, pp. 1552–1566 (2015)
6. Hegel, F.: Effects of a robot's aesthetic design on the attribution of social capabilities. In: Proceedings - IEEE International Workshop on Robot and Human Interactive Communication, pp. 469–475 (2012). https://doi.org/10.1109/ROMAN.2012.6343796
7. Al Moubayed, S., Beskow, J., Skantze, G., Granström, B.: Furhat: a back-projected human-like robot head for multiparty human-machine interaction. In: Esposito, A., Esposito, A.M., Vinciarelli, A., Hoffmann, R., Müller, V.C. (eds.) Cognitive Behavioural Systems. LNCS, vol. 7403, pp. 114–130. Springer, Berlin (2012). https://doi.org/10.1007/978-3-642-34584-5_9
8. Fagnoni, R., Spadolini B.: Design su misura. In: Introduction to the Proceedings – SID Annual Conference on Design su misura. Genova, SID Italian Design Society, Italia, pp. 12–18 (2018)
9. Mecacci, A.: Estetica e design. Il Mulino, Bologna, Italia p. 209 (2012)
10. Marathe, S., Shyam Sundar, S.: What Drives Customization? Control Or Identity? (2011)
11. Fitter, N.T., Strait, M., Bisbee, E., Mataric, M.J., Takayama, L.: You're wigging me out! Is personalization of telepresence robots strictly positive? In: Proceedings of the 2021 ACM/IEEE International Conference on Human-Robot Interaction, pp. 168–176 (2021). https://doi.org/10.1145/3434073.3444675
12. Mori, M., MacDorman, K.F., Kageki, N.: The uncanny valley [from the field]. IEEE Robot. Autom. Mag. **19**(2), 98–100 (2012)
13. Tsui, K.M., Yanco, H.A.: Design challenges and guidelines for social interaction using mobile telepresence robots. Rev. Hum. Fact. Ergon. **9**(1), 227–301 (2013). https://doi.org/10.1177/1557234X13502462
14. Han, J., Conti, D.: The use of UTAUT and post acceptance models to investigate the attitude towards a telepresence robot in an educational setting. Robotics **9**(2), 34 (2020)
15. Tay, B., Jung, Y., Park, T.: When stereotypes meet robots: the double-edge sword of robot gender and personality in human–robot interaction. Comput. Hum. Behav. **38**, 75–84 (2014)
16. Cha, E., Greczek, J., Song, A., Matari´cmatari´c, M.J.: My classroom robot: exploring telepresence for K-12 education in a virtual environment (2017). https://doi.org/10.0/Linux-x86_64
17. Rae, I., Takayama, L., Mutlu, B.: The influence of height in robot-mediated communication (2013). https://doi.org/10.1109/HRI.2013.6483495
18. Gonsher, I., Han, Y., Desingh, K., Gokaslan, A.: Prototyping mixed reality large screen mobile telepresence robots (2022)
19. Mendívil, E.G., Belmonte, L.L., de Lara Díaz, L.E., Milián, H.Q.: Profesor AVATAR: telepresence model. In: IACEE World Conference on Continuing Engineering Education, Monterrey, IACEE, pp. 1–9 (2018)
20. Weibel, M., et al.: Back to school with telepresence robot technology: a qualitative pilot study about how telepresence robots help school-aged children and adolescents with cancer to remain socially and academically connected with their school classes during treatment. Nursing Open **7**(4), 988–997 (2020). https://doi.org/10.1002/nop2.471
21. Luria, M., Hoggenmüller, M., Lee, W.-Y., Hespanhol, L., Jung, M., Forlizzi, J.: Research through design approaches in human-robot interaction. In: Companion of the 2021 ACM/IEEE International Conference on Human-Robot Interaction, pp. 685–687 (2021). https://doi.org/10.1145/3434074.3444868

EXPERIENCES. Tourism and Mobile Experiences

Designing a New User Experience for the Travel Sector: A Research Project Reimagining the Role of Travel Stakeholders in the Digital Post-pandemic Age

Venanzio Arquilla(✉), Federica Caruso, Davide Genco, and Chiara Parise

Experience Design Academy, Design Department, Politecnico di Milano,
Via Giovanni Durando, 10, 20158 Milan, Italy
{venanzio.arquilla,federica.caruso,davide.genco}@polimi.it,
chiara.parise@mail.polimi.it

Abstract. The paper analyses a user research process combining educational and professional dimensions, through a collaboration between *Politecnico di Milano* and a renowned Italian travel experiences B2B intermediary looking for new ideas to face the next challenges of the market. The design process widened the initial scope and revaluated the client's brief, enhancing the re- search and creating new scenarios for future implementation. The design brief was to reframe the role of the travel agency in a digital dimension, in- tercepting needs and opportunities in a changing and complex context such as travel sales.

The final output made it possible to identify six scenarios and project areas that summarise evolutive models for the future of travel, which confirm the trends that emerged from the research and intercept new stakeholders, high- lighting limitations and opportunities to design a new user experience for the travel sector in a post pandemic age.

Keywords: Travel Agency · Future of Travel · UX Process · UX Design · Academic approach

1 Introduction

The pandemic has been a huge influence on people's routines and different sectors from the health one to other vital segments like economies, societies, and political difficulties. The pandemic reshapes the communities' social behaviours worldwide [1]. The World Travel & Tourism Council (WTTC) estimated that the global eco- nomic impact on the tourism industry would be more than 5 times larger than the impact of the 2008 global financial crisis [2].

In particular, the tourism and travel industry will undergo a significant change in the coming years due to the change in the behaviour of individuals and societies due to Covid-19 [3, 4]. Even after the end of the pandemic crisis, when COVID-19 will become endemic [5], the consequences of this period will challenge the way people

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 555–568, 2024.
https://doi.org/10.1007/978-3-031-49811-4_53

travel. Today, while the sector is gradually recovering, there is an urgent need for renewal. The most urgent imperative for all companies in the travel chain is to restore production capacity; in fact, many temporary workers laid off during the pan demic caused labour shortages [6] with a direct impact on travellers resulting in strikes and air delays [7]. This implies a renewal tourism offer, which will have to re-adapt to meet the various challenges that today's society is actively facing. In addition to the pandemic and the already ongoing climate crisis in Europe, the war in Ukraine poses significant new challenges for tourism businesses [8]. The conflict could add uncertainty to prospects and investments. Therefore, the tourism sector, like others, is destined to face a period of uncertainty that opens the door to new challenges [9].

From a technological point of view, the advent of Covid has prompted many companies and industries to move towards digitisation, in order to make internal and sales processes easier and faster. This is the case in the commercial sectors, with a restructuring of supply chain processes, as well as in the medical and manufacturing sectors, which have renewed the advancement of procedures with a technological approach. This innovation also involved the tourism industry, introducing virtual travel concepts and advanced digital experiences with virtual and augmented reality [10].

This paper shows a hybrid design process in which the educational and professional dimensions coexist. The aim is to investigate new scenarios in order to design a new user experience for the travel sector, reimagining the role of travel stakeholders in the digital post-pandemic age.

The research implemented a consolidated design process in which phases of research/exploration, analysis, synthesis and realisation are repeated iteratively [11, 12]. The project highlighted the ability of design to find answers in times of crisis [13], demonstrating how the most creative societies can respond in periods of re- definition by intercepting changes and transforming challenges into opportunities [14]. Periods of uncertainty or post-normal periods [15] are par excellence the most stimulating periods for designers; design, due to its proactive nature, can manage problems that are, by definition, complex, multifaceted and systemic [16].

2 The Design Process

2.1 Methodology

This paper presents our design research approach, resulting from the adaptation of the Design Thinking model into a divergent/convergent exploratory process that led us to the final output (Fig. 1). Various stakeholders from the design and tourism sectors were involved in the process, which enriched the research and made it possible to reshape the process and adapt it to a hybrid dimension necessary to implement the project's educational piloting. The research process does not end with a univocal design output, but the result is the identification of six scenarios that, in turn, can define different design solutions. Thus, the process does not end with a purely convergent phase but diverges and opens up new possibilities, posing questions to inspire design in the tourism sector and responding to new behavioural needs.

The design process combines educational and professional dimensions through the collaboration between the Experience Design Academy (XDA) - a POLI.design, *Politecnico di Milano* Centre dedicated to User Experience (UX) for training, coaching and applied research for companies and institutions - and a renowned Italian B2B travel experience intermediary looking for new ideas to face future market challenges. A major advantage of this combined method is that the project involved a large research group, including the XDA team and other professionals and students. The project was enriched by a didactic context in which the brief was deepened and explored by six groups of students, which made it possible to accelerate doubling the expected output by acting simultaneously on several fronts.

The project's client is a tour operator with twenty years of experience organising customised travel packages for its clients, who are small to medium-sized travel agencies spread all over Italy.

The project, as anticipated, comes at a time of deep crisis for the sector and complete inactivity of the tourism business during the various lockdowns, which has severely strained the existence of travel agencies already in crisis. For this reason, the project's client questioned its business model and considered renewing the services it was selling up to that point.

The client's initial brief aimed to rethink the role of the travel agency in a more current business perspective for the market and customers and to understand how digital services could support that change. To achieve this purpose, it was necessary to intercept user needs and opportunities provided by trends in travel sales' changing and complex context. Thanks to the research, it was possible to highlight new design opportunities to design a new user experience for the travel sector in a post-pandemic age.

The design process alternated between phases of exploration of the theme and phases of analysis and systematisation of the results. The systematisation phases of the insights were used as a design tool but above all to facilitate dialogue with the client. Each project phase was accompanied by moments of discussion and collection of feedback, which allowed the client to be actively involved in the design process. The output of the project can be summarised as a counter-briefing, that is, a redefinition of the design brief given by the client. According to the definition of strategic design, counter-briefing consists of adjusting the briefing according to the critical and dialogical vision that designers develop when interacting with the design context and the proposal required by the organisation [17].

The design process (Fig. 1) was structured as follows:

Research phase: it started from the client's brief and exploration of the travel industry and led to a deep understanding of the context and people. This phase involved two activities, Blue-Sky (or secondary) research and user research. On the one hand, Blue-Sky research enabled the creation of a theoretical framework on the topic under analysis, investigating the context, innovations and emerging trends in the travel industry. On the other hand, user research aims to understand people's needs and to intercept new behaviour.

Finding and Output Analysis: this phase involves developing two outputs, respectively from the Blue-Sky research the definition of new paradigms, and from the user research

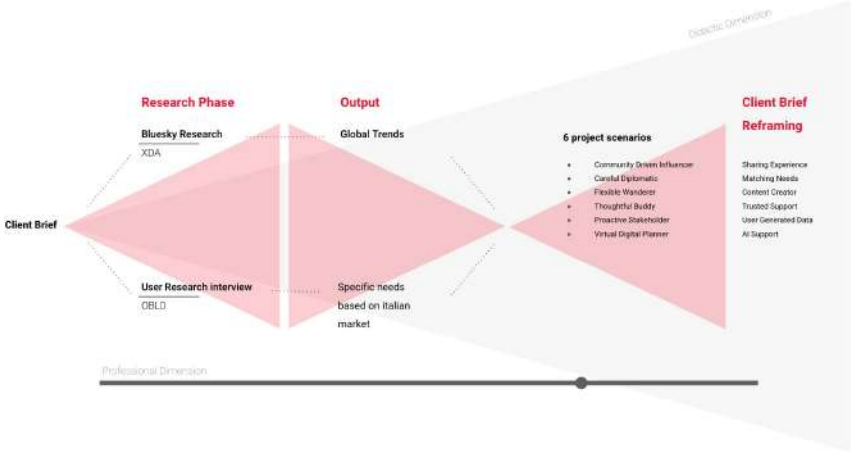

Fig. 1. Synthetic overview of the design process used for the project, with related outputs for each design phase

the definition of personas. The new paradigms emerged from studies on global market trends and represent a macro-level exploration that inevitably influences the travel industry worldwide; the personas, or user profiles, summarise the behavioural patterns of users and allow a precise analysis of people's needs in a specific context, which is the Italian tourism market.

Scenarios Definition: development of six scenarios and project areas summarising evolutionary models for the future of travel, confirming the trends emerging from the research and intercepting new stakeholders.

Final Output: reframing the Customer Brief as the final output, creating new paradigms and visions of the travel agency.

The following paragraph describes the process and its output.

3 Research Phase

3.1 Blue-Sky Research and Definition of New Paradigms

Blue-Sky's research explored the topic by identifying three spaces for change, defined as areas that travel service providers, hospitality groups and other organisations dependent on the tourism industry need to take into account to address changes in consumer behaviour and to be prepared for the post-pandemic market [18].

These three change drivers are the boom in digital development triggered by the pandemic, the newfound desire to seek personal well-being, and an increasing focus on environmental sustainability. These drivers lead to new paradigms and different trends that will change people's behaviour and impact the tourism industry in the post-pandemic period.

New words are rapidly entering the vocabulary of transport and travel and companies need to adapt quickly to these words. In this research, some of these words have been analysed that highlight the development of a trend and inspire new design scenarios.

Boosting Digital Development

While digitisation has been an emerging trend within the Travel & Tourism sector in recent years, stay-at-home restrictions have led to digital acceleration with more consumers becoming adept at using technological solutions in everyday life [19, 20].

On the one hand, the rise of digitisation has led to a new dimension of work; the mass adoption of remote working during the pandemic has radically changed the expectations of many workers regarding geographical flexibility. The concept of holidays has taken on a new meaning in this era, as consumers create working holidays and stay longer in destinations. The so-called digital nomads are emerging; being able to work wherever there is an internet connection, the business trip becomes a long-term stay in a place that makes the worker feel comfortable.

People want to escape their cities and homes to find refuge in other remote locations, integrating travel experiences with the typical working day. Travel providers should seek to offer services and experiences that appeal to these new digital nomads, combining work needs with emotional and social needs, where the boundary between work and pleasure is increasingly blurred.

The trend of so-called "Bleisure" travel (combination of the words business and leisure) or "Workation" (work plus vacation) is gaining momentum, allowing more travellers to integrate their business needs and experience new destinations and local activities [21].

On the other hand, the digital world has given users quick access and greater autonomy; today, automation allows anyone to plan their holidays independently and according to their wishes. At the same time, the sharing of experiences through digital communication channels and new essential stakeholders, such as influencers, are increasingly relevant in the digitisation process [22]. Social media will influence future travel behaviour. Social media, in addition to being tools of knowledge as consumers produce more and more content, share holiday memories and leave com-ments on their travel experiences, have also become an essential element of communication to be updated quickly on the health crisis.

Approaching New Sustainable Habits

From the UN's Sustainable Development Goals (SDGs) to the Paris Agreement and the UNFCCC's Climate Neutral Now initiative, it is clear that sustainability has become an even more important priority with the pandemic.

The restrictions due to the pandemic have forced travellers to seek closer destinations and low-impact experiences, drastically reducing their carbon footprint, primarily due to the reduction in business travel, which, as seen above, is changing in this new unstable scenario. Business travellers only travel when necessary and for longer periods.

In Europe, domestic tourism is expected to grow more than international tourism in the coming years. Although the full recovery of the global economy will require the return of international travel so that domestic travel may slow down proportionally, the trend towards rediscovering domestic destinations remains long-term. Mainly due to people's rediscovered desire for a less adventurous and more relaxed travel dimension.

The trend towards sustainability will remain long-term, with more and more consumers looking for sustainable travelling solutions, philanthropism and rural tourism.

In the future, many consumers will look for options supporting carbon-conscious travel experiences.

Moreover, after isolation, travellers prefer less crowded destinations, increasing their interest in exploring destinations in close contact with nature. This has contributed to bringing many travellers closer to sustainability and choosing "Slow Travel". The "Slow Travel" movement, defined by domestic or long-duration travel that allows tourists to have a deep and authentic cultural experience, is quietly shifting consumers towards more sustainable practices [23].

Rediscovering Personal Well-Being

During the pandemic, there was a global negative effect on mental health, with individuals struggling with anxiety and isolation and general malaise [24]. Travel also became a significant source of uncertainty in this scenario. However, this new context has increased the appreciation of the value of mental health, resulting in a broader understanding of wellness and increased consumer interest in improving good mental health and general well-being, including in travel planning [25, 26]. This welfare-seeking dimension ties in with the trend of slow travel and the renewed tendency of people to prefer in the post-pandemic period to holiday in their own country or not too far from home (the so-called "staycation" trend) [18, 27], rather than travelling elsewhere due to the restrictions and risks associated with long-distance travel [27]. With the extension of travel restrictions until 2021 and increased wellness awareness, the desire to spend more time and money on self-care and the quest for a healthier lifestyle is likely to impact travel as well. For travel providers, this translates into the possibility of offering more personalised wellness experiences, from specific products to entire retreats. Looking ahead, domestic holidays are likely to continue to be in demand and even increase in countries where exit restrictions are prolonged, especially in the search for personal and peaceful experiences. According to YouGov's International Travel & Tourism about half of the global travellers' plan to travel for a domestic holiday in the next 12 months.

Furthermore, the uncertain and fast-changing travel restrictions have caused a change in travellers' booking habits. Travellers are less willing to book trips months in advance and are increasingly looking for flexible bookings.

This preliminary research informed the design team about the state of the art and the possible evolution of travellers' behaviour in a long-term perspective, establish ing a solid basis of shared knowledge on the analysis topic.

3.2 User Research and Personas

Blue-Sky's research explored the topic by identifying three spaces for change, defined as areas that travel service providers, hospitality groups and other organisations dependent on the tourism industry need to take into account to address changes in consumer behaviour.

Methods

The user research was conducted with the collaboration of OBLO, a service design studio specialising in user research and human behaviour analysis, which supports organisations in researching and systematising information. Oblo conducted quali tative research with

in-depth interviews of approximately 90 min with 13 people to understand the needs and desires of travellers and professionals of travel organi sations.

The interviewees, of various age groups and genders, were recruited to cover the different actors involved in the travel industry and to obtain a comprehensive view encompassing the experiences of travellers and organisers. Regarding the latter, it is necessary to distinguish between travel designers and travel agents. The term travel designer refers to the professional who plans the trip and architects the expe rience, while the travel agent is a professional who is in charge of sales and not just travel planning. Today, the two figures are often complementary, but the research kept the two distinct. The research sample includes eight travellers, two travel designers, and three travel agents.

During the research, the focus on travel experts and operators made it possible to analyse how their role has evolved concerning the digital channels they now use to interact with customers. The research aimed to understand the role of the travel agency and the type of support it can offer travellers concerning all phases of the trip, not just the planning phase. With regard to travellers, the aim was to understand people's behaviour when planning their trips, in particular, to investigate: a) how people choose destinations b) how they select activities and experiences in their chosen location c) how they book their travel, accommodation and experiences.

Output

The research results helped better understand the different types of travellers regarding needs, expectations and tools used.

Concerning the choice of destination, the research provided evidence that people have an emotional connection with the destination they choose. The destination choice results from an intimate and non-linear path that starts from random cues or inspiring images, which may be stored in the memory or a personal digital bucket list. Images, as well as videos, have the role of inspiring and helping users to impersonate themselves in a specific situation easily. Today, users are influenced not only by the stories of their friends but, above all, by social networks, which play an essential role in inspiring and supporting the creation of their ideal trip.

Today's users are increasingly aware and have access to unlimited sources of information that make them experts and consequently interested in actively taking part in the planning of their journey. Therefore, the travel agent must be continuously informed and updated to meet users' needs. Experienced travellers assess the agen cy's competence by how the first requests (travel brief) are handled and how their needs, even unexpressed ones, are translated into itineraries.

In this scenario, the role of travel experts is to help realise this specific dream by enriching the experience with their knowledge. Therefore, when planning what to do once they arrive at their destination, what matters to travellers is to live a unique experience that will make their dream unforgettable. Rather than suggesting where to go or guiding the choice of a destination, the travel expert must follow people's dreams and interpret their requests by acting as a local insider who knows the particularities of the place to make the experience unique, memorable and safe.

Safety is an essential parameter in the experience; travellers rely on agencies to guarantee quality to have a seamless experience that includes all travel-related services

and provides them with targeted assistance when needed. If assistance and support are lacking, the experience with the agency is deemed negative. The guarantee of having access to personalised and proactive service at all stages of the trip makes the difference between booking a trip on one's own or through an agency. Organised travel with an agency guarantees access to an experience that could not otherwise have, so the customer's perception must be one of hyper-personalisation of the service.

The role of the travel agent, which today is mainly concentrated in the initial phase, i.e. planning and booking the experience, and only partially enters the "during" travel phase to provide support if requested, should instead be more transversal and continuous. The agency will continue to play an important role in travel planning. However, it is also necessary to consider the "during" and the "after" travel phases. In the "during phase", there is a lack of services that help travellers to communicate with the agency once at the travel site when analogue or digital services could play a significant role and facilitate communication and trust with the agency. In contrast, in the "after phase", the agency is absent when collecting user feedback that could be providential for improving future service experiences.

The role of the travel agent has to adapt to different customer types and radically changing needs. On the one hand, the agency will play the role of facilitator for travellers who rely entirely on agents' knowledge and for whom organised travel is tantamount to buying a complete 'package' of everything they need. On the other hand, the agency will play the role of a travel companion for travellers who are more participative and open and see the agency as a platform for achieving experiences that are more difficult to organise.

In this context, the research highlighted the role of the agency divided into four different profiles:

- **A Planner**; a figure who appears in the "before phase", supporting the choice of the itinerary and planning all the moments of the trip;
- **An Insider**; connects the user with local guides and prepares and admin-
- isters the travel experience with practical advice and suggestions;
- **A Buddy**: books accommodations, trips, and experiences, ensuring the traveller does not have to think about anything and has a highly personalised experience;
- **A Guard**: provides assistance and security during travel, pre-departure documents, and accompaniment in case of unforeseen events, a constant presence for the traveller.

As regards travellers, four profiles emerged in the course of the research, differentiated by varying levels of travel experience and involvement and capacity in the planning phase. The identified user profiles made it possible to highlight design questions helpful in inspiring and defining scenarios in the next phase.

These profiles are:

- **World Explorer**: an experienced traveller with excellent organisational skills is a profile that relies on the agency for access to remote places and extreme and exceptional experiences and wants to escape from all the overly generic and touristy activities. What interests this profile most is the authenticity of the experience and on-site activities. The design question arising from this profile is, how can the agency guarantee

safety and provide access to a unique travel experience to remote places on earth by offering solutions that cannot be implemented by other means?

- **Careful planner**: for this user profile the keyword is the organisation, they are not expert travellers, but they like to plan everything, to look for the right combination both on the budget, and to orchestrate the needs of all their fellow travellers. The agency is the expert contact to help them optimise their travel experience. How can the agency help balance the different ideas of the people in a travel group and mediate between everyone's wishes?
- **Comfort sightseers**: include demanding travellers with high standards and clear, specific ideas. The trip is a luxury to be shown to their friends. They are little involved in the organisation, and the agency is the assistant to whom they delegate everything and whom they can contact in case of unforeseen events or dissatisfaction. How can the agency be present and available at all times and whatever happens during the trip?
- **Support seekers**: are travellers with little experience who rely on an agency and a guide to accompany them through everything. They are passive in planning the trip, almost rejecting it, and allow themselves to be guided in their entirety, and in organised travel, they seek stability and peace of mind. Can the travel agency be like an experienced friend to be trusted and guided on a trip?

This research phase was essential as the dialogue with users allowed questioning the agency's role in today's changing scenario. This change includes digital services that, instead of replacing travel agencies, could be used to strengthen the relationship with existing customers while exploring new opportunities to engage less conventional travellers. This phase helped to highlight the different possible scenarios, shifting the focus from the current travel product, which comprises the planning and offering of predominantly standard and not very customisable packages, to the need for new services involving the user, such as the provision of planning tools, connection with local experts or ongoing security support.

The output of the collaborative research has been identifying strategic and meaningful scenarios where travel operators can still play a decisive role in granting a satisfactory and fulfilling experience to their customers, by enhancing their current touchpoints, tools and skills or by really becoming something else.

The scenarios (Fig. 2) focus on the travellers' point of view to reinforce the idea of a customer-focused concept that responds first and foremost to users' needs. However, both travel agencies and the B2B travel intermediary are considered early in the design process as crucial stakeholders to enable the service's functionality and verify its feasibility properly. Therefore, the following scenarios describe a story from the customer's point of view and are named after the user archetype that was identified. At the same time, a reflection was made on the impact of these future visions on other stakeholders.

Indeed, the scenarios presented can often coexist in a broader project framework.

4 Scenario Definition

The output of the collaborative research has been identifying strategic and meaningful scenarios where travel operators can still play a decisive role in granting a satisfactory and fulfilling experience to their customers, by enhancing their current touchpoints, tools and skills or by really becoming something else (Fig. 2).

The scenarios focus on the travellers' point of view to reinforce the idea of a customer-focused concept that responds first and foremost to users' needs. However, both travel agencies and the B2B travel intermediary are considered early in the design process as crucial stakeholders to enable the service's functionality and verify its feasibility properly. Therefore, the following scenarios describe a story from the customer's point of view and are named after the user archetype that was identified. At the same time, a reflection was made on the impact of these future visions on other stakeholders. Indeed, the scenarios presented can often coexist in a broader project framework.

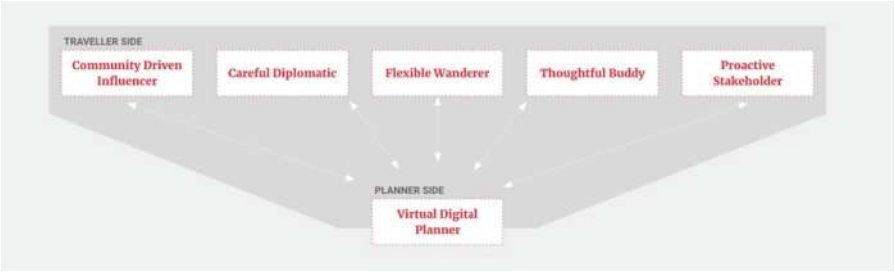

Fig. 2. Outline of the collaborative research result. It shows the report of the six strategic and significant scenarios in which travel operators can play a decisive role in ensuring a satisfying and fulfilling experience for their customers, either by improving their current touchpoints, tools and skills or by really becoming something else.

4.1 Community Driven Influencer

Until a few years ago, the travel agency used to interface primarily with the travel ler, who was interested in a specific destination. The relationship between the agency and the traveller has evolved over time, as the traveller no longer interfaces solely with the travel agent but is influenced by social channels and the experiences of those around him.

The first scenario that emerged explores the new figure of the travel influencer in order to encourage interaction with the community and promote a participatory culture with a view to an extended community.

Through a gaming system, the agency becomes the fulcrum of active co-design with the end user (travel follower), who increases engagement with the community and keeps traveller interest high.

4.2 Careful Diplomatic

The Careful Diplomatic scenario focuses mainly on the phase preceding the travel experience, namely the consultancy service to meet the needs of travel groups. The idea is to have an experience customised to the group's needs.

This scenario highlights the need to bring together many people who want to travel. The agency, in this case, takes on a different role: sharing solutions, suggesting activities and designing the perfect trip so that all participants in the trip feel included.

4.3 Flexible Wanderer

The "flexible wanderer" sees the agency as playing a central role. The aim is to create a community, where customers can take inspiration from their peers and share their experiences through travelogues.

Through the creation of travel diaries containing video content, images and text, travellers can not only have a memory of their trip but also share their experiences. The agency can then use these diaries to promote activities, excursions or stages of the trip by giving a voice to those who experienced it first-hand.

4.4 Thoughtful Buddy

Focusing on the "During" phase of the trip, this scenario sees the travel agency as proactive and constant support for the travellers. It aims to become your expert buddy giving you advice, reminders and suggestions exactly when you need them. The service offers the clients constant guidance throughout their journey to ensure the safety of the client, their information and their movements.

4.5 Proactive Stakeholder

The service provides for continuous interaction between the customer and the agency, with a continuous exchange of information, making the travel experience dynamic and safe, guaranteeing constant support from the agency. The agency, on the other hand, can take advantage of the data collected by having real-time information from the customer by feeding it into the AI system in order to prevent certain intervention logic and improve the user experience. The specific challenge of this scenario is understanding how to check the status of the journey in real time by making the user an active participant.

4.6 Virtual Digital Planner

This scenario focuses on the planner side and wants to show how a virtual customized management tool can become a support for the travel planner. Usually, the travel planner uses a tool in order to design an itinerary. In the future, the platform could help the travel planner create the material and the travel itinerary by discovering new activities and getting new suggestions from the AI.

Technological support could become support not only in the planning phase but also in the travelling one to inspire and support the client.

5 Conclusion

The pandemic has undoubtedly changed many human habits, forcing some sectors to reinvent themselves through technology and digitisation of processes.

The research pointed out that the digital world has given users quick access and greater autonomy; today, automation allows anyone to plan their holidays independently and according to their wishes. Contemporary, user interviews show that opinions in a

social dimension, the sharing of experiences through digital communication channels, and new essential stakeholders, such as influencers, are increas ingly relevant in the digitisation process [22].

Therefore, the mission of tourism professionals is to automate their know-how by applying them digitally to increase the level of trust and commitment in the customer relationship. In this new perspective, travel operators no longer have only an operational role but aim to make the customer experience immersive, personalised, responsive and emotional.

The illustrated process also shows the potential of including an educational dimension in a design project commissioned by external companies. It provides a more holistic approach to the brief with the opportunity to explore different but complementary scenarios in greater depth, enhancing the user's travel experience from booking to collecting travel memories [28], from selling standard packages to a ser- vice that offers user tailored-made experiences [29].

The recognized role of design is to drive this technology-driven change by identifying strategic and meaningful scenarios where travel operators can still play a decisive role for granting a satisfactory and fulfilling experience to their customers, by enhancing their current touchpoints, tools and skills or by really becoming some thing else.

The paper highlighted how new and previously unexplored project opportunities could emerge by thinking strategically and having the opportunity to redefine the brief through the educational dimension. The research prompted the client to revise its business model and to integrate the needs of the new types of users that emerged from the research. Optimising the role of agencies is making them more expert and valuable in handling user requests by working on the support of travellers. On the other hand, working on the end users by providing them with tools creates memories and supports their travel experience.

The paper and the design action demonstrate that in a context where research is often undervalued in favour of processes such as sprint execution [30] that drastically reduce the time dedicated to this phase, an articulated process allows for a broad view of the problem and proposes unexpected design directions. Therefore, this is evidence that research is not overrated, but doing it brings many advantages [31]. The research presented in this paper has also exploited the university and educational context by highlighting how it is increasingly important and strategic for companies to invest in research.

Finally, it must be considered that the proposed design solutions are constantly evolving and that the field of tourism could take unexpected directions as many of the conditions presented in the paper will find a different balance in the near future, such as digital nomadism, which is already changing direction compared to the period after the first lockdown. The process, therefore, has value because it is iterative and continuous.

References

1. Serda, M., et al.: Economic effects of Covid-19 in Luxembourg: synthesis of the RECOV id working note. Uniw. śląski **7**(1), 343–354 (2020). https://doi.org/10.2/JQUERY.MIN.JS
2. World Travel & Tourism Council (WTTC), 'Travel & Tourism Economic Impact'. https://wttc.org/Research/Economic-Impact. Accessed 05 Jan 2022

3. Sarkar, S.K., Toanoglou, M., George, B.: The making of data-driven sustainable smart city communities in holiday destinations. In: George, B., Paul, J. (eds.) Digital Transformation in Business and Society. Palgrave Macmillan, Cham, pp. 273–296 (2020). https://doi.org/10.1007/978-3-030-08277-2_16
4. The World Tourism Organization (UNWTO), '2020: Worst Year in Tourism History-with1BillionFewerInternationalArrivals'. https://www.unwto.org/news/2020-worst-year-in-tourism-history-with-1-billion-fewer-international-arrivals. Accessed 28 Sep 2022
5. WTTC and M. & Company., 'Adapting to Endemic Covid-19: The Outlook for Business Travel'
6. McKinsey, 'A travel boom is looming. But is the industry ready?' https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insi-ghts/a-travel-boom-is-looming-but-is-the-industry-ready. Accessed 28 Sep 2022
7. Consumo, A.: Voli cancellati per mancanza di personale: come ottenere rimborso e indennizzo. https://www.altroconsumo.it/vita-privata-famiglia/viaggi-tempo-libero/news/voli-cancellati-mancanza-personale. Accessed 28 Sep 2022
8. R. and Cogito, C.: Insights on Entrepreneurship, SMEs, Tourism, 'More tough times ahead for the tourism sector – the impacts of the war in Ukraine - '. https://oecdco-gito.blog/2022/04/08/more-tough-times-ahead-for-the-tourism-sector-the-impacts-of-the-war-in-ukraine/. Accessed 28 Sep 2022
9. Tripadvisor, 'Travel in 2022: A Look Ahead'. https://www.tripadvisor.com/Travel-TrendsReportJan2022. Accessed 28 Sep 2022
10. Cobbinah, P.B., Black, R., Thwaites, R.: Dynamics of poverty in developing countries: review of poverty reduction approaches. J. Sustain. Dev. **6**(9) (2013). https://doi.org/10.5539/JSD.V6N9P25
11. Kumar, V.: Innovation planning toolkit, pp. 17–21 (2004). Accessed 28 Sep 2022. https://dl.designresearchsociety.org/drs-conference-pa-pers/drs2004/researchpapers/201
12. Dell'Era, C., Magistretti, S., Cautela, C., Verganti, R., Zurlo, F.: Four kinds of design thinking: from ideating to making, engaging, and criticizing. Creat. Innov. Manag. **29**(2), 324–344 (2020). https://doi.org/10.1111/caim.12353
13. What Are Wicked Problems and How Might We Solve Them? | Interaction Design Foundation (IxDF)'. https://www.interaction-design.org/literature/article/wicked-problems-5-steps-to-help-you-tackle-wicked-problems-by-combining-systems-thinking-with-agile-methodology. Accessed 28 Sep 2022
14. Verganti, R., Dell'Era, C., Swan, K.S.: Design thinking: critical analysis and future evolution. J. Prod. Innov. Manag. **38**(6), 603–622 (2021). https://doi.org/10.1111/JPIM.12610
15. Sardar, Z.: Welcome to postnormal times. Futures **42**(5), 435–444 (2010). https://doi.org/10.1016/J.FUTURES.2009.11.028
16. Xue, P., Daniela, M., Carla, S., Francesco, Z.: A research through design practice to envision home scenarios in the post-Covid-19 future. Uniw. śląski **7**(1), 820–833 (2021). https://doi.org/10.2/JQUERY.MIN.JS
17. Zurlo, F.: Design Strategico in "XXI Secolo". https://www.treccani.it/enciclopedia/design-strategico_(XXI-Secolo)/ Accessed 28 Sep 2022
18. Galbraith, C.: The Future of Travel Takeoffs & Landings & Robots
19. Asadzadeh, A., Samad-Soltani, T., Rezaei-Hachesu, P.: Applications of virtual and augmented reality in infectious disease epidemics with a focus on the COVID-19 outbreak. Inf. Med. Unlocked **24** (2021). https://doi.org/10.1016/J.IMU.2021.100579
20. Eurofound, 'COVID-19 and digitalisation. https://www.eurofound.eu-ropa.eu/data/digitalisation/research-digests/covid-19-and-digitalisation. Accessed 26 Sep 2022
21. McKinsey, The travel industry turned upside down. https://www.mckin-sey.com/industries/travel-logistics-and-infrastructure/our-insights/the-travel-indu-stry-turned-upside-down-insights-analysis-and-actions-for-travel-executives. Ac cessed 28 Sep 2022

22. Kayumovich, '(PDF) Opportunity of digital marketing in tourism sphere'. https://www.researchgate.net/publication/341566649_Opportunity_of_digi-tal_marketing_in_tourism_sphere. Accessed 26 Sep 2022
23. Sousa, B., Santos, R., Lubowiecki-Vikuk, A.: Slow tourism as a tourism alternative to sustainable development. J. Environ. Manag. Tour. **12**(5), 1403–1408 (2021). https://doi.org/10.14505//JEMT.V12.5(53).24
24. Sasangohar, F., et al.: Provider burnout and fatigue during the COVID-19 pandemic: lessons learned from a high-volume intensive care unit, Anesth. Analg. pp. 106–111, April 2020. https://doi.org/10.1213/ANE.0000000000004866
25. World Travel & Tourism Council, 'Nature Positive Travel and Tourism. https://re-search.wttc.org/nature-positive-travel-and-tourism. Accessed 26 Sep 2022
26. World Travel & Tourism Council and O. Wyman, 'To Recovery & Beyond: The Future of Travel & Tourism in the Wake of COVID-19', World Travel Tour. Council, no. September, pp. 14–22 (2020). https://wttc.org/Re-search/To-Recovery-Beyond
27. McKinsey, 'COVID-19 and reimagining the tourism economy | McKinsey', 2020. https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insi-ghts/reimagining-the-9-trillion-tourism-economy-what-will-it-take. Accessed 05 Jan 2022
28. MacInnes, S., Randle, M., Dolnicar, S.: Airbnb's offerings beyond space – before, during and after COVID-19, Airbnb before, Dur. after COVID-19, pp. 168– 179, January 2021. https://doi.org/10.6084/M9.FIGSHARE.14204546
29. Deloitte, 'Mobility after COVID-19: the lure of travelling versus flight-shaming | Deloitte Switzerland (2020). https://www2.deloitte.com/ch/en/pages/public-sec-tor/articles/mobility-after-covid-19.html. Accessed 05 Jan 2022
30. Knapp, J.J.: (Product designer) Zeratsky, and B. (Product designer) Kowitz, Sprint : how to solve big problems and test new ideas in just five days.
31. Courtney, J.: User research is overrated. design sprints have revealed an… Muzli- Design Inspiration'. https://medium.muz.li/user-research-is-overrated-6b0fe101d41. Accessed 29 Sep 2022

Operazione Arcevia. Existential Community. The Reality of the Experience and the Utopia of the Vision

Anna Mazzanti(✉)

Dipartimento Design, Politecnico di Milano, Milan, Italy
anna.mazzanti@polimi.it

Abstract. Operazione Arcevia (OA) is an urban settlement project, born for the purpose of the social, economic, and touristic regeneration of a marginal area in the Marchigiane hills, characterized by its postwar exodus. Conceived between 1972 and 1974 on the initiative of the businessman Italo Bartoletti, like every newly constituted city it was designed with a political and cultural identity by the architect Ico Parisi in collaboration with two renowned critics (Cripolti and Restany), a psychologist, and a large number of artists (Arman, César, Ceroli, Soto, Staccioli, among others). OA remained in its germinal phase, and this was indeed its final result, the fruit of participative work presented at several exhibition events: Venice 1976; Rome 1979). In this ideal city imagined by the erudite group of operators, along with its utopian aspects, there are also practical ones and design hypotheses that can still inspire and provide food for thought: the close collaboration between planners and artists; anti-monumental intentions for art with a social nature and characterized by shared practice; built-up urban relations and the landscape dimension; the coexistence between productive and residential communities and temporary communities, both touristic, in terms of hospitality, and as a secular space in which to take refuge. Cooperating together with Parisi and the critics were 33 artists who together created *tavole progettuali* (design boards) that combined design, technical design, photographic images, and collages, i.e. fully-fledged works of art and creativity.

Keywords: experience · environment art · site-specificity · art and architecture dialogue · community

"Operazione Arcevia": designed for
humans on a human scale
I. Parisi, 1974

The project analyzed here has contrasting but dialectical features: an 'existential' experience and at the same time a futuristic and utopian project that never reached an executive phase, hence, both a real and a mental project. The complexity of *Operazione Arcevia. Comunità Esistenziale* reflects the richness of the process of elaboration, underlying a model of original practice, presented in 1976, two years after it was developed, at the Venice Biennale in the *Ambiente come sociale* section curated by Enrico Crispolti, among the first figures involved in *Operazione Arcevia*. Later, in 1979, the materials produced were exhibited at the Galleria Nazionale d'Arte Moderna in Rome. The many

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 569–583, 2024.
https://doi.org/10.1007/978-3-031-49811-4_54

models, drawings, and other materials that were given to the Gallery for the exhibition are still held there today [1].

In the early 1970s, Palazzo di Arcevia was a small hilly area in the Marche region with a population of 600, in the province of Ancona. The population had fallen during the postwar period when its residents chose to move to the cities. Italo Bartoletti, a local builder who was active in Como and who knew and collaborated with the architect Ico Parisi, a native of Sicily but Comasco by adoption, took on the task of promoting an initiative aimed at repopulating and valorizing this area [2]. The intention was that of implementing an "existential community": neither a project that came down from above, nor a tourist village (although it would involve a hotel with 50 rooms and a 'secular retreat' for solitary guests); nor would it be a model determined according to pre-established schemes (like so-called treatment centres) [3]. We shall see whether the intention was successful. No doubt the enterprise constituted an 'experience' founded on critical-theoretical practice and on the interdisciplinary dialogue between skills as well as between aesthetic, poetic, psychological, and political aspects. *Operazione Arcevia* thus called into play a design method that was an alternative to traditional ones, which intended to "verify the changes in its process" [4], and that created an equal dialogue between all the actors involved in designing the layout for the urban plan. This practice would have repudiated the monumentality of an aesthetic intervention dialectical to the architectural and urban context as had been hypothesized by Francesco Somaini along with Crispolti in a seminal poetic text titled *Urgenza nella città*, dated from 1972. What should have emerged, according to Parisi, was an alternative urban habitat, "capable of acting positively on the behaviour of the persons living there" [4]: but the community that was imagined as being in the image of its inventors did not exist. The purpose of this essay is to discuss just how innovative and plausible the project-workshop designed by Ico Parisi and his collaborators was.

Bartoletti, after hiring the architect in January 1972, accepted the following January the "extension to the concept of existential community" [5], and thus the creation of an interdisciplinary technical commission in March 1974, active from the month of April.

> "Under the guidance of the architects Mario di Salvo and Ico Parisi, our company is planning a 'town centre' in Palazzo in the Ancona area. The goal of this initiative is to restore and enliven these agricultural-mountainous areas […] and to suggest a different way of living, isolated from noise and the pressure of the system, and as self-sufficient as possible (agricultural – artisanal – residential, and so on, recovery). The cultural and stimulating value of this initiative will be addressed to the integration between the arts and architecture in a constant manner, designed by a team of architects-artists-critics; the result will be a new example of the public use of the artwork" [6].

Italo Bartoletti turned to four figures who were already aware of the Parisi method, of which they had been the 'critical analysts and testers' for the *Casa esistenziale* (1972), a previous project and one directly linked to *Operazione Arcevia*. These were three art critics, Enrico Crispolti, Iole De Sanna (who would turn down the invitation), Pierre Restany, and a psychologist, Antonio Miotto. (Fig. 1).

Fig. 1. Ico Parisi, The protagonists of Operazione Arcevia**.** Ico Parisi, *Auto-Architettura* by Fatima, photo and photomontage,1974. From *Operazione Arcevia. Comunità Esistenziale*, 1976, pp. 41, 33.

The notes that Enrico Crispolti saved describe an intense work, a series of notes and plans that emphasized poetic priorities and practices. Whether these were site-specific interventions or sculptural and visual works, the authors' "on-site activity," the "rapport with the local artisanry," and the planning of "periodical animation" were absolutely necessary [8]. *Dibattito a Arcevia* was a list that summed up the aims: a turnaround in the depopulation phenomenon, and the revival of the agriculture and the artisanry. In the background was the experience of Volterra 73, in which Crispolti, together with the Volterra artist Mino Trafeli, less than one year before had mediated a critical dialogue between the artists and the territories in its social and productive complexity as well. But with Arcevia, Parisi aimed towards a project of "reintegrated humanism," a "new model of cultural experience" [8] involving settlement that was permanent, not temporary.

However, that attempt to imagine a community risked appearing like a "model of abstraction" that was concluded in Parisi's compositional drawings, which combined a design project, artistic intervention, and photographic reproduction. Concrete inquiries were made of the space and the artists had a real opportunity to verify their own aesthetic ideas environmentally. OA [9] was thus a theoretical-architectural process of construction and composition, a visualization workshop, measured on a real collective crossing of the territory, which in a certain sense dispelled the criticism of its being a utopia. Toing and froing that was accurately documented by the architect's camera lens. Nonetheless, OA remained a mental operation in the form of a hypothesis that was susceptible to changes all the way to the final execution, should this occur.

The existence of the existential community would be guaranteed based on the jobs that the project would generate, akin to the growth of a medieval city [10], although the settlement imagined *ex novo* was determined based on modern needs and customs. Parisi affirmed that it was necessary to "favour alternative models, involving in a process of the rationalization and improvement of the quality of life all the local resources that could be manouvred, controlling tourism as well, and therefore the short-term consumption of the landscape heritage" [11]. An audacious [12] difficult plan, "filled with poetry,

utopia", wrote Pierre Restany, entrusted to avant-garde languages, a breath of fresh air aimed at freeing the outskirts of its selfish isolation. The artists were given the chance to participate "in the adventure of the project," a scale of experiences that had never been achieved before, remarked Crispolti, an expert on participative dynamics [13]. The prospect of a "new example of public fruition of the artwork" [14] attracted a large group of artists, environmental sculptors, poets, musicians, and filmmakers. The multidisciplinary languages would have produced a wide range of plastic-visual interventions, imagining habitative volumes, public service spaces, ones for recreation, dedicated to worship, sports activities, reflection.

Still today the operation reveals all its "pioneering force due to the choral amalgam of the different participating personalities" [15] intent on overcoming the ornament and the monument with dialectical contributions determined even as early as the first reconnaissances they conducted in the field, meticulously recorded in the pages of the book in the manner of a chronicle, and the gradual "assumption of a three-dimensional concreteness" [16], all the more exemplary before today's crisis of the physical that is increasingly being replaced by virtual space and time [17].

But in the end OA remained 'virtual' as well, because it was a community imagined without a community, created only in those drawings where it was instead an intentionally and intensely 'existential' experience according to the visionariness that was typical of the 1970s. By going 'against the grain' it intended to bring back to the centre the individual and his or her natural needs, "isolated by the noise and the pressure of the metropolitan system", making it as 'self-sufficient' as possible as it related to the "agricultural-artisanal-residential revival" of the outskirts. These premises are still valid in our own day and age, which is distinguished by problems of environmental sustainability and by ones related to globalization, which proved to be so vulnerable during the recent pandemic, and at the same time generated processes of counter-exodus favoured by the new potential of working remotely. At the time the aim was for the social qualification/"of the habitative fabric", ecological qualification/with "the search for the values of life and the relationship with the environment", human qualification/with "the relaunching of creative and manual skills", and, lastly, cultural qualification "by bringing back to art the common heritage", outside of the museum, and with a practical goal [18]. These aspects connoted the artists' proposals and consequently Ico Parisi's designs, in which the first inhabitants were none other than the authors themselves. "We'll build a village for ourselves and go live there. We'll work there and tend our garden. Enough with life in the city", said Tonino Guerra. "And what if someone got tired of it? 'Then they could either go back to the city, or not eat that day', Antonioni replied" [19]. Along with Burkhardt we might object to the need for a verification, which, to be honest, is often Crispolti's and Miotto's recurring concern in the pages of the catalogue: the avant-garde cannot be carried out without involving those who truly experience the problems for which an attempt is made to solve them theoretically beforehand; art cannot be an intellectual projection alone [20].

The solutions put forward were too visionary and not suited in scale as related to their habitability to be able to be implemented: this was true, for instance, as concerned Carrino's cementless habitative modules, Balderi's egg-garage, Soto's water-storage-fountain-clock tower, or Staccioli's huge out-of-scale reclining geometric form that was

supposed to serve as a diaphragm with which to observe the landscape outside of the complex. Alik Cavaliere, who was part of the critical conscience that enlivened the internal debate, cast light on the risk of creating a sort of amusement park for tourists or a nice museum with souvenirs. This fate would in a certain sense also affect the new Gibellina in Sicily. Indeed, the complexity of the interventions that was predicted reveals an ideal community that, while it leveraged the idea of "rationalization improving the quality of the *social fabric* with an *urban and cultural one*" [22], ran the risk of becoming an "artistic babel, in spite of the fact that Parisi, in his pursuit of the model of the existential community, aspired to "bestowing a new human dimension on the settlement" [23]. Miotto as well saw in OA a significant warning against "the individual selfishness and the decadence of social sentiment" [24]. The problem would remain the verification and the appropriation of part of a non-existent community.

To be able to turn things around, Restany explained, the "way of poetry" was chosen, capable of "changing the human dimension of the landscape" [25], an inspiration that was emblematically also included in OA's graphic logo, which Parisi had extracted from one of the pictures he had taken during Fatima's performance *Autoarchitettura,* co-conceived by Parisi himself and held on July 25, 1974. (Fig. 1) The outfit worn by the performer which becomes synonymous with habitative space opens up like a flower that grows out of the dry soil of Palazzo d'Arcevia and. in the photomontage that is derived from it, visualizes a landmark in the foreground against the background of the residential community of Arcevia [26].

At the core of his urban plan Parisi situated the productive community and therefore the community/recreational/sports areas around the residential area. The interdisciplinary cooperation between the operators aimed to generate a layout that would influence the residents' behaviour as positively as possible, the same active therapeutic value that had affected the meaning of the *Casa esistenziale*, which, with its ambitions as a small residental community, naturally represented the precedent to Operazione Arcevia.

1 From the Casa Esistenziale to Operazione Arcevia

In the late 1960s Parisi had started up a process to revise and reflect on the disciplinary limits that would have brought out "another side of architecture" [27], as Pierre Restany wrote. It was first manifested in 1968 in the Contenitoriumani, sculptural containers in the negative, designed together with the artist Francesco Somaini as a first utopian analysis of the concept of living of either the individual or the community, which developed into the ensuing hypothesis for *Casa esistenziale*, 1972, "a residential environment and an individual space – wrote Barbara Radice in 1974 – susceptible to suggesting the chance to 'be' rather than the need to exist" [28] and in so far as it was a hypothetical project the way that OA would be. Used for the "spiritual activities" required by man to "best understand the voices of others" so that it can "ensure itself that it is capable of being in a real social co-existence" [28] as Parisi reassured Crispolti, who had just returned from the shared experience of Volterra 73. His 'emotional' environments would thus have aroused a "new desire to adhere to the principles of freedom, respect, and morality, underlying a constructive life in common" [29]. In this sense, as a "awareness that could redefine the relationships between itself and the world" [30], it was a sign of the existential community.

Parisi had triggered a series of collaborations with artists in a new role vis-à-vis the architectural space, no longer reflecting the integration between the arts, but rather "friction and emotional contrast", no longer decor, but rather iconic presences capable of determining the quality of the space [31]. César, invited to think in an architectural dimension, imagined a layer of polyurethane cladding the house whose essential forms would have been exalted by the energetic flow of the material in a dialectical contrast made evident by the authors of the book *Ipotesi per una casa esistenziale*. Published on the occasion of the two exhibitions at the Galerie Germain in Paris and at the Inarch, Palazzo Taverna in Rome, in 1974, in the series Biblioteca d'arte contemporanea by Beniamino Carucci, directed by Crispolti, unsurprisingly, the text collected the evaluations of those who would become the theoretical-critical soul of the subsequent Arcevia project: Enrico Crispolti, Antonio Miotto, and Pierre Restany. Equally important in the book is the extent to which Parisi's photographic lens is expressive, by insinuating itself in the model of the Casa Esistenziale based on an elementary structure with a triangular section and two slopes-walls that from the roof sloped down to the ground, recreating a continuous and open hut-like space, "introverted and asymmetrical architecture" [32] with which the works of Duane Hanson and Charles Close are in tension, and that would return to be Arcevia's distinctive profile. The photographic image now replaces the normal graphic design previously used by Parisi, and emphasizes the "space-individual-action rapport in which the artworks are situated". This very personal technique has been referred to as 'topo-aesthesia' [33], capable of shaping the architectural space in a strongly interpretative sense. Especially from the 1970s Parisi's photographic practice was enriched by the dialogue with the drawing [34]. Parisi developed a fully-fledged model of visual communication of the architectural-artistic design founded on the virtual narrative qualities of his montages mixing photographic collages and technical drawings, and including animated photographs of the models in scale that become concrete hypotheses, "morphological peculiarities" capable of defining with immediacy an environmental situation and consequently honing a new method of planning – as pointed out by Ratti in the exhibition catalogue *Percorrenza fotografica*, 1977 [35]. Parisi would later say it was a method of "environmental verification and the interpretation of the goals," proof "that the power of the image at a mental level surpasses and is capable of replacing that of architecture itself." Hence, the image is the architecture" [36]. Through his photo-graphic drawings, in the space of the existential house spiritual needs are juxtaposed with material ones, and priority is given to the "poetic proposals" in that they are "existential premises", rather than to objects of everyday consumption. This semantic meaning can also be seen in the scale of OA's urban plan.

2 Operazione Arcevia. The Coordinates of the Project

Hence, from the house to the territory. Miotto had written: "Ico Parisi's project [for the house] could have a significant development in society", it could encourage "responsible choices and mental activity" [36] from the "perspective of the central theme of the relationship between the individual and the group" [37].

OA would develop precisely in the practice of "constant psychological and critical verification" [38] through the constant shared activity that represents its patrimony.

A leitmotif that combined the practice of the cultural operators [39] characterized the cohabitation between works and styles, between what was built up and creative intervention, and between the natural and the environmental space. A patrimony of collaborations whose genesis, detailed in the 'open documentation', as well as being photographic and specific, in the book represented the project in itself that assumed three-dimensionality and its completeness, albeit hypothetical and open, in the graphic layouts and in the *tavole di visualizzazione* (design boards). As was previously noted, this becomes the only possible form of design for Parisi, who from pure architect, as "mediator between the parties", became an "artistic operator" in a dialogue on an equal standing with the other artists and with those who could contribute via creative, psychological and mental stimuli [40]. In Crispolti's own words:

> Realistically, the Arcevia operation must be accepted for what is now out in the open as concerns its first threshold: that is, the complete definition of the project.
>
> The project is inevitably abstract, with respect to the reality and to its realization, which will subject it to inevitable criticism and rethinking. Instead it is real in so far as it is such. And it is only in this sense that the operation has a precise concreteness, for now.
>
> What is real and culturally relevant about it is an experience in scale that has never been achieved until now, I believe, by the collaboration between current artists (some of them the acclaimed protagonists of avant-garde art in the recent decades) and an architect designer who is also avant-garde. A collaboration not by exterior additions but by direct, inventive participation at the time of the project.
>
> Already independent from its realization from this point of view (The second threshold will be developed in the future), at a design level "Operazione Arcevia" represents a great cultural experience, in which one can recognize a multiple creative commitment of the utmost interest [41].

The debate held on 13 July 1975 at the "casa della gioventù" in Palazzo d'Arcevia concluded the encounter-cum-survey with the artists [42]. In its choral genesis it "specified the ends, means, and formulae of this plan". Although we cannot go into it in detail here, certain important features should be pointed out. Parisi worked on the generation of the existential community, which, coming to terms with the specific case of Arcevia, is like the model of a vaster theoretical reflection addressed to modern man and to contemporary society, entreating such choices in order to transform the need to be into the will to live. The proposals put forward by the artists could varied greatly: a minimum and flexible intervention, conceived for a collaboration with the local artisans, offered by Arman, or structural one put forward by César and others, both the energy of critical signs (e.g. Somaini, Staccioli) or iconic ones (e.g. Balderi), a certain animated dimension suggested by transversal creativity such as that of Antonioni and Guerra, who think in terms of scenes that are sensitive to emotional activation, they all perceive, however, Parisi's entreaty towards the possibility of a direct experience, one that is usually absent in the cities where isolation and solitude are predominant, says Crispolti. It was unprecedented to give absolute freedom and availability to the artists, encourage them to carry out a "very wide range of interventions" (beyond the "legge del 2%", which was the

only tool available as concerned including art in architecture on a public scale). In those years of militancy, the critic was well aware of this. The architect who collaborated with artists visualized the project with plans, drawings, and a model that served to create the spatiality and generate any questions. In 1979 in Salerno, when interviewed by Crispolti, Parisi particularly recalled César's, Soto's, and Burri's substantial contributions to OA's profile, and he likened the experiment to a great twentieth-century abbey, built by its own ideal inhabitants, in a condition of captivity, Crispolti added [43].

I suoi appunti presentano tanti elenchi di nomi, sempre suddivisi in tre raggruppamenti che rispondono alla proposta di «tre possibilità operative: la prim*a* integrat*a* nelle architetture, l*a* seconda in campi liberi, la terz*a* presenta una collaborazione fra artisti e artigiani» [44]. Nel menzionare alcuni interventi emblematici, prendiamo dunque spunto da tale tassonomia operativa, sebbene poi nei fatti mutilata della terza possibilità [45], la collaborazione con gli artigiani, prematura nella fase astratta del progetto. Fra possibilità strutturali, modificazione del paesaggio e percorsi animatori, fluttua l'impronta del metodo Parisi con la sua tensione organica, l'antagonismo dialettico fra spazio e opera da cui scaturisce quello 'choc emotivo' in linea con gli effetti dell'intervento scultoreo nella città studiato da Somaini e Crispolti.

His notes contain many lists of names, always divided into three groups that correspond to the proposal for "three operative possibilities: the first one integrated in the architecture, the second one in free fields, the third one unveiling the collaboration between artists and artisans" [44]. In mentioning some of the emblematic interventions, let us start from this operative taxonomy, albeit actually mutilated by the third possibility [45], the collaboration with the artisans, premature in the abstract phase of the project. Fluctuating among the structural possibilities, changes in the landscape and animated routes is the imprint of the Parisi method with its organic tension, the dialectic antagonism between space and work which triggers that 'emotional shock' in line with the effects of the sculptural intervention in the city analysed by Somaini and Crispolti.

In Arcevia the collaboration with César is resumed; he relates to the architectural context in order to imagine two of the most iconic interventions [46]: two concrete pillars in the form of a thumb, one of them supporting the roof on the piazza side, the other on the pool side; a second intervention recalled the roof of the *Casa esistenziale*, functioning here as an element adjoining the two buildings, the artisanal labs, and the graduate school for the applied arts. The artist confirmed that he was "capable of architectural thinking and dimension" [47] via the "emotional provocation" generated by the tension between the structural function and the impression of fluidity, recognized inventive qualities of the "greatest French sculptor of his generation" for Pierre Restany, the guarantor for French artists in the operative community of Arcevia. Among them is Soto, an Argentinean op artist living in France. Soto studies a chromatic hypothesis for the walls of the houses of Arcevia by analysing the chromatic and luministic spectrum inside the Palazzo as the seasons change – many years before David Tremlett, for instance, would do something similar in Ghizzano, a hamlet in the province of Pisa [48]. Soto also designed one of the few urban elements that would be built on the orographic profile of the urban settlement, the water storage container that also served as a tower/fountain via a forest of pipes recalling the studies of the *Pénétrables Sonores*. For the plaza of the shopping and artisanal centre featuring outdoor activities, Alberto Burri and Mario Ceroli suggested

plastic architectural solutions symbolizing sociality: in order the scenic-sculpture stage surrounded by five lowered arches for the purpose of supporting the stage equipment and a window overlooking the landscape for anyone stopping in the piazza of the performances where the building for commercial activities is also located. Ceroli transformed the outside into a wide natural wooden staircase featuring a triangular section capable of joining the plaza level with the lower one of the area where merchandise was loaded and unloaded (Fig. 2). The intention to generate a dialectical integration in the urban plant was shared by all (although 33 interventions were planned the location was imagined for 32, since, perhaps because the differing evaluations of OA, the sculpture by Alik Cavaliere is not indicated on the plan).

Fig. 2. Mario Ceroli's stair-steps in the *tavola di visualizzazione* (design board) by Ico Parisi. Diary of the Ceroli, Crispolti, Parisi operations. From *Operazione Arcevia. Comunità esistenziale*, 1976, pp. 142–143

It should also be noted, by looking at Parisi's model and plan, the extent to which OA measured itself up to the orography of the territory [47]. The centrality of the landscape is pre-eminent in the numerous surveys and opportunies to exchange ideas, returning in other projects conceived for outside of the urban density. Similarly, Staccioli and Somaini saw sculpture as a tool that could be used to provoke and activate a critical reading of the environment. Hence, Staccioli modified the section in plan view of semicircular tiers to be used as an open-air theatre: he unrolled it, projecting it in a very long quadrangular plinth with a blade-like ending, towards the countryside, towards the "outside". An "arrow towards the landscape" [48] if it had ever been made, a symbolic plastic-architectural core joining the residential area and the outside world, and, as a "'foreign body' [of impact], the entreaty to an action of removal" [49] sounding a warning for the value of nature that must not be simply an intellectual discussion around a table [50].

Somaini as well, only because of his affection for Parisi, with whom he often collaborated, took part in OA with two proposals concerning the borderline where nature encounters human intervention. He intervened on the edges of the "futurized medieval citadel" [51] without recognizing the features of its own ideal habitat based on urban intervention. Somaini presented two ideas: the first would allow nature to "take back possession" of its spaces through climbing plants and native grass types; the second was deserving of various *tavole di visualizzazione* (design boards) reproduced in the

catalogue simulating a furrow left by an animistatic sculpture by Somaini as it rolled away from the inhabited area.

It was only with Alik Cavaliere that the artists' doubts and critical participation in the debate could not seem to find a compromise. "I have the feeling that people go to this village to see what the artists have done, and not to see that the inhabitants live well because they have been given the chance to live" [52]. Cavaliere no doubt casts light on the project's weak points, its utopias, its risks of being instrumentalized politically. In the end the sculptor's bronze work would not be localized on the map. In the end the bronze work that the sculptor had planned to make would not find a location on the map, nor would the model be shown at the Biennale, arousing the complaints of the author as "artist and citizen" [53]. Nonetheless, encouraging the artists to dare in their inventiveness and in their freedom to choose, regardless of the words and the ideas of the technical committee, was above all the idealistic and libertarian voice of Restany, who was convinced that an understanding between the artist and the territory could be born out of the unpredictability and the spontaneity in the way the spaces were used: "to my mind, he declared, the existential motivation is poetic; if someone truly wants to change the human dimension of a site, of a lanscape, then he will have to consult the artist, and give the artist the absolute word" [51]. Miotto made the necessary adjustments: a person might decide to be "slightly more lyrical, leave the system behind to enter a more lyrical path, much freer from everything, but at the same time try to do something that was right".

Parisi's open project thus includes poetic and psychological inventions for a lyrical identity. Tonino Guerra's toponymy opts for temporary names that would be tested by the inhabitants. The writer also imagined a *Cimitero per morire più volentieri*, filled with gardens, flowers, and birdcages.

For Michelangelo Antonioni covered paths protecting their users from the bad weather are like psychological filters, connecting parking areas and homes, a purifying limbo of a passageway between social and private life. His project included light games, views, polymaterial floors on which the users steps' could be heard, all of which contributing "to putting the inner rhythm in perspective" [54]. Crispolti's and Miotti's "chances for life" can never be separated from the artistic proposals that involve concrete opportunities for the return of the population, with artisanal workshops and the revival of farming. They forced themselves to imagine the percentages of residents, around 600 inhabitants, and short-term stays, and the relationship that could have been generated between the different groups. In Miotto's words: "it is important to keep in mind the dimension of the community that is a sufficient guarantee of integration" [55].

Restany instead always added a fluid way of looking at things aimed at underscoring the non-conventional "systemic flexibility" [56] of a Parisi, as Flaminio Gualdoni described him, the fertile dissolutor of technicistic statues", curious, all-emcompassing, and irreverent" in his "workshop of the possible" [57]. Asking the artist to structure a space for conflict and encounter meant giving the artist the chance to become the antagonist of the anti-monumental structure itself. Not only was there in the Arcevia project an ambitious experiential message, that is still valid albeit simple: to produce the model of a community aimed at favouring the renewal of human relations, inducing the inhabitants

to a "new awareness of nature" and of "existential nature", that is, the favouring of a lifestyle.

In the *Diario delle operazioni* is this multivocal and dialectical variety of voices that consolidates ideas. Arcevia thus represented a "cultural exemplary fact" but one that was extremely theoretical [58] and paradoxically at the same time the fruit of a suitably shared interdisciplinary experience. Restany wrote about it again from Venice in July 1976, at the height of the Biennale, where Crispolti was curating the section dedicated to multiple typologies of participative experiences, proposals for social environments, to which he devoted a series of unconventional expository focuses that he called "open documentation". Set up in the auditorium at the Giardini, they represented "snapshots" of the "operative situations" "mostly devoid of the objectual product or still in the process of actuation, which thus excluded the exhibition of the 'results'" [59]. Liquid situations that foreshadowed current formulae were based on the documentary materials that were provided by the protagonists and on the presence of the same. At the same time, in fact, debates-exhibitions were held. The one dedicated to OA was held on 4 September art the opening of the documentary exhibition with an intervention by Parisi, Crispolti, Miotto in conversation with Bruno Zevi and Lamberto Lambertini (Fig. 9).

3 «Documentazione aperta». Beyond the Conceptual

For Crispolti the curatorship of *Ambiente come sociale* was the chance for a critical reflection on the means of expression also with respect to the role of the expository method that was often restricted to a stylistic expressiveness as its declination. Hence, it was decided to overcome the clichés of the traditional displays with more agile ones. Based on the radical position of those times, the curator overcame the formalistic exaltation to promote an open practice, perhaps precisely according to the action example of the processes implemented in Arcevia, which of all those documented was the most theoretical experience, at the same time focused on the pertinence of the means of communicating an "open" process and one that could constantly be remodulated: "a willingness that corresponds to the critical and self-critical manner of existentially managing one's own cultural-social operativity" in political declination [60].

In the typewritten pages of *Per una mostra dell'ambiente*, a critical and methodological reflection, the documentation was considered a repeatable model and the bearer of problematic tensions. It bore witness to the process and measured up to the new systems of mass communication. Indeed, the display rooms included photographic projections, sound, multivisions of slides and tapes, debates, and the free consulting of magazines and books that the visitor could make xerox copies of in order to create a personal catalogue [61].

Akin to the exhibition design, which from room to room became immersive and interactive [62], the book about Arcevia also and in parallel details each aspect of the genesis of the project. A journey in dialogues and constructions, between words and visual testimonies, and via a chromatic filter that in its pages tells of the moments of doing and practicing like in the interstitial rooms of the central pavilion at the Biennale. It should come as no surprise that the book dedicated to OA was conceived precisely for this occasion.

Crispolti, a clear-sighted critic of his own experiences, in 1997 spoke of the "semantic redemption of the architectural possibilities" [62]. In times of radical manifestations with conceptual and minimalist tendencies, OA "proficuously tried out a relationship of plastic-visual planning (…) qualifying the environment": an architectural redemption [63] imagined on that scale of 'experiences' featuring collective participation.

In the ongoing debate on the virtuous implementation of the " law on 2%" [64] on the significant regeneration and overcoming of terminologies that are no longer sustainable, like the term aesthetic "embellishment", which calls to mind the ornament, the case of Arcevia demonstrates all its relevance through its structural works, where the artistic dimension lies in the integration of design. Indeed, it was founded on a balancing of the interdisciplinary contributions and on a willingness to cooperate even between critical positions that did not intersect, via constructive debates and then the care for the environment forever respected as a space for integration and balance, essential points today also as concerns the regeneration of peripheral areas. Pierre Restany was right to insist, in that Venetian summer at the Giardini di Castello, the extent to which that project, even from a theoretical standpoint alone, was "a fact of culture" and "a point in modern history" [65], the standard-bearer, we might add, of design forms developing among the disciplines.

References

1. Another copious series of drawings, sketches, plans is instead held at the Fondo Grafico Ico Parisi at the Galleria Civica d'Arte Moderna of Modena
2. Parisi, I., Bartoletti, I., Miotto, A., Crispolti, E., Restany P. (eds.): Operazione Arcevia. Comunità esistenziale. Editrice C. Nani, Como (1976)
3. See in particular: Caratteri dell'operazione e particolarità del progetto, p. 10
4. Ico Parisi. In ivi, p. 458
5. Comunità esistenziale di Palazzo d'Arcevia. Notiziario n.1, Como, p. 17 (1975)
6. Archivio Biblioteca Enrico Crispolti, Roma, hereafter ABEC, Operazione Arcevia, Arcevia (blue binder), Invitation to Ernico Crispolti, from I.Bartoletti, Como, 14 March 1974
7. Crispolti's notes in the margin of Relazione programmatica di un nucleo di nuova formazione in Comune di Arcevia, typescript held in ABEC, Arcevia binder, clearly reveal the authoriality of the structure of the catalogue
8. ABEC, Operazione Arcevia, Arcevia (blue binder), Notes on 28 April 1974
9. Hereafter the initials OA will stand for the full name Operazione Arcevia
10. Restany, P.: La nostalgie du Moyen Age au Village Existentiel. Le Figaro, (5 September 1975)
11. Parisi, I., Bartoletti, I., Miotto, A., Crispolti, E., Restany, P. and in particular Parisi, I.: "Operazione Arcevia" open project, p. 31 (1976)
12. The project triggered a certain debate on means of information. See, for instance, Zevi, B.: Fermo posta, Genio City. L'Europeo, XXII, 37 (1976)
13. Parisi, I., Bartoletti, I., Miotto, A., Crispolti, E., Restany, P. and especially Parisi, I.: "Operazione Arcevia" open project, p.19 (1976)
14. Cf. note 8
15. See Gennari, C.: Operazione Arcevia. Comunità esistenziale senza comunità, senior thesis ins Contemporary Art History (2010-11) (advisor Crispolti, E.). Included in ABEC, Faldone: Operazione Arcevia
16. Parisi, I., Bartoletti, I., Miotto, A., Crispolti, E., Restany P., and especially Parisi, I.: "Operazione Arcevia" open project, pp. 28–32 and the section Diario delle operazioni (1976)

17. Crescentini, M., Cosmogonia urbana, Mimesis, Milano-Udine, see in particular the Afterword by Lorenzo Fiorucci, pp. 89–99 (2019)
18. Parisi, I., Bartoletti, I., Miotto, A., Crispolti, E., Restany, P.: This is what repeatedly emerges from the accurate annotations and transcriptions of the recordings made during the meetings of the technical committee, p. 318 (1976)
19. Seicento artisti votano falce e zappa. In Tempo, 14, p. 107 (1976)
20. Burkhardt in Summa, F.: L'Arte della città, Regione Abruzzo, Pescara (1998)
21. See the debate with the politicians and administrators involved in Parisi, I., Bartoletti, I., Miotto, A., Crispolti, E., Restany, P., pp. 447–463 (1976)
22. Parisi defines the ethical premises and the components of analysis in OA as belonging to these three points: the number of inhabitants and their provenance; the relationship with the environment and orographic study; artistic presences distributed so as to constitute a "continuing visual dialogue in all the paths taken by the community" Parisi, I.: Foto a Memoria, Nodo Libri, Como, p. 105 (1991)
23. Ivi, p. 6
24. Miotto, A. In Restany, P. In Parisi, I., Bartoletti, I., Miotto, A., Crispolti, E., Restany P., p. 23 (1976)
25. Ivi, p. 456
26. Gualdoni, F.: Percorso. In: Ico Parisi. La casa. Electa, Milano, p. 104 (1999)
27. Parisi, I.: Letter that was never sent to Bruno Zevi, 1984. In: ID., p. 110 (1991)
28. Crispolti, E., De Sanna, J., Miotto, A., Restany, P.: Ipotesi per una casa esistenziale, Carucci, Assisi-Roma (1974)
29. Parisi, I.: Operazione Arcevia. "Progetto aperto". In: Parisi, I., Bartoletti, I., Miotto, A., Crispolti, E., Restany P., p. 28 (1976)
30. Deggiovanni, P.: Ico Parisi. Parafrasi per un mito moderno. In: Ico Parisi: & disegni, Nuova Alfa Editoriale, Modena, p. 11 (1994)
31. See Crispolti, E.: Ipotesi per uno spazio di esistenza. In: Crispolti, E., De Sanna, J., Miotto, A., Restany, P. (1974)
32. Parisi, I, p. 101 (1991)
33. Parisi, I.: Percorrenza fotografica 1934–1976, Nani, Como (1977)
34. Ivi, Parisi himself explains: "up until 1972 [I used the photographic means] to memorize the encounters, for the research, and also for some of the choices. Afterwards, photography became a real and valid means for me, for architectural planning"
35. Crispolti, E., De Sanna, J., Miotto, A., Restany, P. (1974)
36. Miotto, A.: Meditazione sul "Progetto per una casa esistenziale". In: Crispolti, E., De Sanna, J., Miotto, A., Restany, P. (1974)
37. Parisi, I.: Operazione Arcevia. «Progetto aperto». In: Parisi, I., Bartoletti, I., Miotto, A., Crispolti, E., Restany P., p. 28 (1976)
38. The first public announcement of OA took place during a round-table discussion at the Inarch in Rome dedicagerd to the Casa esistenzialem, with Parisi, Crispolti, Restany in attendance. See Comunità esistenziale di Palazzo d'Arcevia. Notiziario n.1, Como, p.19 (1975)
39. Crispolti, E.: Realtà dell'Operazione Arcevia. In: Parisi, I., Bartoletti, I., Miotto, A., Crispolti, E., Restany P., p. 19 (1976)
40. Recorded and transcribed it was added to the Diario delle operazioni. In: Parisi, I., Bartoletti, I., Miotto, A., Crispolti, E., Restany P. (1976)
41. The recording of the conversation with Crispolti, held in 1979 for the Chair of Contemporary Art History in Salerno, is included in ABEC, Operazione Arcevia, audiovisual section
42. Ivi, p. 293
43. Ivi, p. 417
44. Ivi, p.144. Parisi,I.: (1991), p. 98

45. Ivi, p. 97
46. Parisi had already worked in the hillside landscape of Arcevia. For Bartoletti he had created the Padiglione di Caccia (Hunting Pavilion) in 1961, renewing the traditions of low-income housing with low and convergent volumes in the convivial central position of the dining room featuring a vast umbrella-like cover in larch, mimetic of the natural architecture of the oaks all around. The model would later be replicated in the cover for the outside veranda of the Hotel Corte dei Butteri, Osa, near Orbetello, Grosseto (1962). Padiglione di Caccia Arcevia Ancona. In: "Domus", n.417 (1964); Ico Parisi e Luisa, Serca, Chiasso (1970)
47. Parisi-Staccioli, Como 9 September 1975. In: Parisi, I., Bartoletti, I., Miotto, A., Crispolti, E., Restany P. (1976), p. 410
48. Ivi, p. 259
49. Ivi, p. 394
50. Ivi, p. 239
51. Ivi, pp. 426–427
52. Letter from Alik Cavaliere to Ico Parisi, Milano 6.9.1976 Fondo Parisi, Operazione Arcevia, Pinacoteca Civica Modena
53. Parisi-Staccioli, Como 9 settembre 1975. In: Parisi, I., Bartoletti, I., Miotto, A., Crispolti, E., Restany P. (1976), p. 239
54. Ivi 295
55. Ivi, p. 93
56. Ivi, p. 292
57. Ivi, p. 297
58. Gualdoni, F. Ico e Luisa. In Gualdoni, F (a cura di), Ico Parisi & architetture. Nuova Alfa editore, Bologna, p. 7 (1990)
59. A characteristic that excluded it from the attention of studies concerning the participative experiences of a cultural and political nature in the 1970s in Italy from A. Pioselli (2015) to M. Tanga (2020)
60. Catenacci, S.: "L'ambiente come sociale at the 1976 Venice Biennale": notes from a book that was never produced. In: In corso d'opera. Ricerche dei dottorandi in Storia dell'Arte della Sapienza, 1. Campisano, Rome (2015), p. 320
61. ASAC, Fondo Storico, Serie Arti Visive, 250, Arcevia, Comunicazioni stampa 95, La Biennale '76, "Operazione Arcevia" open project, typescript, p. 3
62. Catenacci, S., p. 320 (2015)
63. Crispolti, E.: Architettura in forma. Arte In, 10, 48, febbraio, p. 76 (1997)
64. "Art and Public Space", edited by the Directorate-General for Contemporary Creativity of the Ministry of Culture and the Foundation for the School of Cultural Heritage and Activities, Rome, Silvana Editoriale, Cinisello Balsamo 2023. The conference had dedicated one of its study sections to the topic of updating the law on 2%. The proceedings are forthcoming. https://www.fondazionescuolapatrimonio.it/ricerca/arte-e-spazio-pubblico/
65. Crispolti, E.: Ambientalmente quarant'anni dopo "Volterra 73", "Gubbio 76" (e "Gubbio 79"): storia, critiche, prospettive. In L'esperienza dell'arte pubblica e ambientale tra storia e conservazione. Edifir, Florence, p. 27 (2020)

Collaborative Dialogues Between Souvenirs and Territories: From Evocative Objects to Experience-Objects

Marina Parente(✉)

Design Department, Politecnico di Milano, Milano, Italy
marina.parente@polimi.it

Abstract. Enhancing the widespread cultural heritages of our territories is not only a moral imperative and respect for the values established over time but an increasingly felt need to direct local development towards more sustainable strategies for the environment and communities.

The culture of design, especially in Italy, has questioned what its disciplinary contribution can be, in addition to the specialist approaches such as exhibition, communication or lighting design. In national financed research carried out precisely on these themes (D.Cult research: Design for the enhancement of cultural heritage. Project strategies, tools, and methodologies, 2002/04), two elements emerged that managed to briefly define the operational and strategic characteristics of design in this field: the planning of experiences and relationships [1].

In this contribution, the attention is to the role of souvenirs in these systems: from iconic objects, often of low material and aesthetic quality, they can instead play a significant role in the processes of use and design-driven enhancement [2].

From an evolved perspective, designing a souvenir means establishing a synergistic and cohesive relationship with the territories and their values. Not only with the tangible cultural aspects of the natural and artificial landscape, historical and artistic testimonies, and material culture but also with the rich intangible heritage made up of knowledge, traditions, and know-how [3, 4]. And it can take on different roles in product, storytelling, communication strategy and activation of experiences.

In this way, the souvenir becomes a "touchpoint" of a territorial development strategy that relates different cultural systems and brings value to local economic and production chains, even those not directly linked to tourism, such as the many forms of material and cultural production, typical of that context [5–7].

Through analyzing some exemplary case studies and presenting some design experiences, we will draw a map of the possible "connective" roles of meaning and actions that a new generation of souvenirs could interpret.

Keywords: Design for Territories · Souvenir · Experience Design

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 584–592, 2024.
https://doi.org/10.1007/978-3-031-49811-4_55

1 Design for Cultural Heritage and Territorial Systems

The approach of design to the themes of the enhancement of cultural heritage and territories has been progressive and parallel to the passage of an interest from "cultural good" to the broader concept of "cultural heritage". This terminological updating process had been initiated by UNESCO as early as 1992 with the recognition of "cultural landscapes" in the World Heritage List and then in 1998 of the "Masterpieces of the oral and intangible heritage of humanity".

In Italy, where attention to the protection and conservation of cultural heritage is prevalent since the text of the Constitution ("the Republic promotes the development of culture and scientific and technical research. It protects the landscape and the historical and artistic heritage of the nation.", Italian Constitution art.9, 1948), the legislative update will take place starting from the "Codice dei beni culturali e del paesaggio" n. 42 in 2004 (Code of Cultural Heritage and Landscape) and the cultural debate of those years.

In that same period, a network of Italian universities in Genoa, Milan, Turin, Rome, and Naples was conducting research funded by the Ministry of University (MIUR) entitled: "D. Cult research: Design for the enhancement of cultural heritage. Project strategies, tools, and methodologies" (2002/04), where the emphasis was placed on the contextual nature of cultural heritage, strongly linked to the territories, in which it seemed more interesting to consider complex and interconnected cultural systems than for single elements [1]. Even more if we consider the specificity of the Italian situation.

Salvatore Settis, a well-known scholar of archeology and history of art, describes it very well: "It is precisely this widespread diffusion that *makes* the special character of the Italian cultural heritage, its model of contextual conservation. In cities like Siena or Venice, it doesn't make the slightest sense to make a list of *important* buildings, since everything is. A church, a palace, is worthy of being preserved, but above all because it belongs to a very dense plot of which it is part together with a hundred other churches and palaces. In this coherent and harmonious whole, which is the product of a centuries-old accumulation of wealth and civilization, the total is greater than the sum of its parts. It is precisely from the binding force of the urban texture that every single monument, even the most important, takes on meaning and depth." [8, 269–270].

Two reflections emerge from this quotation: the first is the prevailing attention to conservation and protection rather than to the use of cultural heritage; the second is how today, after about 20 years, the reasoning for cultural systems rather than singularity is widely shared, together with the contribution of intangible cultural heritages connected to these contexts.

The D.Cult research has adopted this broader vision by developing a theoretical, methodological study and an applicative part on real cases. We also came up with a definition of what design meant for cultural heritage and what could be the contribution of the discipline in this area: "(…) Design acts as a mediation system between a context, a cultural asset or a system of goods and the user or the reference community through substantially relational and trans-scalar models and processes capable of mediating between specific emergencies and territorial contexts or district in a continuous movement of "focus" of the different scales and project needs, according to a logic zoom in - zoom out capable of concreteness and overall vision together. In this sense, design

for cultural heritage is not limited to planning the experience of using the goods. Still, it helps to facilitate the adoption of an innovative, systemic, and widespread vision of cultural heritage in all its forms, and in the making, through a participatory and shared process, socially sustainable and economically feasible for the community (by the user, the institution, the cultural operator), its setting-up and its activation." [9].

Creating a system and activating cultural heritage in a synergistic relationship with territories and local communities is the goal that design also pursues the protection of the heritage for its economic sustainability and the socio-environmental context in which it insists.

2 Souvenirs as a Touchpoint of Territorial Strategies

In design-driven territorial and cultural enhancement scenarios, souvenirs can play an important role, even if we are used, at least in Italy, to be surrounded by objects of low quality and of low economic value and meaning. If we look at the offer present in the main interchange points - stations, airports, ports - the souvenirs are mainly reproductions of monuments (such as the Duomo of Milan) or territorial icons (like the gondola of Venice) or religious icons (for example Father Pio), sometimes recomposed in creative or inventive ways (the gondola that changes color with changes in weather conditions, the classic snow bubble or refrigerator magnets, the coffee cup with the reproduction of the Gulf of Naples). Not only objects of poor quality and dubious taste, but above all objects without thought that re-propose a simplistic and stereotyped territorial or cultural idea.

Gillo Dorfles would also speak in this case of *kitsch* [10], warning us how this bad taste is an expression and mirror of the postmodern consumption society. A particular taste that has established itself as an aesthetic category, which the art world has always looked to over time, generating forms of collecting, such as the exhibition "Kitsch, kitsch today" at the Milan Triennale in 2012 highlighted [11].

Alongside this type of souvenir, products that tell a territory more deeply or evoke the memory of an experience in alternative ways to reproducing what has been seen are truly rare. However, when we come across these objects with a thought, we recognize their value and support in promoting a cultural, environmental, and social context and relationships. This paper aims to support a new generation of "advanced souvenirs" that can activate relationships and enabling a more profound and more synergistic knowledge of the cultural capital of a territory.

In Fig. 1, we start from the definition of souvenir from the Treccani encyclopedia as a "keepsake object", to analyze the different declinations, with increasing complexity: the "iconic object", or reproduction of reality; the "evocative object", which indirectly suggests the experience made; and the "experience-object" capable of deepening and connecting other cultural resources of the territory to the experience achieved. The evolved souvenirs are actively placed in weaving relationships with other cultural values, opening new doors of knowledge, in connecting stories and places. In this way, the souvenirs enable new cultural explorations, help to create a closer link with the territories and to reinforce local development strategies.

Let's try to make some compelling examples of souvenirs to promote the city's identity. We could define them as iconic objects, but in these cases, the iconography is

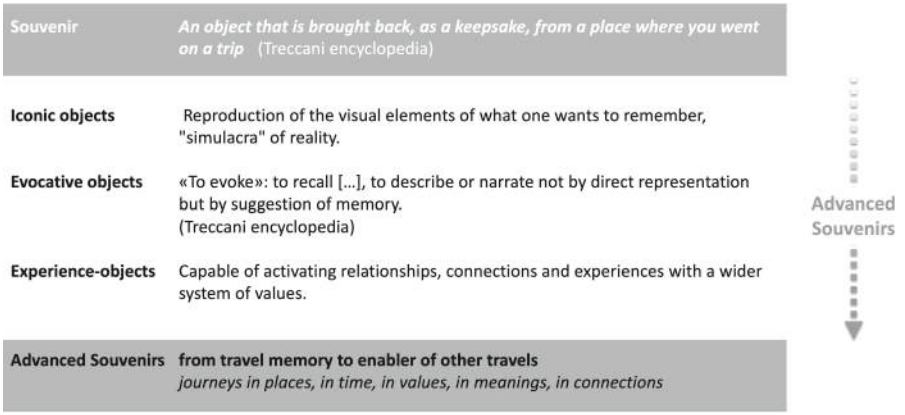

Fig. 1. Souvenir. From iconic objects to evocative and experiential objects.

not direct but is the starting point for other stories and other identities of the present and the past.

"Aria di Napoli", a souvenir produced by Enrico Durazzo for Napolimania [12], is a sort of three-dimensional postcard with all the canonical elements: the landscape of the gulf of Naples, Vesuvius, and the pine tree. But the image is applied to a metal can, in turn, contained in a box for mailing with string and parcel seal. Inside the can, there is nothing, only air. A piece of paper explains it is a remedy for nostalgia, to be breathed very slowly. But it is also an object that has its roots in an event suspended between history and legend: the can filled with air imbued with the scent of mandarin peels given as a tribute by the Neapolitan *scugnizzi* (boys) to the American soldiers who have just entered the liberated city. It is an object that tries to tell something indescribable, as impalpable as the air of a city, its atmosphere, its history, and the nature of its inhabitants [13].

"Bye Bye Fly", designed by Giulio Iacchetti for Pandora Design in 2007 [14], is a racket for mosquitoes that in the perforated part reproduces the shape and road structure of the Milan map. It is an ironic and courageous object in showing a weakness of the city of Milan, which is the annoying presence of mosquitoes in the summer, which nevertheless defines a trait of its identity, together with the concentric urban form that is equally characteristic also in the perception and the orientation during urban travel. An unconventional souvenir, as defined by its author himself, that does not convey glossy realities and fascinates for its frankness, and that entrusts the ability to adapt personal memories to the symbolic value of the shape of the urban structure [15].

"Angel Bread - Cristo Velato" is a project by Alessandro Cocchia, a brilliant Neapolitan designer and artist, for the souvenir competition held in 2010 for the Sansevero Chapel in Naples, where is the famous marble work of veiled Christ. Cocchia offers a kit consisting of man-shaped cookie cutters, icing sugar and sieve for the veil, thus avoiding trivial reproductions of marble sculptures and aiming instead, with a playful and joyful language that softens the drama, to attract an audience of children and young people. Alessandro Cocchia was also among the first to propose a different iconographic

representation of the city, through his posters and illustrations since the 1990s, with a language that draws on the linguistic world of Pop Art and the New York underground [15, 16].

"Twenty-five posters for Naples" (1984–86) is an initiative of the Napoli Novantanove Foundation [17] to promote the restoration of some monuments of the city damaged by the 1980 earthquake and represents a conscious and strategic choice of use of the poster and its reduced reproduction in postcard format to convey an updated image of the city, through the eyes of twenty-five of the most important artists and visual designers on the international scene. An external look that has reconstructed a non-oleographic but articulated and multifaceted vision of Naples, rich in references to cultural, historical, and traditional values, but also to the emerging contemporary ones, sometimes reinterpreting classic stereotypes such as the icon of Vesuvius (Pierluigi Cerri) or clothes hanging (Armando Milani), in other cases offering critical interpretations of reality (Alan Fletcher, John McConnel). The initiative, which was then also disseminated through national and international exhibitions (Naples 1986, Rome 1987, Los Angeles 1987, Dundee 1987, and Lahti 1988), proved to be particularly effective in spreading a positive idea of a new cultural ferment in a widespread manner. In addition, these posters and postcards by the author also went to cover an absence in the market of an updated and avant-garde iconography of the city. In this way, the Foundation managed to achieve its goal, which is to convince international financiers to believe in the creative and cultural potential of the city and to invest in its recovery.

These examples highlight how even iconic or evocative souvenirs can be full of meanings and values. It is more complex to design proactive objects and enable new experiences because it involves an in-depth research phase and a broader strategic vision.

The Genius loci project that the artist and designer Ugo La Pietra conducted in Italy from 1987 to 2000 can be an example of the approach for a different idea of souvenirs.

La Pietra's research is based on a personal reflection, a stance on the great transformations that the information and telematic revolution were bringing about. If in 1982 he had anticipated the scenarios of the telematic house, at the beginning of the nineties he concentrated his reflections on a return to reality, to material culture and its territorial variations, but also to the criticism of a possible homologation that the scientific approach and digitization could have led to the detriment of empathy, memory, and other forms of personalization.

These reflections take place on a personal level (studies on three-dimensional memory, the empathic role of objects and the search for a future material culture that interprets immaterial values) with repercussions at the territorial level (the theme of the new territoriality and the right to diversity of local cultures), anticipating issues that are still of great relevance today [18, 19].

"The works I have created in recent years allude to a society where *difference* is finally recognized as *normality*. The search for *difference* (in normality) led me to work in different areas and territories where cultural autonomies still exist and resulted in the images of *shattered territories.* They are works that allude to different cultures and their search for identity, but also to those forces (*nationalism*), which try to cancel, force and hold (*ethnic cleansing*) these diversities in a single territory.

On the contrary, the search for a great United Europe, which knows how to contain and enhance diversity, remained an aspiration throughout the 1990s that I underlined with various works and installations." [18, p. 216].

At the same time, he starts his travels around Italy and collaboration with the artisans of the homogeneous areas, with whom he experiments processes of valorization of traditional products and techniques - specific for each place and expression of resources, rituals and cultures - working on three levels: the resources of the territory preserved, renewed and redesigned. The first level is a phase of research into the types of local artisan products; the second is the experimentation of new decorative languages on traditional forms; the third is a joint project between designer and craftsman of renewal of types and shapes, enhancing the materials, the skills, and techniques of local craftsmanship. La Pietra recognizes a potential in these local products, a system of values that traces the identity of that geographical area - precisely the *genius loci*, the spirit of the places, in harmony with the thought of Christian Norberg-Schulz [20] - and interprets them as amplifiers to make people understand and promote the historical, environmental and cultural peculiarities of those contexts; at the same time, it makes them contemporary and therefore desirable objects, guaranteeing the survival and sustainability of local craftsmanship.

In the 90s, the Ronchey law also outsourced services to the public and allowed the selling of objects inside museums in bookshops managed by private entities. Ugo la Pietra identifies another possibility to extend his research on "significant works" and objects of memory in the museum, imagining a synergy between cultural institutions (distribution), local craftsmanship (quality production), territorial context (the system of relations) capable of covering the aspiration of the various visitors (significant products) [19, p.373].

At the end of the 90s, he will deal with museum merchandising for the ecomuseums of slate in Liguria and Lecce stone in Puglia and design souvenirs for the Umbria jazz musical event.

3 Advanced Souvenirs: Recent Experiences

Ugo La Pietra's experience, enriched by his sensitivity as a designer and artist, has traced an exciting path for a new design of souvenirs that intertwines a dense dialogue with the territories' resources, the skills of its inhabitants and the local cultural system. Putting these three components in dialogue allows you to have objects that induce you to go further, stimulate knowledge and broaden your gaze: the goal is to open the door to subsequent explorations in and for the territory.

Many other designers have tried their hand at the relationship between local craftsmanship and design to promote local identities, but there are still ample spaces for work and reflection, given the richness and diversity of situations that characterize the Italian territory.

Let's try to make some more considerations, analyzing some recent projects, recognized or awarded by ADI - the Association for Industrial Design, well known for the Compasso d'Oro Award (since 1954) and the annual selection of the best projects in the ADI Index.

"Pieces of Venice", awarded in 2020 with the XXVI Compasso d'Oro for the Social Design category, is a collection of objects that recovers the larch wood used in the Venice lagoon for piers and parapets or the oak of the *briccole,* the name of the poles immersed in water to signal navigable canals [21]. The recovery of these materials, deriving from necessary and frequent maintenance operations due to the environmental conditions in which they are used, is not only a value from the point of view of a circular economy but also a semantic value, connected to the signs of the histories of their previous use. All the objects designed by a group of designers - Paolo and Michela Baldessari, Mariapia Bellis, Carlo Cumini, Giulio Iacchetti, Cristian Malisan, Lorenzo Palmeri, Matteo Ragni and Marco Zito - are linked to a part of the lagoon and history of the city. They are objects full of value, of design and executive quality, made by a social cooperative for the rehabilitation of less fortunate people and contribute with their sale to social campaigns with associations for the protection of Venice.

"Ri-corda (Remember but also new cord). Community Binds" was selected in the ADI INDEX 2020 for Social Design. The project, included in the Matera European Capital of Culture 2019 program, was created to enhance the local cultural heritage of the processing of *libbàni*, the ancient plant cords representative of the local cultural and civic identity of Maratea [22, 23]. Before becoming a product, it is a community building and empowerment initiative, to trace the ancient traditions of working ropes used in boating from the memory of the last living testimonies and share them in a workshop open to all. Reliving the tradition and experiencing it becomes an experience of knowledge and belonging to a history of identity.

From this initiative, the "New Mediterranean Libbaneria" was born to produce handicrafts and design products for experiential tourism. The project is curated by Marialuisa Firpo, Angelo Licasale, Beatrice Avigliano and the Liberi Libri association.

"Paestum Experience" was selected in the ADI INDEX 2020 for Research for the enterprise. The project, curated by the designer Mario Scairato, is a strategic design and branding operation for the enhancement, recognition, and cultural communication of the territory of Capaccio Paestum (Salerno), known above all for the archaeological park and the production of mozzarella. It creates a network of local designers, businesses, and artisans to promote quality tourism through communication initiatives, design and production of souvenirs, cultural events, and exhibitions. A system action in which specially designed souvenirs play the very role of a touchpoint we have discussed so far [24].

These three examples, together with the didactic experiences conducted since 2011 in the Metadesign Studio at the School of Design, Politecnico di Milano on the theme of souvenirs for cities and cultural institutions, including the Pinacoteca di Brera in Milan [16, 25], broaden the reflections on a new generation of souvenirs evolved towards other fields of interest and relationships, on which there is still a lot of project space: sustainability, the creation of communities, collaborative networks of productive and cultural enterprises, social innovation.

All of them are central aspects for strategic projects of wide-ranging territorial enhancement, whose new souvenirs could make their contribution.

References

1. Parente, M., Lupo, E. (eds.): Design e beni culturali. Il Sistema Design Italia e la valorizzazione dei beni culturali. Polidesign, Milano (2009)
2. Verganti, R.: Design-Driven Innovation. Etas, Perugia (2009)
3. Villari, B.: Design, comunità, territori. Un approccio community-centred per progettare relazioni, strategie e servizi. Libraccio, Milano (2013)
4. Zurlo, F.: Le strategie del design. Disegnare il valore oltre il prodotto. Libraccio, Milano (2012)
5. Pine, B.J., Gilmore, J.H.: The Experience Economy. Harward Business School Press, Boston (1999)
6. Croci, E.: Turismo culturale: il marketing delle emozioni. Franco Angeli, Milano (2009)
7. Parente, M., Sedini, C. (eds.): D4T – Design per i Territori. Approcci, metodi, esperienze. List Lab, Trento (2018)
8. Settis, S.: Battaglie senza eroi. I beni culturali tra istituzioni e profitto: Electa, Milano (2005)
9. Parente, M., Lupo, E.: Design per i beni culturali (glossary definition). In: Parente, M., Lupo, E. (eds.) Design e beni culturali. Il Sistema Design Italia e la valorizzazione dei beni culturali. Polidesign, Milano (2009)
10. Dorfles, G.: Il Kitsch. Antologia del cattivo gusto. Mazzotta, Milano (1968)
11. Video Triennale Exhibition 2012, "Gillo Dorfles. Kitsch oggi il kitsch" – Opening. https://youtu.be/QM4pV6cozw0. Accessed 30 Sept 2022
12. Napolimania website, Air of Naples. https://www.napolimania.com/home/106-scatola-in-latta-con-aria-di-napoli.html. Accessed 30 Sept 2022
13. Cristallo, V., Guida, E., Morone, A., Parente, M.: Design e sistema territoriale. Cinque casi studio di successo in Campania. Libria, Melfi (2002)
14. Iacchetti, G.: Bye Bye Fly website. https://www.giulioiacchetti.com/?p=509&lang=it. Accessed 30 Sept 2022
15. Parente, M.: Designing the city identity: strategic and product design for new experiential ways of living, enabling and interacting with the urban context. Design Manag. J. **10**, 62–71 (2015). https://doi.org/10.1111/dmj.12023
16. Parente, M.: Design e identità urbane. Riflessioni ed esperienze per Milano e Napoli. Maggioli, Milano (2012)
17. Napolinovantanove Foundation website, Twenty-five posters for Naples. https://www.napolinovantanove.org/2021/05/14/ventiquattro-manifesti-per-napoli-2/#. Accessed 30 Sept 2022
18. La Pietra, U.: La sinestesia delle arti 1960–2000, Mazzotta, Milano (2001)
19. La Pietra, U.: Living with Art. Research and works in the applied arts and in design. Corraini, Milano (2015)
20. Norberg-Schulz, C.: Genius Loci. Paesaggio, ambiente, architettura. Electa, Milano (1979)
21. Pieces of Venice website. https://piecesofvenice.com. Accessed 30 Sept 2022
22. "Ri-corda" project. https://www.matera-basilicata2019.it/en/programme-2019/themes/ancient-future/1724-ri-corda-remember-community-binds.html. Accessed 30 Sept 2022
23. ADI INDEX 2020 website, "Ri-corda" project. https://www.adi-design.org/2020_o00538
24. ADI INDEX 2020 website, "Paestum Experience" project. https://www.adi-design.org/2020_o00362. Accessed 30 Sept 2022
25. Parente, M.: Istituzioni culturali come luogo di innovazione sociale: il caso del Palazzo di Brera. In: AAVV, Design per connettere: Persone, patrimoni, processi, pp. 444–457. SID (2022). http://www.societaitalianadesign.it/wp-content/uploads/2014/06/SID_Design-per-connettere_Palermo_03082022.pdf. Accessed 30 Sept 2022

NARRATIVES

For a Novel and Transversal Narration of Extemporaneous Places of Artistic and Design Thinking

The City's Network of Crossroads Between Art and Design: The Milanese Case in the 20th Century

Giampiero Bosoni(✉)

Department of Design, Politecnico di Milano, Milan, Italy
giampiero.bosoni@polimi.it

Abstract. Many public places in our cities, such as cafés, restaurants, dairies, theatre foyers, wine bars, brothels, bookshops, discos, art galleries, street corners and squares, have been historic and ritual points of reference for artists communities. Such environments whose particular "atmospheres" have created ideal places where these authors have met, known, admired, fought, and enjoyed themselves. Places in which they may also have shared fundamental moments as well as artistic and design intuitions. For different eras, yesterday as today, we pinpoint historical maps of the various cities with all the design studios together with the residences of the artists and architects themselves. If we draw the lines connecting these points, folding them along the different streets and squares these personalities might encountered, we then have created an intricate network of paths full of exciting twists and turns. It is easy to discover that some of these intersections correspond to public places where these personalities, more or less consciously, shared their lives, their passions and at the same time their projects and artistic researches.

Keywords: atmospheres · narration · interior design · cafés · wine bars · discos

Many public places in our cities, such as cafés, restaurants, dairies, theatre foyers, wine bars, brothels, bookshops, discos, art galleries, street corners and squares, have been historic and ritual points of reference for artists communities. Such environments whose particular "atmospheres" have created ideal places where these authors have met, known, admired, fought, and enjoyed themselves.

Places in which they may also have shared fundamental moments as well as artistic and design intuitions.

For different eras, yesterday as today, we pinpoint historical maps of the various cities with all the design studios together with the residences of the artists and architects themselves. If we draw the lines connecting these points, folding them along the different streets and squares these personalities might encountered, we then have created an intricate network of paths full of exciting twists and turns. It is easy to discover that some of these intersections correspond to public places where these personalities, more

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 595–602, 2024.
https://doi.org/10.1007/978-3-031-49811-4_56

or less consciously, shared their lives, their passions and at the same time their projects and artistic researches. Some of these places have become legendary for particular eras, especially in Milan, such as: Bar Craja, Biffi café in Galleria Vittorio Emanuele II and Biffi in Baracca Plaza, Bar Grillo, Savini restaurant, Gambrinus brewery, Tumbun in San Marco, Bar Blu, Bar Oreste, the brothel in Fiori Chiari Street, Bar Giamaica, the Moscatelli wine shop, Trattoria Moriggi, the Martini terrace, Camparino or Bar Zucca in Galleria Vittorio Emanuele II, the dairy in via San Marco, Scofone brewery, Plastic discotheque and Bulloni wineshop. To name just a few of the first and most famous names that come to mind, not to mention art galleries and bookshops.

The story of the so-called literary cafés is often picked up on in the city and sometimes national cultural histories. However, we still need to fully understand what these public places' lives consist of. They are not austere, isolated libraries or even exclusive clubs, but rather commonplaces of entertainment, often for large groups, and sometimes even the most unlikely social and cultural entanglements: a true cross-section of city life.

An interesting commentary on the cultural and artistic life in these public places and on the streets of Milan between the 1920s and 1930s is the one left by the architectural historian Giulia Veronesi. The author recalls the authoritative figure of Edoardo Persico, who has been a refined intellectual, art critic, graphic designer and the *victorious provisional architecture*'s author as well as a fundamental theorist of Italian rationalist architecture between the two wars. Persico once stated:

"However, he spoke no solely on the pages of magazines and newspapers, not solely in lecture halls; and he spoke not solely in his tiny editorial office in Via San Vittore, which had become a landing place for non-Milanese and even non-Italian friends passing through and a meeting place for some of the liveliest artists that Milan had to offer: poets and critics, architects and painters, sculptors and ceramists, typographers and decorators. He did not only talk in the smoke of the cafés, from Mokador to Craja, from Donini to Biffi in Piazzale Baracca, or in the rare homes of friends where he sometimes liked to stay in the evenings. He often spoke in the dark nocturnal silence of the Milanese asphalt, beaten only by his footsteps, cadenced with those of a listen-pal friend, whose soul he seemed to shake with his passion, with his violence, with the interrogative cry of doubts that continually surfaced in his spirit and in which he pondered, dialectically merging with enlightened reasons, his secret faith and strength" [1].

But this vision of Persico as an assiduous visitor of cafes where he exchanged opinions with other friends, artists and intellectuals, is also reported by Carlo Belli, musician, critic, painter and theorist of abstractionism: "And frequently, over a table in that Caffeuccio on the corner of Via Brera and Via Fiori Oscuri, almost opposite to the Milione, a meeting place always crowded with our artists, the two of us would exchange notes on pieces of paper with graphic projects we had been working on during the week" [2].

In the chapter *Tutti al Craja* (Everyone at Craja) in his memoir *Il volto del secolo* (The Face of the Century), Carlo Belli provides a rich and interesting insight into his visits to the famous Bar Craja, designed in 1929 by Luigi Figini and Gino Pollini together with Luciano Baldessari and with the collaboration of artists Lucio Fontana, Fausto Melotti and Marcello Nizzoli. The quote is long, but it is rare to find such an engaging description of the atmosphere created in a specific place, so it deserves to be read in its almost full length. The author wrote:

"In the meantime, in Milan, architects Figini and Pollini, teamed up for the occasion with architect Luciano Baldessari, because they obtained their first important commission: no less than a bar in the centre of the city! The bar was located in Piazza P. Ferrari square, also accessed from vicolo Margherita[1]. The new bar was called Bar Craja and immediately became the evening meeting place for all modern artists. It can be said that it was the first truly rational building to be built in Milan, and the locals, after looking at it with scepticism for some time, finally accepted it as a *fait accompli*. During the first few months, however, except for the rest of us, the place did not welcome anyone, so much so that we feared it would have to close. Instead, the owner, brave to the last, resisted and won. The Craja continued to be open for many years until it was demolished for dubious speculation! A true sacrilege" [2].

At this point, Belli begins with a very detailed description of all the materials used and all the parts that constituted the refined rational design. Then he resumed his immersion in the lived environment described as follow:

"The overall tone due to the diaphragms slant and the arrangement of the forms was a high one, but I repeat, sometimes, on entering, one was struck by a sense of hostility. We wanted it just like that, for our polemical reasons, but many of us became convinced that we should look for warmer solutions once the controversy was over. Anyway, we were the ones who warmed up the place. Around nine o'clock in the evening, we arrived one after the other (I came from Brescia) and settled down on the black leather sofas. Our place was over there in the third compartment, by the Melotti fountain. The first to arrive were usually the painters Oreste Bogliardi, Mauro Reggiani and Umberto Lilloni. […] Later, those who had eaten at the Pesce d'Oro [restaurant] arrived: Peppino Ghiringhelli, pale, bewildered and sweet, always on the point of emerging from a fairy tale, followed by his brother Gino, who was the best among us in terms of culture, maturity of spirit and strength of character, together with Maria Cernuschi, a girl of dazzling intuition, lovely and a great entertainer, who later become his wife. The master printer Modiano also came from Verziere, sometimes accompanied by Leonardo Sinisgalli, mathematician and poet, while it is never known from which cardinal point the sculptors Lucio Fontana and Carlo Conte would have come; the former, light-hearted, angry, paradoxical, who rediscovered the world of knowledge on his own, immediately giving it wild and hilarious interpretations; the latter, shy, taciturn and always hungry, complained about the injustices of the world (he was a very good sculptor) that did not care about the things he was creating.

Atanasio Soldati sat very pale and hieratic at a table next to me, almost aside. He waited for me, he always kept a seat for me, because we were very close friends; just as Melotti and Fontana, Persico and Del Bon, and, I think, Lilloni and De Amicis were very close friends at that time: […] Sometimes, late in the day, the architects would then come: Pollini, distinguished and reserved, Figini *enfent ultraréchauffé* of the company, enthusiastic, translucent, with a spiritual charge that was always extremely powerful. Occasionally, on Saturday evenings, Terragni, the painter's Rho and Radice, the architect Lingeri and the very young Cattaneo, who died before reaching his peak, would come down from Como. The young master printers Dradi and Rossi, valiant militiamen of *Il Milione*, joined this group of people from Como, who then published, at their own

[1] Today it is called Giovanni Malagodi passage.

expense, i.e. in desperate and heroic conditions, their own frail publication to stimulate a new trend in the art of typography, which was called *Campo Grafico*. […] Around half-past eleven, it was fully completed. Great discussions, of course. Sometimes Carrà would come, and we would welcome him as a master; other evenings Arturo Martini would break-in, and then we would listen to him because he was always talking big, […] He was always shouting, yelling, and screaming in such a way as to give the impression that there were little space for him on this earth; […] How many evenings we spent at Craja! […] At Craja, we breathed the air we had asked for. There, we harboured the illusion of changing the country, infusing it with a spirit as lively and deep as the one we breathed in other European countries; there, we engaged in collective discussions on the state of things that could then be perceived as present and future" [2].

Compared to such a rich quotation as Belli's for Bar Craja, unfortunately, there is nothing similar to describe the cultural crossroads that probably enlivened Bottiglieria Bulloni in Piazzale Aquileia in Milan. In the same wine shop since 1933 (the year of the V Triennale and the first Milanese edition), a large tile panel painted by the futurist artist Enrico Prampolini[2], dedicated to the festive lovers of white and red wine, stands out behind the counter. On the right side of this panel are two abstract-cubist compositions in the form of luminous devices, also depicted and conceived by Prampolini himself. It is easy to imagine frequent evening gatherings, organised to enjoy a good glass of wine or a Campari (to whose history this restaurant is also linked). This place involved some of the emerging architects of the rationalist movement who worked and lived nearby in those years. In the 1930s, opposite the wine bar, there were the Villa and the Milanese residence of the Usuelli family (owners of the famous Borsalino hat factory in Alessandria), wherein 1938 Ignazio Gardella had designed the flat of "Nino" Teresio Usuelli[3], who was the nephew of Teresio Borsalino and the author of the great relaunch of the brand from 1939 when he took over as Chairman until 1979. Also nearby, since 1931, Franco Albini and Giancarlo Palanti had shared a studio in Via Panizza 4 (at that time, Albini lived nearby in Via D'Alessandri). Close by was the studio of Gio Ponti and the editorial office of his magazine *Domus*, which in those years were located in the Borletti building, designed by Ponti and Lancia in 1927, at the end of Via San Vittore 42, just opposite to Corso di Porta Vercellina and few steps from Piazzale Aquileia. Lastly, we discover that not far from the Bulloni wineshop, nearby Via Verga 5, Marco Zanuso lived there with his family in pre-war years. In 1933 he was still in high school, but in the late 1930s he was a passionate student of architecture.[4]

Several years later, at the end of the 1970s the Bulloni wineshop experienced a new revival with the assiduous frequentation of Pierluigi Cerri in particular, together

[2] Enrico Prampolini progetta nel 1933 in occasione della V Triennale di Milano nel Parco Sempione il Padiglione futurista esempio di architettura tipo per una stazione di aeroporto civile.

[3] Ignazio Gardella had married his sister Aura Usuelli in 1933 and moved in with her in Via Bellini.

[4] An address that is mentioned several times in Gian Luigi and Julia Banfi's book, *Amore e speranza, Corrispondenza tra Julia e Giangio dal campo di Fossoli,* april-july 1944, Archinto editions, Milan 2009. Because in 1944 Julia Banfi, after the bombing in Milan in 1943 that destroyed the house designed by Gian Luigi Banfi for his family, was a guest at Marco Zanuso's house and it was there that Banfi's letters from the concentration camp were addressed.

with numerous collaborators and friends, graphic designers, photographers, artists and art directors. This revival happened when Studio Gregotti Associati moved into the beautiful former brickworks of the historical Candiani company, which was a building magnificently renovated by the studio itself, located in via Bandello 20 next to the elegant Candiani family home. The architect Luigi Broggi designed the building at the end of the 19th century.

After the Second World War, the Brera district of Milan experienced a period of great artistic vitality, and among the various meeting places, the Bar Jamaica became the favourite place of many artists. Especially those artists of the younger generation, partly because 'Mamma Lina' gave easy credit to many of these penniless artists of the time.

This story is now very well known and celebrated, thanks also to some great photographers, such as Ugo Mulas, Alfa Castaldi and Mario Dondero. These photographers frequented it in its golden years and immortalised that "atmosphere" and many regular visitors, who would later become famous, like the photographers themselves. The regular visitors included Roberto Crippa, Gianni Dova, Lucio Fontana, Piero Manzoni, Nanda Vigo, Luciano Bianciardi, Salvatore Quasimodo, Enrico Baj, Allen Ginsberg, Dino Buzzati, Valerio Adami, Camilla Cederna, Bruno Cassinari, Ennio Morlotti and Nanni Balestrini.

"The walls of Jamaica, then as now, immediately caught the eye. Covered in white tiles, they evoked home kitchens or even, if you wanted, sinful "houses" nearby, until 1958 located in Fiori Chiari and San Carpoforo streets. In the bar, voices chased each other and overlapped, mixing learned disputes about art, painting, literature and journalism (…) with the improper words of the broomstick players who handled the few tables available in the already small place" [3].

The painter and intellectual of the highest rank, Emilio Tadini, has left us a precious testimony of what the world of the Bar Giamaica was like in the 1950s and 1960s, and he begins to talk about it starting with the exemplary case of the photographer Ugo Mulas. Emilio Tadini reported:

> "I met Ugo Mulas in the early 1950s at a poets' convention in an art gallery in Via Borgogna. Because Ugo wanted to be a poet, and naturally he never had any money, so one day Pietrino Bianchi said to him: 'Why don't you take some photographs of me for my weekly magazine?' and Ugo said yes. Then he borrowed a camera and, incredibly, out of the blue, took a series of splendid photographs of Montale's Liguria and realised that he liked being a photographer. So he became the great master of contemporary photography that everyone knows still today".

Why have I told this story? To give an example of what Bar Jamaica was then and describe how coincidence and destiny were part of that small Olympus of minor gods. I think we were all sure that these personalities supervised that magical place and its inhabitants (I use the word "inhabitants" because many of us spent more time in the club than at home).

There were many photographers in Bar Jamaica, as much as painters, writers, filmmakers and journalists, or rather, they were a lot of young people who wanted to do one of these jobs - and who managed to do it, and in many cases very well. Of course, one

mustn't forget the help that each of them received sooner or later, from that poor, highly efficient Olympian who moved in mid-air from the garden within Bar Jamaica - always overflowing with people and smoke in the very long evenings, until late at night.

Sometimes I remember when we were drinking white wine at the tables - from half past noon to two o'clock, or towards evening and after dinner - and someone would take out his camera and shoot a few photographs outdoors, if the weather was fine, or, if the weather was bad or too cold, in the background of the white tiles.

And perhaps, in those moments, each one of us photographed, without even thinking about it and certainly without wanting to, was posing for some future story that didn't matter at all whether it came true or not. Because it must have already seemed to us to have been realised them in the dream world, lazily figured in our heads, and perhaps we already thought we could see them sketched out as best we could, on the table, near the glasses.

Almost all of those photographers have become great, famous. But for anyone who is born and bred in Bar Jamaica, those are still the best photographs. - The ones where four or five young people, very young, were sitting either outside on the garden's iron chairs or inside against a backdrop of white tiles - that invisible, these, and yet, to look closely, hazily mirrored in their pupils and perhaps even portrayed as cheap enigmas of the pauses of their inconsistent pride, all too vulnerable…

Almost needless to say, the minor gods of Jamaica's Olympus were still keeping watch. And their representatives on earth quietly and inconspicuously continued to keep themselves busy – at the floor level, let's say. Mrs Lina, Elio…'" [4].

Another important testimony of how many clubs and public places in Milan were marked at that time by a new image, which stimulated their creative and artistic frequentation, is that of the famous artist Lucio Fontana. In an interview in 1962[5] [5], Fontana answered the provocative statement "People say that your art is difficult to understand" replyning "On the contrary, it is very easy. It is the art of the man in the street. Don't you see the furnishings of the most modern cinemas, bars and public places? They are all my ideas: the cuts, the holes (do you know the ceiling of the Piccolo Teatro in Milan?), replace the ovals, the cherubs, the sirens, the rose windows of the past" [5].

In this quick historical reconstruction of that invisible network of places representing the focal points where some particular creative "atmospheres" of the Milanese artistic and design world have been condensed over the decades, we conclude this synthetic journey with the most recent case. We then move from bars to discotheques: the famous Plastic discotheque in Viale Umbria 120.

Plastic was created in December 1980 from an idea of Lucio Nisi, the owner, and Nicola Guiducci, creative and DJ (who had previously worked as a salesman in Elio Fiorucci's showroom). The club has become internationally known thanks to the frequent visits of personalities and artists such as Madonna, Elton John, Andy Warhol, Freddie Mercury, Prince, Paul Young, Stefano Gabbana, Maurizio Cattelan, Francesco Vezzoli,

[5] Lucio Fontana e l'infinito, intervista tratta da Mario Pancera, Vite scolpite, Almanacco del Novecento, vol. III, Simonelli Editore, Milano 1999, pp. 13–25 [5]. Nello stesso volume una nota dell'autore informa che è ripresa da «"La Notte" (19 dicembre 1962) e incontri successivi, 1963».

Bruce Springsteen and Keith Haring, who used to fly from New York with Grace Jones to spend an evening there [6].

The American artist Keith Haring was undoubtedly one of the most famous and emblematic Plastic visitors in the mid-1980s, and Marco Belpoliti described that moment with these lines:

"Milan, June 1984. After working until two o'clock in the morning in a continuous and unstoppable way, Keith Haring leaves the spaces of Salvatore Ala's gallery and runs to Plastic, a fashionable disco, where Nicola Guiducci, the friend who puts music on the plates and makes him feel as if he were in New York, is waiting for him. They all cuddle him, the artist who paints on the plastic covers of trucks or sheets of paper, covering clay pots and reproductions of classical sculptures with graffiti. As he will tell years later, Ala goes with him to the disco and then runs away: time, during the day, was dedicated to the market and at night was just for himself. An equal division, in which the night feeds the morning, and vice versa. Keith reappears the day after, in the afternoon, following massive doses of sex and drugs" [7].

Years later, in an interview, Elio Fiorucci recalled: "DJs? They should no longer be called that, but *sound designers*. Today the variety of sounds is incredible, and they can switch from one reality to another. The Plastic disco? I have always been a fan of Nicola Guiducci and Lucio. It was the first community that anticipated the Internet. A magical place. I used to take Warhol and Haring there"[6] [8].

In light of what has been said so far, it is essential to consider, within the framework of a historical places' reconstruction of the city's artistic and design "faber", the memories of these places as inseparable parts of the urban context's creative and productive activity. Thus, these unique places and their associated memories and atmospheres deserve to be remembered with appropriate and contemporary narrative systems that can show and revive the network of physical and intellectual relations that have woven the spirit of the "Faber" between art and design the time.

References

1. Giulia Veronesi, G.: Difficoltà politiche dell'architettura in Italia 1920–1940, Chap. IV, Edoardo Persico, Libreria Editrice Politecnica Tamburini, Milan, p. 117 (1953)
2. Belli, C.: Il volto del secolo, la prima cellula dell'architettura razionalista italiana, Pierluigi Lubrina Editore, Bergamo (1988)
3. Dicorato, G.: Andavamo al Giamaica, personaggi e storie anche politicamente scorrette di mezzo secolo di giornalismo a Milano, Lampi di stampa, Cologno Monzese (Mi) (2012)
4. Tadini, E.: ricordi …di Emilio Tadini, in jamaicabar.it
5. Lucio Fontana e l'infinito, intervista tratta da Mario Pancera, Vite scolpite, Almanacco del Novecento, vol. III, Simonelli Editore, Milano, pp. 13–25 (1999)
6. Sada, R.: EDM E Dio Mixa: Guida polifonica all'Electronic Dance Music, Nobook (2017)
7. Belpoliti, M.: L'età dell'estremismo, Ugo Guanda editore, Parma (2014)
8. Intervista a Elio Fiorucci, 6 aprile 2012, extra content from the film This is Plastic, directed by Patrizia Saccò, production Plunger Media

[6] *Intervista a Elio Fiorucci, 6 aprile 2012*, extra content from the film *This is Plastic*, directed by Patrizia Saccò, production Plunger Media.

Design Narrative

Raffaella Trocchianesi(✉)

Department of Design, Politecnico di Milano, Via Durando, 10, 20158 Milan, Italy
raffaella.trocchianesi@polimi.it

Abstract. The narrative vocation of design represents a crucial key for the interpretation of some contemporary cultural expressions such as making history, representing through different media, archiving and exhibiting.

This essay explores narratives in three different "dimensions": narrative as a *scenario* (that envisions new contexts, behaviours, uses, spaces); narrative as a *tool* (that creates new ways of triggering innovation), narrative as a *process* (that codifies methodologies dealing with complex issues).

Narrative – be it implicit or explicit - is at the basis of all design interventions as a story is an authorising device, a tool able to systematise each element and direct it to a specific direction.

Creating the strategies for a story as a design infrastructure means generating attention and stimulating memory, as narratives trigger curiosity and cognitive participation in the audience.

Words and pictures are at the basis of imagination, as they design means for envisioning what is not there yet: conversations, dialogues, verbal and visual texts. Cognitive artefacts are media devices able to articulate a narrative repertoire and foster the process of innovation.

Keywords: Narrative · Design methods · Design Tools

1 Design Narrative as a Scenario

Narration is a crucial attitude in the meta-design approach as it encourages the process of conceiving future innovative contexts of application. Meta-design means outlining the design process: if the goal of design is to solve specific problems, the goal of meta-design is to propose new fields where innovation can be expressed. Meta-design is also all the preliminary research necessary for developing original solutions. Therefore, a *scenario* is a fundamental tool in the meta-design process. It helps designers make decisions and build consensus around a suggested model as a possible representation of the design context. Indeed, the meta-design approach is a strategy to start a dialogue with final users: through a process of negotiation, the narrative of new possible contents engages the consumer by triggering a process of signification [1, 33]. Manzini and Jegou [2] separate *Design Orienting Scenarios* (DOI) from *Policy Orienting Scenarios,* which define tools and procedures. In particular, DOI represents a design tool able to share articulated and motivated visions. According to these scholars, scenarios have three main features:

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 603–610, 2024.
https://doi.org/10.1007/978-3-031-49811-4_57

– they present a set of alternative contexts in which the subject of the project (a product, a service or other) could find its collocation,
– they represent a variety of acceptable and feasible options,
– they are communicated through design simulations.

The scenario building activity supports decision making since it works as an intuitive model for the reality on which one simulates to intervene. Scenarios must show "future worlds", which could be exist (plausible), and the ways with which they are communicated must foster discussions and evaluations (debatable). Furthermore, they have three main goals:

– describing and understanding activities and events,
– representing problems, needs and design constraints,
– depicting new activities, solutions and "stories".

They are made of three elements: *vision*, *motivations*, and *proposals.*

The element *vision* answers the question: "How would be the world if?" This answer is expressed through a story and a metaphorical picture able to represent the situation in case a sequence of events takes place.

The element *motivations*: "Why is this scenario meaningful?" This answer rationally explains assumptions, conditions and with which criteria the results will be evaluated.

The element *proposals*: "How is the vision developed and structured?" This answer represents the different design opportunities triggered by the scenario.

The scenario is not a "picture" of a distant future, but critical anticipations capable of orienting the future in continuity with the present [3].

To improve meaningfulness and communication, we can build narratives with the subject of the project (product, space, communication artefacts… and so on), as well as accompany and convey meanings by creating a story. A narrative can transform its role from passive to active when it precedes the design idea, when it frames *its mise-en-scène* and prefigures the scenario [4, 50]. Furthermore, it becomes an activator of implicit contents and brings forward new contexts of meaning.

2 Design Narrative as a Tool

Several stages of the design process are based on narrative approaches. Sometimes the design attitude embraces codified ways of using tools in narrative frames, while other times it borrows them from "outside" fields.

Therefore, we will mention some design tools that are able to create new manners of triggering ideas and unexpected points of view.

In the following lines, we will illustrate some extemporary strategies based on very simple tools and other structured approaches focused on more elaborated tools and specifically created for the field of design.

In the *Grammar of Fantasy,* Gianni Rodari [5] introduces an interesting game/exercise called *Imaginary Binomials* that designers can apply as a pretext to create a short story around a topic so as to trigger suggestions and inputs and develop ideas during the brainstorming stage. For the binomial to be imaginary, a certain distance among words must be evident, their combination must be unusual for the imagination to create

a relation. The methods to find the two words can be many (i.e., random draws or indications on a book…), hence even the most common words can trigger the imagination because they are out of context and therefore interesting.

In the exhibition field of design, we can mention an interesting tool: the *exhibition score* [6] (Fig. 1). The concept of the exhibition score breaks down the structure of the exhibition into different parts thanks to a graphic representation organised in parallel layers. This tool has been thought for those designers who must manage the whole simultaneity of the parts that contribute to the mise-en-scène of an exhibition. Graphically the exhibition score has a horizontal structure made of different variables (each line corresponds to a specific variable):

- *Content organisation* that is the logics and order of the collection management (the sections and the "file rouge" designed by curators).
- *Spatial organisation*, which determines the paths and the design paradigm of the whole exhibit system.
- *The exhibit of artefacts and displays*, which establish a specific relation between visitors and the content shown.
- *The actions and structure of the interaction between visitors and the collection*, as well as among the visitors themselves, which determine the dynamics of the whole visit as far as the quality of the cultural experience is concerned.
- *The communication register and the narrative style* expressed by the applied graphic communication system, materials, colours, and technologies as well as the interface of the displays.
- *The length of the visit* (total and partial) according to the articulation in rooms or "episodes".

This aspect is related to the rhythm, the pauses and accelerations that punctuate the visit.

All parts of these horizontal lines correspond to the section placed above and below in order to have a matrix reading.

No other creative discipline possesses such a multi-facetted range of instruments for the design of space as scenography and exhibition design. They use the means of architecture, theatre, film and visual arts to design distinctive and effective spatial dramatizations.

Space is the central medium in which, with which and for which designers think and create. Space – whether in the form of a set designed exhibition or a piece of architecture – is itself used as an instrument and can orchestrate all other instruments in the integrated sense of a total work of art. Four spatial parameters, on which all staged spaces are based, constitute the potential of a space: physical space, atmosphere, narration and dramaturgy [7].

Each of these spatial parameters refer to a specific quality of the space and, in consonance with the other parameters, makes it possible to access content, get to the bottom of things, ferret out the soul of a theme or get closer to a topic. The interplay of the spatial parameters in a dramaturgically ingenious and stimulating setting in exhibitions and architecture seduces the recipients into accepting the story and its message.

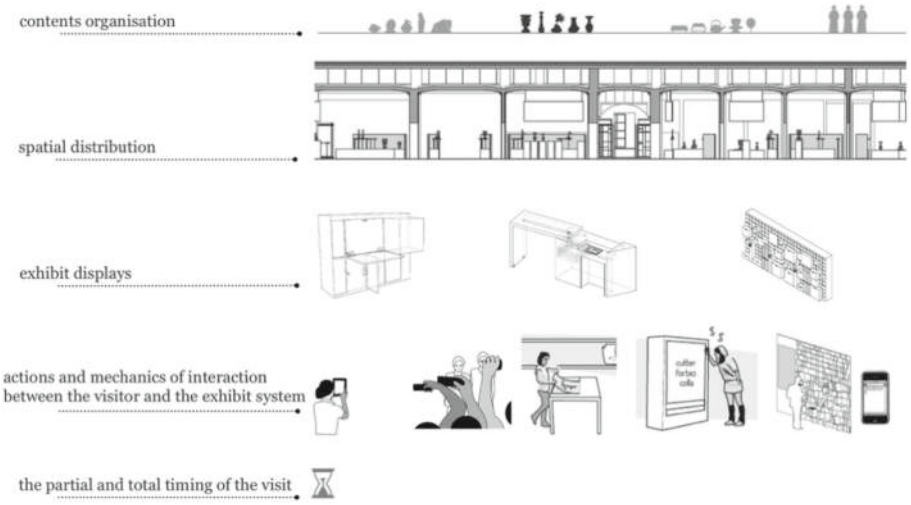

Fig. 1. Exhibition score (by Raffaella Trocchianesi)

Another tool related to exhibit design narrative is called *Exhibition sound score*[1]. The latter can identify and analyse how the sonic strategies are adopted in museums and temporary exhibitions. It can also be used to design and verify new methods to empower the cultural experience through sounds. Insights from field research are also transcribed into this tool by text descriptions and sound sketches for analogy and analysis. Also in this case (like in the previous one), the narrative infrastructure is developed in horizontal lines; each of them representing a different layer of the visitor's experience and the linear sequence of the exhibition path.

Every line corresponds to a design variable:

– *organization sections* of the exhibition,
– *typology of the cultural asset* on display,
– *contents* of the sound narratives,
– exhibits and their *sound equipment*,
– *typology of the human interaction*,
– *strategy* of the applied sound systems,
– partial and total *length of the visit*.

This tool endeavours to redefine the perspectives of field research and data analysis related to sound experiences conducted in museums. Instead of focusing on experience with an exclusive emphasis on sound elements, the study examines sound-related strategies at each touchpoint and communication channel throughout the exhibition experience and explores how these strategies can better contribute to narratives and increase accessibility.

[1] This tool was created by Yi Zhang and Raffaella Trocchianesi and is included in the PhD thesis *Sound design and narrative for museums and temporary exhibitions* author: Yi Zhang; supervisor: Prof. Raffaella Trocchianesi, PhD program in Design, Politecnico di Milano 2023.

The same logic is at the basis of the *Exhibition Colour Script* tool (created by the author): in this case the aim is to verify the chromatic landscape of the whole exhibition in terms of contrast or harmony, heterogeneity or homogeneity. Also in this case, information is arranged horizontally: one line represents the sequence of the exhibition system, room by room, through coloured sketches or pictures, the line below their correspondent colour excerpt (Fig. 2). This tool is inspired by cartoons, where the chromatic relation between figures and background and among scenes is crucial for the whole iconographic composition.

Fig. 2. Exhibition color script (by Raffaella Trocchianesi) applied to *Paganini Rockstar* exhibition by NEO

Furthermore, we can mention some tools applicable to all the stages of the design experience, one of them is the *Metaphor*.

Metaphors are recognisable in narratives about field analysis and brainstorming (spatial metaphors); in narratives about problem definition and creation of new hypotheses (experiential metaphors); in narratives that argue design choices (popular metaphors able to easily explain the project); in narratives on staging artefacts (persuasive metaphors that build stories around the project); and finally in narratives developed through the interaction with the final users (inter-linguistic metaphors which characterise user interfaces) [8, 36].

In 2021, an interesting project, by Jeffrey Schnapp, called *Museo Futuro* tried to envision nine metaphors representing new models of museum in the near future.

The project was developed with Daniele Ledda (xycomm Milan) and Elisabetta Terragni (CUNY, Studio Terragni Architetti, Como), together with the team from Museo Madre // Fondazione Donnaregina in Naples.

MuseoFuturo ("Future Museum") is an experiment in museum-based education that reaches out not to museum professionals, but rather to young professionals in a range of creative and technical fields, inviting them to participate in the development of nine alternative visions – expressed by metaphors – of future museums, while bringing the Madre's own permanent collection –which, as is the case with most art museums, is mostly in storage– into public conversation.

The metaphors in MuseoFuturo are M*useum as a Microscope, Museum as a Telescope, Museum as a Stage, Museum as a Warehouse; Museum as a Place of travel, Museum as a Toy; Museum as a Public Square, Museum as a Laboratory, and Museum as a Computer.*

An exhibition, made up of nine nodes distributed within the Madre's architecturally complex exhibition spaces, translated the strongest of the collectively elaborated curatorial interventions into an innovative experience for museum visitors. The aim was to create a laboratory in which nine concepts of how future museums will be. The concepts

were not only explored but also instanced by means of curatorial interventions developed in small groups working with 18 objects from the Madre collections. The ninth experiment involved working with the collections of a partner institution: the National Archeological Museum of Naples[2].

3 Design Narrative as a Process

The narrative approach helps to develop methods confronting complex issues. In particular, we can underline different attitudes: using specific narratives to represent the design process; using design approach to increase the creative process and trigger special narratives.

For instance, the first attitude is well represented by Bruno Munari [9] when he uses recipes to describe the design methodology. Indeed, each passage in "The Green Rice" is a step of the design process from problem to solution. *Problem definition*: green rice with spinach for four people; *problem components*: rice, onion, spinach, oil, ham, salt, broth; *data collection*: has anyone ever made it? *Data analysis*: how did they make it? Can I learn anything else? *Creativity*: What is the best way to blend all the ingredients together? *Materials*: what kind of rice, pot, fire? *Materials experimentation*: tests, tastes; *models*: final product; *check*: For four people it's fine; *executive details*: green rice served on warm plate.

To explain the potential of narratives in the creative process, we have chosen a case study directly verified by a semi-structured interview with Laura Curino, who conceived this project [10].

The show "Mani grandi senza fine" (Big Warm Hands) was chosen by Cosmit as one of the Fuorisalone events. Staged in Milan at the Piccolo Teatro (artistic director Escobar), the idea was to celebrate Italian design not through a conference, but a show. The show was created by Laura Curino (actress) and Manolo De Giorgi (set designer) and Lucio Diana (light designer and video curator).

In the "ritual space of theatre, exceptional voices, heads and hands" return to life, as Laura Curino tells us in an interview. They make the dreams and ideas of extraordinary figures, whose "signs" are still present in our homes and in the objects which accompany us each day, shine. Design gives shape and meaning to the art of making: it innovates the way of writing a story. In this experience, theatre becomes the way to defend the primacy of the men who, half a century ago, in Milan, sensed the importance of innovation.

As Curino says, "In designing a theatre experience it is important to put the spectators inside the story, as they can't read it. The impact should be burning, the message should come immediately or never". To produce this result, the show was constructed with an affective-emotional approach. In the show there is a particular focus on the physicality of the designers: they are "personas". The Latin root of the word "persona" combines per (for) and sona (sound) and means "playing through". The "persona" was the mask used by actors and the voice that passed through the mask. To narrate the distinctive character of many design masters, Laura Curino identifies some specific behaviours. For instance, Vico Magistretti had a snob attitude, the Castiglioni brothers were continuously

[2] https://jeffreyschnapp.com/2021/01/20/experimental-museology/

joking on their multiple identities, Zanuso was irreverent and masculine but had a good relationship with children, and Sottsass was famous for his connections with the literary and the avant-garde culture.

The show was built around significant objects used as narrative devices: for the Castiglioni brothers, a mirror amplified their image as well as their relationship; for Zanuso, an aristocratic armchair upholstered with chequered fabric seems to tell a lot about his character; for Magistretti, the richness of his relationships is suggested by the fact that the window in his study was always open; for Sottsass, who had a deep nature but a simple attitude, the representative object was a Tuscan terracotta.

It is important to stress that in the structuring process of the show there were continuous responses between objects, their symbolic meaning and the word chosen for the narration. As Laura Curino tells us,

> "The notational tools that I have been using are extemporaneous: I have chosen the objects and placed them on the floor, then I've listened to my body and started to move among them searching for a possible gesture. It is a form of sound mask and, depending on the findings, I just write, or better I speak first and then write. Instead of speaking I am spoken".

4 Conclusions

In these scenarios, the *homo narrans* is the interpreter of a widespread narrative, which, according to Calabrese [11] is the significant attitude of the contemporary context. In his opinion, this narrative provides conceptual comprehension models of situations.

If we define a narrative as an orienting process of transformation, design and the change which involves one or more actors and focuses on dynamic directions, we can apply this concept to several areas of design and, in particular, to the relationship between design and narrative [10].

To better understand the relationship between design and narrative we quote the *Frame Theory* formulated in the Gestalt field of psychology. It is based on the idea that every experience is understood by comparing it to a stereotypical model. Recalling this theory is a cognitive prerequisite for its readability. Emphasis is also put on the capability of codifying the element inside this framework: neuroscientists enumerate these script elements. If the framework is the semantic paradigm of a fact, the script is the syntactic articulation. The scripts are catalogued as situational, personal and instrumental. Everything is articulated according to a syntax of gestures and actions fixed in the cultural tradition of a social context.

Cognitivists and neuroscientists classify the essential core of every narrative in seven components:

- the *setting*: the "spacialised" and contextualised environment,
- the *casual factor*: that introduces an initial transformation in the setting,
- the *interior answer*: the actor's motivation related to the setting,
- the *target*: the redesign the setting through something,
- the *intention*: from which the narrative is generated,
- the *action*,
- the *reaction.*

We find another interesting confirmation about this hybridization between design and narrative in the study of Genette, who speaks of an *architesto*. This word clearly recalls the comparison between the design practice and the narrative framework. In fact, he defines it as, "All the general categories (kinds of subjects, ways of utterance, literary genres…) that include every text." [3, 12].

References

1. Colombi, C.: La centralità della narrazione nel metaprogetto. In: Penati, A. (ed.) Il design costruisce mondi, pp. 23–33. Mimisesis, Sesto San Giovanni (2013)
2. Jegou, F.; Manzini, E.: Design degli scenari. In: Bertola, P., Manzini, E. (eds.) Design Multiverso, pp. 177–195. Polidesign, Milano (2004)
3. Trini Castelli, C.: Transitive Design. Electa, Milano (1999)
4. Celi, C.: Gli scenari come narrazione del possibile. In: Penati, A. (ed.) Il design costruisce mondi, pp. 49–61. Mimisesis, Sesto San Giovanni (2013)
5. Rodari, G.: La grammatica della fantasia. Introduzione all'arte di inventare storie. Einaudi, Torino (1973)
6. Trocchianesi, R.: Design e narrazioni per il patrimonio culturale. Maggioli editore, Sant'Arcangelo di Romagna (2014)
7. Brückner, A.: Scenography/Szenografie: Making Spaces Talk, Projects 2002-2010 Atelier Brückner. Continental Sales, Inc., Barrington (2011)
8. Caratti, E.: Progetto, narrazione e metafora. In: Penati, A. (ed.) Il design costruisce mondi, pp. 35–47. Mimisesis, Sesto San Giovanni (2013)
9. Munari, B.: Da cosa nasce cosa. Appunti per una metodologia progettuale. Laterza, Roma-Bari (1981)
10. Celi, M., Trocchianesi, R.: Design and theater: crossed paths. The narrative as a design approach. In: Diversity: Design/Humanities" Proceedings of Fourth International Forum for Design as a Process EdUEMG. Editora da Universidade do Estado de Minas Gerais, pp. 527–537 (2014)
11. Calabrese, S.: La comunicazione narrativa. Dalla letteratura alla quotidianità. Bruno Mondadori, Milano (2010)
12. Genette, G.: Palinsesti. La letteratura al secondo grado. Einaudi, Torino (1997)

NARRATIVES. Communications, Strategies, Tools

Space as a Narrative Interface. Phygital Interactive Storytelling in the Field of Cultural Heritage

Letizia Bollini(✉)

Free University of Bozen-Bolzano, Piazza Università 1, 39100 Bolzano, Italy
letizia.bollini@unibz.it

Abstract. The paper explores the evolution of interaction design and digital communication – with a focus on the phygital space and the enhancement of people experience – both from the theoretical as well as a design point of view, based on a phenomenological and critical mapping of recent and paradigmatic case studies. In doing that, it introduces, presents, and discuss the possible role played by the phygital space as a narrative device exploring possible combinatons – space, narrationa and technologies – of space-based, multimodal storytelling mediated by blended experiences and devices.

Keywords: Phygital experience · Cultural storytelling · Multimodal Interface Design · Cultural and Digital Heritage

1 Hybrid Environments for Multimodal Experiences

"People don't actually design experiences, but environments in which experiences happen." [1]. Digital design has been playing a huge role in the field of creation, communication and curation of cultural artefacts, experiences, and systems. The relationship between design and cultural and historical institutions, with authors, artists, and people – visit-actors or [2] or visit-author [3] (shifting the concept from consumer, according to marketing perspective, into visitors with a proactive role, according to a more cultural-centric point of view – innovating the field of preservation, valorisation, and exhibit as well. Besides, the two-year pandemic emergency with the lockdowns and other restrictions has been a (forced) opportunity for GLAMs – Galleries, Libraries, Archives and Museums – as well as for the educational world to rethink the in-presence, or site-specific visits, and to explore new modalities to keep in touch and engage the public in the digital-mediated realm. In fact, the dichotomy presence/distance that possibly opens the notion and challenges concept of space itself – physical, relational, blended, or cognitive – as well as tangible/immaterial [4] are the spectrums in which the cultural experience is trying to find new possibilities [5]. Cultural venues, closed due to the pandemic, are opening thanks to storytelling, curatorship, or participatory and choral construction [6], which digital, social, and other onlife [7] interactions make fertile ground for new ways of enjoying them. Collections, itineraries, and exhibitions are rearticulated thanks to the

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 613–622, 2024.
https://doi.org/10.1007/978-3-031-49811-4_58

aggregation of hashtags with which people search, label and share a narrative mashup [8] that creates original stories and bottom-up curations which seem to fullfill the original promise of the web 2.0's folksonomies [9] and grassroot disintermediation [10]. A good example of these new practices is the path taken by the Uffizi Museum Centre in Florence, already before 2020. The strategic vision of the director and the social media manager and the synergies created within the curatorial culture itself have led the museum to explore and innovate its online/onsite communication, creating a space for dialogue and participation especially for the digital native generations. Communication moved along two main assets. The first exploited the channels and online environments used above all by Gen Z (1997–2010) and Gen Alpha (born after 2010), i.e. Instagram and TikTok, leveraging the great evocative power and iconicity of the museum's master pieces elaborating transversal narratives that break the historical linearity to recompose it in aggregations of meaning. The two social media based on images and audiovisual reels facilitated the enhancement of a visually engaging artistic heritage and an active and interactive participation played on the thread of humour to make culture accessible and engaging. The second asset was the co-involvement of one of the world's best known influencers – Chiara Ferragni – who visited the museum during the lock-down, portraying herself in front of the most famous paintings and generating, both through the museum's official channels and within her own social base of followers a viral effect in terms of communication and visibility on segments of the public that currently "escape" traditional/institutional cultural communication. The effect was much less virtual, i.e. a +27% increase in access by young and very young people in presence-attendance during the first weekends of reopening.

The online fruition, which is deprivatory – compared to a site visit – of the possibility of moving around in the physical exhibition and of the spontaneous interplay between people and the space, nevertheless it enriches the interaction mediated by the two-dimensional interface, to which the act of planning and curatorship must be *reduced.* On the contrary, limitation becomes an opportunity to restore complexity to the experience. In fact, interaction is enriched by different channels of fruition that, although deprived of direct sensory experience, offer a generous [11] multimodal synesthetic and cognitive pathway.

2 Fragments, Clusters and Narrative Plots

Under the push and the necessity of collapsing or blending the actual cultural locations and their remote access through digital devices and tools, the natural evolution of the *repository* space offered by the net – mainly based on the hypertextual structure of navigation [12] and according to an archive paradigma – is shaped by a different perspective that ephaties the narrative side of the overall architectural structure. A path according to which people are free, but at the same time "supported" and accompanied in "making sense" [13] of the *knowledge chuncks* disconnected from the visit and proxemic flow or experienced outside their natural context. The fourth revolution, in fact, has made possible to deconstruct not only the physical unity of the museum location, but also and above all, the conceptual space of the collection and the constrains of belonging. The art works and historical artefacts become primordial cells, atoms of culture and

memory that aggregate, disassociate and recompose themselves in conceptual clusters and meaningful connections other than the static and given exhibition space. The concepts become *nomadic* and *transversal*, they intertwine in a continuous movement that stratifies their readings, relations and contaminations. It is the utopian space in which the same painting, the same fragment, the same document can simultaneously belong to a physical place and to multiple virtual places that recompose in a dialogic manner the relationship between the *self* and the *similar*, the *self* and the *other*. It is the dominance of meta-data, ontology and semantics that, in the face of the single object, compose infinite reading planes: the chimera of multidimensional cataloguing that generates without ever being able to exhaust, almost like an Escherian architectures, umpteen reading keys, like Warburg's visual atlases or the multi-faceted universe of Ranganathan's classifications [14].

3 Method: The Research Approach

If the relationship between GLAMs and the multimedia and internet world has been established since the beginning of the digital era, the shift created by the mobile devices and the actual phygitalisation and the diffused ubiquity of technologies suggests a further conceptualisation of the field. The proposed subdivision between /onsite/ and /online/ [15] seems no more suitable to describe the complexity of the ongoing transformations. As suggested by Turkle [16] back in the 1990s and labeled as onlife by Floridi [7] in 2015 the continuum between the online/0n-life/off-life – according to the new definition given by philosopher Caffo [17] – questions the paradigms of cultural experience we explored so far. According to this perspective, the research explores a first mapping activity to understand how the cultural institutions are facing the transition thank to the analysis of case studies. In particular it develops as an explorative model, a radar graph to qualitatively categorise the projects listed and selected, according to three criteria/axis, i.e. *Space* (a); *Storytelling* (b); *Technologies* (c). The work in progress activity has, as inbetween goal, the creation of a taxonomy of phygital storytelling in the field of cultural heritage to infer guidelines for future projects, mainly for small heritages, not always able to invest in developing new strategies of communication and engagement.

a) The concept of *space* is considered here in its multiple possible declinations that include both physical aspects - in this sense, experienced, in situ, situated and embodied places - and virtual aspects, understood as two- and three-dimensional, immersive, simulative and virtual (AR, VR, XR) digital places where technology is the experiential medium, hybrids, i.e. where systems (cognitive and instrumental) contaminate each other to the point of blurring and collapsing. b) *Storytelling* is understood both in its narrative dimension, in the strict sense, i.e. the development of a plot that follows sequential, metaphorical or archetypal paradigms – also in the recent interpretation proposed by Baricco [18] in the short essay *La via della narrazione* – but above all in its dialogical dimension. c) *Technologies*, which are often at the centre of many projects, are studied as an enabling and augmentative part – not in the sense of augmented reality – but as an enhancement of the possibilities of access to information and knowledge, enrichment and extension of the experience. In the light of these interpretative keys, three projects were chosen from among the possible ones mapped, representing as many paradigmatic interpretations of the intertwining of the parameters.

While traditional interaction models allow for a staging in fixed, pre-established spaces, strictly separated from the place where the user is and from which he or she orchestrates the interaction, the experience remains simbolic and is shaped by metaphors dictating laws and principles that the interaction must follow. It is the direct manipulation of the non-existent in which, in order to interrogate the physical object, we interact with a virtual and conceptual space loaded with information. It is in this recomposed discontinuity that the loss of context and structure is compensated for by the story-telling dimension of digital display and interaction. The nomadic and isolated fragments weave new and multiple relationships within a curatorial narrative fabric, translating physical scenarios into cognitive territories and migrating statutes into relational meanings.

3.1 *The Cloud Pavillion*, Narrative Dialog Between Space and Avatars

The panorama of experience and experimentation in this field goes back as far as the 1990s with experimental art projects in which the exploratory, meta-design and reflective component coexisted with installations and exhibitions itself, the object and subject of research aimed to translate into new languages and fruition the spatial and digital realm. The traditional descriptive dimension that accompanies the visitor on a didactic, when not didactic, path of knowledge becomes a dialogue between object/exhibit, subject/experience and space/context. The scenery of immersive experiments in the physical and virtual museum scenario is broadened and structured in the work of Studio Azzurro [19] or in the info-installations of iO16 in which the physical, proxemics and proprioceptive interaction of our relationship with the environment leaves the monitor's mise-en-scène and pervades the space of reality, superimposing itself like a layer of knowledge.

A paradoxical example of this duality is well represented by the German pavilion at the 17th Venice Architecture Biennale 2021, the so-called Cloud Pavilion. The structure appears empty and bare to the visitor, who wanders among the rooms feeling that sense of estrangement so familiar in that onlife that characterized the lockdown. A being present in another space, here deprived of any other sensory dimension other than pure walking, the founding act of the exhibition experience, this time without a path, a goal or a specific direction other than a vain exploration. On the contrary, an offlife [20] which, denying itself to dialogue, dramatically reminds us of the simulacral value of the period we lived through. The interaction, however, takes place. In a a-site-specific dimension: another space, accessible via a personal device and a QR code or directly from the app. Here people find themselves in the three-dimensional simulation of the exhibition space projected in the near future 2038 in which many of the problems of contemporaneity seem to be solved in one of the *possible* [21] or *desirable* [22] futures, built from, or as an alternative to, the present. Two artificial intelligences accompany, chat and guide people through new scenarios – edenic as well as dystopian (!) – both in the form of abstract avatars and genderless voices. The narration becomes dialogue, in a continuous reference in which the real and the virtual are reflected, integrated and where they merge and confuse. The *remediation* of the space [23], then, is the crucial turning point of this new hybrid realm.

3.2 *TeamLab Planet*, Osmosis, Convergeses, Performances

The role of space thus becomes the nerve centre for these intertextual writings and for the collapse of individual, relational and collective layers. Questioning the ontological qualities of space and our being intrinsically and inextricably situated in it is outside the scope of this research, yet its connotation becomes a prerequisite in design terms. As in the deferred and dislocated and osmotic performances of Florian Feigl and Christopher Hewitt already realised in 2014 [24] – for instance Dissolved. The Uncanny Valley telematic performance held at the same time in Berlin and London – or the multi-sensorial and synthetic experiences of the TeamLab collective's installations – one among all the Tokyio's Planets (https://planets.teamlab.art/tokyo/) installation that inaugurates the strand in 2018 – real and digital collapse according to two processes that are at once divergent and convergent. The use of mobile devices that fragments the fixity of the monitor-computer-keyboard posture [25] and brings people back into space, so that technology comes out of the "black box" and ditributes itself thanks to Ubiquitus Compiuting and IoT (Internet of Things) on the "surface of the world", making data and information always accessible and often contextual. Environments become sensitive and sensory [26], hybrid and phygital and as such embrace new paradigms of experience, interfacing and interaction. The hybridocene [27], a possible derivation or development of a technology-mediated and technology-enabled reality [28] explores narrative ways of reconnecting past and future in the situated and embodied present. Curiously, in this blended space, interaction returns to be strongly sensorial, tactile and multi-aesthetic. Virtuality, or rather syntheticity, in its simulative [29] and mimetic meaning, reopens our being located at the centre of the perception and knowledge process. in the case of Planets, for example, even the more virtual and abstract dimension, created by the dialogue between the people who impute and perturb the environment via their smartphones and the space dynamically 'dressed' by the artificial intelligence algorithm, generate an environment made of light and hyperreal space. The individual and intimate dialogue between the agent-person and the platform-algorithm generate a participatory narrative that never repeats itself and simulates at the same time the ever-equal and ever-different infinite cycle of natural the seasons. Althought yet mediated by a device and projected in a blended space, the people interaction shifts from an input-output exchange, to a choreography played in the space [30]. The space itself is the interface, and immaterial surface that enable the contact between the agent and the scope, here abstract, immaterial and emotional. The exhibition doesen't *show* anymore, but rather creates a *feel* to be explored as any engaging story, able to create new and immaginific worlds. The typical linear flow of the narration [31] – of course, whit ups and downs and the gaussian shape – leave room to a network of possible touch-points distributed in the hybrid ecosystem of communication, more similar to a score to be played, interpreted according to one's own personality and sensibility. The phygital space – physical, hybrid and digital – is then the stage where people acting and interacting improvise their particular time-site-based co-authorial curation. In the end, it is the performative act that creates *the* story similar, but unique of every exploration.

3.3 *Arch of Light*, Associative Plot, Metaverses and NFTs

If this is, more or less, the actual scenario and part of the debite regarding the relationship between cultural heritage – material or intangible – the new wave, or the possible further revolution of the Web3 is adding new variables to be discussed. Beyond the many potentials and variables, certainly at least two phenomena seem both promising and ambiguous with respect to the development of curatorial practices and studies in the field of cultural dissemination (Fig. 1).

Fig. 1. Le Gallerie degli Uffizi: official social media account on TikTok (a) and Instagram (c) and bottom up interactions (b) generated by visitors.

.

On the one hand, meta-verses represent new ways and new worlds to show, visit or experience. The three-dimensional configuration, haptic-prossemic simulation, multimodal languages, simulative and immersive capabilities can become a field of experimentation to the extent that they can break free from a low-resolution/hyper-realistic mimetic model. Augmented, immersive and virtual exploration can in fact be the site of a narrative that transcends and coexists with the physical limits of reality. The very patterns of behaviour and interaction are, in some ways, connected to our natural proxemics on the one hand, but also contiguous to the imagery of gaming and entertainment, i.e. akin and familiar to the new generations accustomed to the convergence of playfulness [32] and learning, play and culture. How and what stories the GLAMs will be able to tell is still to be explored and – as always with the arrival or reappearance of new technological waves – although we are beginning to see some experiences more fascinated by the technical potential than by the dialogue with people, which are in any case at the heart of any experience. However, it can be hoped that – mindful of the lesson of MUDs (the multiplayer real-time virtual worlds) of the pre-Internet era and SecondLife of the early 2000s – the world of Cultural Heritage will find a original and appropriate way to exploit the narrative potential of three-dimensional virtual spaces (Fig. 2).

But the phenomenon – or the buzz word of the moment – that is changing both the world of traditional digitised art-historical assets and those already natively virtual are Non-Fungible Tokens. Within the narration of cultural heritage, NFTs add a novel variable that further hybridises the physical space and object dimension. One of the earliest examples of the phygital experience and its potential is the first monument – the Arco della Pace in Milan – which earlier this year (more precisely between 31 December 2021 and 1 January 2022) became the first one to enter the metaverse as

Fig. 2. The Cloud Pavillion / 2038 The New Serenity, Germany Pavillion at the 17th Venice Architecture Biennale 2021 / digital app.

cryptoart as an NFT [33]. Realised by the Instanbul-based collective Ouchhh Studio and curated by Reasoned Art (an gallery focused on digital art), the monument/installation – the paradigms of the 20th century now seem inadequate to describe the mixing and overlapping of genres coexisting in the *hybridocene* – came to life in a multiformity of modalities and channels. Video-projection, immersive experience, live-happening or data-sculpture created by an Artificial Intelligence algorithm, the event was live-streamed on Youtube, instagram and Facebook. AI DATAPORTAL_ARCH OF LIGHT – this is the title of the work – "extrapolated elements from more than 20,000 works of art created over a wide period of time and belonging to different artistic currents that developed from Byzantine art to contemporary art. In addition, Ouchhh made use of the data from the map of the Italian firmament collected by NASA and the digitised Italian literary heritage from more than 700 years of history. Masterpieces from the history of Italian art by masters such as Raphael, Leonardo, Caravaggio, Titian and many others are brought to life in the form of a new work of art that combines art and science. Using digital data as colours and the algorithm as a paintbrush, Ouchhh Studio aims to connect the physical and virtual worlds by redefining the future of art." [34]. If this work represents an orginal experiment in phygital heritage storytelling, NFT represents, from a certain point of view, an artistic product in itself and a new form of heritage. Whether originally "analogue" or natively "virtual" – whether this classificatio still makes sense – the transformation into NFT enshrines not only the ownership/uniqueness of the object, but above all its digital existence, to the extent that new museum structures are springing up to display them. It is the case and the case of the Seattle NFT Museum, founded in 2022, the first of its kind "designed to bring together artists, creators, collectors, and the broader blockchain community. […] to display their NFTs for visitors in a highly contextual, physical setting." [35] The interesting – and perhaps somewhat dystopian – aspect looking at the images of the exhibitions on the website is that the NFTs are displayed framed and hung along the walls of the galleries in which the space is organised, as if they were paintings rather than digital experiences.

It is precisely on this last aspect that the future challenges posed by the phygital will be played out. On the one hand, the reflexive ability to conceptually rethink the world of dissemination and participation in the world of cultural heritage, but above all, the search for new languages and original, autonomous solutions for cultural storytelling that fully exploit the potential offered by technologies.

4 Discussion and Conclusions

By comparing the three case studies as paradigms of as many possible case studies and approaches, we can outline some ways of declining the three parameters adopted in the research. In the first case analysed, the narrative is played out in a dialogical manner between the real and the virtual, be it the absent space, or the digital environment in which one interacts by transposition. it is in the latter that people and the avatar interact in a **"**dramatic**"** manner according to the idea of laurel [29], that is, a dialogue that finds in the relationship with an artificial intelligence an original plot from time to time and a narrative that is dynamically generated. In the second case, however, the narration takes the form of a performative act, almost a happening, in a continuous loop of stimuli/inputs mediated and in betweenby sensorial feelings and digital devices, as well by the interaction with an actual and – at the same time – projective space**.** Finally, the third examples plays a role in creating and mixing the new statute of the relationship between the cultural heritage and its unique identity questioning the concept of cultural object in itself. The stratification of different fragments creates original meanings offering possibilities of narrative paths according to the key chosen to decodify the layering both of the physical space as well as the one generated and superimposed by the artificial intelligence.

A phygital approach, then, seems to be not only a promising, but an unavoidable one. On the one hand, phygital represents an opportunity to integrate and augment the planes that, through technology, intertwine, i.e. the real understood as physical and bodily situated experience, and the digital, i.e. the mediated or virtualised, two-dimensional, dialogic or immersive experiential and cognitive dimension. On the other hand, potential developments will be mainly related to generational change, a change that in scope goes beyond the physiological turnover, and configures new ways. On the other hand, potential developments will be mainly related to generational change, a change that in scope goes beyond the physiological turnover, and configures new modalities. In fact, the real change is in the design perspective, if it is explored by designers who are not only digital natives - we could say third generation by now - but above all parameterised on new modes of interaction that find their scope in the digital, but in the fragment, in the playful approach, in the streaming mobile.

References

1. Budd, A.: @andybudd on Twitter, 23 June 2019. https://twitter.com/andybudd/status/1142582773984763904(11/09/2022). Accessed 27 Sept 2022
2. Fabris, P.: Il nuovo consumatore: verso il postmoderno. Franco Angeli, Milano (2003)
3. Morace, F.: Consum-Authors. The Generations as Creative Enterprises. Scheiwiller, Milano (2008)
4. Lippard, L.R., Chandler, J.: The dematerialization of art. Art Int. **12**(2), 31–36 (1968)
5. Barricelli, B.R., et al.: Experiencing contemporary art at a distance. In: Ardito, C., et al. (eds.) Human-Computer Interaction – INTERACT 2021. LNCS, vol. 12936, pp. 344–347. Springer, Cham (2021). https://doi.org/10.1007/978-3-030-85607-6_34
6. Guerra, M., Ottolini, L.: In strada. Azioni partecipate in spazi pubblici, Corraini, Mantova (2019)
7. Floridi, L. (ed.): The Onlife Manifesto. Springer, Cham (2015). https://doi.org/10.1007/978-3-319-04093-6

8. Rossi, D.: The History of Art According to Instagram. Centro Di, Firenze (2021)
9. Jenkinf, H.: Convergence Culture: Where Old and New Media Collide. NYU Press, New York (2008)
10. Nuno, B.: Transmedia 2.0: How to Create an Entertainment Brand Using a Transmedial Approach to Storytelling. Beactive Books (2014)
11. Whitelaw, M.: Generous interfaces for digital cultural collections. Digital Humanities Quarterly (2015). http://hdl.handle.net/1885/153515
12. Bollini, L.: A Human-centered perspective on interactive data visualization. A digital flâneries into the documentation of Historical Italian Mind Science Archive. In: Ceccarelli, N., Jiménez-Martínez, C. (eds.) 2CO Communicating Complexity 2017, pp. 106–114. Universidad de La Laguna, Santa Cruz de Tenerife (2021)
13. Covert, A.: How to Make Sense of Any Mess: Information Architecture for Everybody Create Space Independent Publishing Platform (2014)
14. Ranganathan, S.R.: Le cinque leggi della biblioteconomia. Le Lettere, Firenze (2010)
15. Mandarano, N.: Musei e media digitali. Carocci (2019)
16. Turkle, S.: Life on the Screen: Identity in the Age of the Internet, Simon & Schuster (1997)
17. Caffo, L.: Velocità di fuga. Einaudi, Sei parole per il contemporaneo (2022)
18. Baricco, A.: La via della narrazione. Feltrinelli (2022)
19. Azzurro, S. (ed.): Musei di narrazione. Ambienti, percorsi interattivi e altri affreschi multimediali. Silvana, Milano (2011)
20. Bai, X., et al.: Plausible and desirable futures in the Anthropocene: a new research agenda. Glob. Environ. Chang. **39**, 351–362 (2016)
21. Gümüsay, A.A., Reinecke, J.: Researching for desirable futures: from real utopias to imagining alternatives. J. Manage. Stud. **59**(1), 236–242 (2022)
22. Treleani, M., Zucconi, F. (eds.): Remediating Distances. Img. J. **3** (2020)
23. Coyle, P.: Dissolved. Station House Opera (2013)
24. Bollini, L.: Designing performative interactions: blended space as interface. Imago. Studi di cinema e media **23**, 141–158 (2021)
25. Bollini, L.: Sensitive environments. Spatial interactive technologies for preserving cultural heritage. Artlab (40), 44–47. Integrata Editrice, Milano (2011)
26. Ibichino, P.: #Ibridocene: La Nuova Era del tempo sospeso, Hoepli, Milano (2021)
27. Lanier, J.: Dawn of the New Everything: Encounters with Reality and Virtual Reality. Vintage Digital (2017)
28. Accoto, C.: Il mondo in sintesi: Cinque brevi lezioni di filosofia della simulazione. EGE, Milano (2022)
29. Laurel, B.: Computers as Theatre. Addison-Wesley, Boston (1993)
30. Vogler, C.J.: A Practical Guide to Joseph Cambell's The Hero with a Thousand Faces (1992). https://web.archive.org/web/20161026112937/, http://www.thewritersjourney.com/hero's_journey.htm#Practical
31. Ferrara, J.: Playful Design: Creating Game Experiences in Everyday Interfaces. Rosenfel Media, San Francisco (2012)
32. L'Arco della Pace di Milano sarà il primo monumento al mondo nel Metaverso. Arte Mag. (2022). https://artemagazine.it/2022/01/05/larco-della-pace-di-milano-sara-il-primo-monumento-al-mondo-nel-metaverso/
33. Durante, E.: AI Dataportal_Arch of Light: Ouchhh Studio a Milano. Juliet. Contemp. Art Mag. (2021). https://www.juliet-artmagazine.com/ai-dataportal_arch-of-light-ouchhh-studio-a-milano/
34. https://www.seattlenftmuseum.com/

Worldbuilding Practice as a Collaborative and Inclusive Design Process. The Case of ACTS-A Chance Through Sport

Mariana Ciancia(✉) and Francesca Piredda

Department of Design, Politecnico di Milano, Milan, Italy
{mariana.ciancia,francesca.piredda}@polimi.it

Abstract. This paper aims to address the power of worldbuilding practice in promoting shared and collective imagination, activating a process of cultural and narrative change.

Specifically, the work presents a collaborative, social project entitled *ACTS—A Chance Through Sport*, whose main aim is to promote sports in prison as a tool for social reintegration, according to a multidisciplinary approach combining architecture, engineering, and design competencies. The focus is the work conducted by the Imagis Lab research group (Department of Design, Politecnico di Milano) regarding the role of narrative-based strategy in enhancing the transmission of values and messages through worldbuilding practice. Far from being a narrative gimmick for selling stories, it can allow people to participate in and interpret culturally situated narratives providing ownership.

As such, the first part of the paper will describe how the project *ACTS—A Chance Through Sport* has addressed the role of narrative-based processes in promoting inclusion. Then the second part is devoted to presenting the *narrative-based design framework*: practical strategies for rethinking stories in practice that we have developed in our research since 2013.

Keywords: worldbuilding · narrative change · narrative-based design framework

1 Introduction

Contemporary Western society is characterised by the spread of hegemonic narratives (so-called Western culture), promoting the univocal imagery of reference related to large-scale universal values. Nevertheless, multiple stories can and need to coexist, leveraging the ability of storyworlds to express the values and meanings of specific cultures, not just the hegemonic ones [1].

This contribution is the result of collective work. For academic purposes, we inform Mariana Ciancia, and Francesca Piredda are joint authors of paragraphs 1. Introduction, and 4. Final Reflections.
Mariana Ciancia is the author of the paragraph: 3. The Narrative-Based Design Framework;
Francesca Piredda is the author of the paragraph: 2. Rethinking Stories in Practice.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 623–631, 2024.
https://doi.org/10.1007/978-3-031-49811-4_59

Storytelling is an activity that has always characterised human beings, contributing to shaping reality [2]. Moreover, stories can transcend linguistic, cultural, and age barriers [3], building mutual trust among individuals within a community. Since stories give meaning to life experiences, they may be considered educational, entertainment, and a purely aesthetic form of escapism. However, they certainly have the power to influence the shared value system and impact the culture of which the stories are expressions.

Given such premises, as researchers in the communication design field, we decided to test storytelling practices in marginal contexts to foster social inclusion and dialogue among different stakeholders. Specifically, the reflections are related to storytelling and worldbuilding practice [4, 5] in giving voices to people whose rights are suspended, enhancing the transmission of values and messages through worldbuilding practice and narrative-based strategies.

2 Rethinking Stories in Practice

The focus of this paper is the work conducted by the Imagis Lab research group (Department of Design at Politecnico di Milano) within the project *ACTS—A Chance Through Sport* (herein after ACTS) regarding the role of narrative-based strategy in enhancing the transmission of values and messages through worldbuilding practice. According to a multidisciplinary approach combining architecture, engineering, and design competencies, ACTS aims to promote sports in prison as a tool for social reintegration. The main experimentation part was undertaken at the Bollate Prison in Milan, a recognised international example of an open-cell prison [6].

The main results derived during the pilot project are the following:

- interventions for the requalification of prison spaces;
- monitoring the motor activity of a sample of the prison population (inmates and prison police officers); and
- collaborative storytelling activities.

Our scientific contribution involves investigating and prototyping collaborative storytelling practices to support the construction and reconstruction processes of individual and collective identities, considering the educational purposes of prison facilities [7] and the power of imagination in shaping the function that sports can represent.

What emerged from our desk research and interviews with inmates, prison officers, and educators is that it is a common belief that sports activity in prison is merely a hobby. While with children, it is considered a natural and necessary pastime, with inmates, the emphasis on crime and punishment neutralises the potential of these activities.

In light of such a premise, we decided to design storytelling activities to experiment with the transformative power of narrative to experience a virtuous synergy between an innovative vision of educational treatment and a storytelling-based co-design approach. The aim was to stimulate the inmates to tell their stories and collect narrative elements (fictional and non-fictional) inspired by or adhering to their personal experience of sports in prison. The result is a system of storytelling activities based on an individual narrative exercise (Phase 1) and a collaborative storytelling workshop (Phase 2).

During **Phase 1** (October 2020), 55 inmates voluntarily participated in an individual storytelling activity that created 51 characters using a tool we developed in previous

research [8, 9]. As a bridge between the listening and creative phases, we conducted the first storytelling activity in person and then remotely in 2020 given the pandemic situation [10]. We wanted to allow each participant to express themselves directly by constructing an imaginary character from the elements of their own experience. In this way, we investigated the collective imagination of the prison population and their willingness to get involved in further storytelling activities.

Thus, creating a character was the starting point for the participant to express themselves by telling their story or inventing a fictional character from familiar elements. The result was writing and sharing with others their own experience, their point of view, or an opportunity to put themselves in someone else's shoes or even reimagine themselves. We then analysed the resulting 51 characters from a qualitative point of view to understand the imagery of reference and gather narrative elements useful for an outward narrative.

During **Phase 2** (21 June 2021–8 July 2021), storytelling activities focused on creating individual stories and defining a storyworld able to contain them, experimenting with the integrated use of co-design processes and the co-creation of narratives. The primary objective, to identify and gather elements to build multimedia content to be spread externally, was then complemented by sub-objectives related to the narrative experience of the participants:

- investigating the imagery of sports practice within prisons;
- experimenting collaborative writing processes with non-experts;
- experimenting with storytelling as a transformative process;
- testing the use of storytelling as a tool to facilitate the process of self-representation; and
- identifying new expressive tools to support/unlock creative processes.

Because of COVID-19 restrictions, the collaborative storytelling activities were conducted with two small groups of inmates: 5 from the Men's Ward and 7 from the Woman's Ward. As a result, we obtained several narrative outputs created by the detained people using *ad hoc* designed tools to fuel the narrative, according to an iterative co-design process: 12 characters and sports stories, 1 shared storyworld, 1 documentary, and 1 podcast (ongoing).

From the systemisation of the tools used during the collaborative storytelling activities and reflection on the process, the scientific result derives the *narrative-based design framework*.

3 The Narrative-Based Design Framework

Since 2013, our research has focused on defining narrative processes and storytelling tools to empower the design activity. As a result, we developed a methodology based on the idea that collaboration in constructing story-based content is central to fostering social inclusion and disseminating results to the public, exploiting the dialogue among different stakeholders.

The three-step process for designing story-based content, developed in previous research and teaching experiences, was maintained. The narrative-based tools were then adapted to support the collaborative storytelling activities (Phase 2). In this iteration of

the narrative design process, we decided to activate the imagination of the inmates using analogue stimuli given the restriction that works in prison carry with it. Specifically, we complement our narrative tools with a kit consisting of three decks of cards composed of images, keywords, and questions that trigger memories, emotions, and ideas to support the building of characters and the world of reference.

3.1 Process, Methods, and Narrative Tools

The process adopted was developed as part of previous research and teaching experiences [9–11] and consists of three phases: *collecting*, *crafting*, and *reframing* [12]. Each phase is briefly described below as applied to the Bollate pilot, describing its activities, participants, methods, and associated narrative tools (see Table 1).

Table 1. The Narrative-Based Design Framework

Phase	COLLECTING	CRAFTING	REFRAMING
Activities	Collection of information: words, sounds, and images depicting situations, actions, and quotes from the imaginary references	Co-creation of stories and storyworld: construction of narrative elements (fictional or non-fictional), inspired by or adherent to their personal experiences	Dissemination and exploitation: design, production, and multichannel distribution of content
Performed by	Researchers	Participant (non-expert)	Researchers and participant (non-expert)
Method	Desk research, brainstorming	Co-design narrative session	Co-design narrative session
Narrative-based tool	//	3 decks of cards: Character Wheel, Storyworld Canvas, Role Map	//

The *collecting phase* took place between May and June 2021. This phase was meant to be an activity of research and preparation of content and working tools by the researchers from their visual references and *repertoire*. Moreover, it was fuelled by the insights gathered during the listening phase and emerged during the individual storytelling activity carried out in Phase 1. Operationally, this involved selecting and preparing narrative stimuli to be used during the following phases: written material (notes, memories, quotes), visual material (images, photos, sketches, illustrations), audio recordings, and video clips. We paid particular attention to selecting, preparing, and printing the iconographic repertoire. Indeed, it was impossible to have an internet connection and the tools we usually bring to support image research (such as analogue and digital magazines and

scissors) for security and control reasons inside the prison. Moreover, the COVID-19 emergency significantly reduced interaction possibilities with the prison population. As a result, we were forced to reduce the size of the group participants, with a subsequent duplication of meetings and a consequent reduction of time allocated for activities.

The *crafting phase* took place between June and July 2021 and consisted of five meetings lasting about three hours per ward. Each session was devoted to defining a specific narrative element to accompany the inmates on their story construction journey. At this iteration of the **narrative-based design framework**, we felt the need to support the narrative tools we developed with an additional tool. Given the constraints of conducting these workshops in prison, we designed a kit consisting of three decks of cards composed of images, keywords, and questions for triggering the participant's imagination that will be discussed later.

The first meeting was devoted to character construction using the *Character Wheel* [8, 9]. On this occasion, the narrative activity was guided by us, stimulating the building of the character through the choice of visual and textual cards contained in the kit. The results were several moodboards: a spatial organisation of the cards to represent the imagined characters visually. The second meeting shifted the focus to narrative world building using the *Storyworld Canvas* [9, 11]. The definition of the narrative world was guided by the joint use of the narrative tool with the visual and textual card kit. Again, the result in the moodboards was discussed collaboratively, becoming the starting point for the third meeting.

The third session focused on the collaborative construction, through storytelling and dialogue, of a shared narrative world capable of accommodating all the characters developed. Then the fourth meeting was devoted to reviewing a specific aspect of the co-created narrative world. We focused the discussion on sports to investigate the role and space devoted to physical activity in this narrative world and the emotions associated with sports activity. Finally, the fifth and last meeting was devoted to telling a sports story according to the typical three-act structure [13]. On this occasion, the *Role Map* tool was used, which allows each character to be assigned a role within the story concerning his or her aims, conflicts, and relationships with other characters, supplementing it with a series of new cards developed from the *Six Antenarrative World Questions* [14].

The *reframing phase* started in September 2021. It involves the design, production, and multi-channel distribution of audio-visual and multimedia content led by researchers. The outputs are twofold: a documentary on the activity of the research project in its entirety to disseminate the results and the co-design activity of a podcast series whose episodes are written by the inmates. The podcast was designed starting from the characters and the stories written by the participants in the workshop with the following aims: giving a voice to people whose rights are suspended and offering those living outside prison a direct, honest, hard-hitting, sometimes ironic telling of experiences coming from the margins of society but that each of us can recognise as familiar and universal. These results were disseminated at the *Padiglione d'Arte Contemporanea* (PAC) in Milan from 9 October 2022 to 6 November 2022. In the project room, on the occasion of the *Laboratorio Carcere* exhibition dedicated to the research that the Politecnico di Milano has been conducting in Milan's penitentiary institutions since 2014, the documentary and the pilot episode of the podcast are put on display.

3.2 A New Narrative Aid: Deck of Cards for Sparking Imagination

Imagery becomes a resource we can draw on as human beings if we understand it as a repertoire for understanding ourselves and the world. Italo Calvino [15] describes the imagination as 'a repertory of what is potential, what is hypothetical, of what does not exist and has never existed and perhaps will never exist but might have existed' – that is, 'a world or a gulf, never saturable, of forms and images'. In other words, a circular exchange between humans and the imaginary fosters knowledge production.

Considering these premises, we developed our storytelling-based co-design approach and narrative tools to activate processes of imagination and self-representation. Indeed, Lee Sheldon, an expert in storytelling and character development, states, 'Imagination and talent cannot be taught, but they can be encouraged. Give a craftsman the tools he needs to create, and both imagination and talent can blossom' [16].

To create a shared imaginary and narrative world, we made the inmates authors of their stories, providing them with tools and narrative elements, which were subject to improvement, according to an iterative co-design process. As aforementioned, we needed to complement our narrative tools with a kit consisting of three decks of cards using analogue stimuli (images, words, quotes, and questions) to activate the imagination and narrative building.

To design them, we started by analysing existing systems to understand their mechanics and operation to support applied creativity. On the market, it is possible to find storytelling card games, examples of which are given below. *Once Upon a Time* (Lambert, Rilstone, & Wallis, 1994) uses a deck of cards to stimulate the collaborative development of storylines, encouraging players' creativity. *Story Cubes* (O'Connor, 2005) can be intended both as a game for one or more players (party game) and as a tool for enhancing imagination and overcoming writer's block. Analogously, *Fabula* (Di Pascale & Binasco, 2016) is a tool made up of 40 cards to drive story construction and deconstruction, funded through a crowdfunding campaign on Kickstarter.

From the analysis, we realised that we covered the aspects of building narratives according to aspects of narratology in our storytelling tools, such as the *Character Wheel*, the *Storyworld Canvas*, and the *Role Map* [8, 9, 11, 12]. What was missing was something that could unlock the imagination process by arousing it through visual stimuli. Therefore, we referred to the tarot, a deck of cards used in various parts of Europe since the mid-15th century, to unveil the hidden story and investigate the inner self or as an illustration system for story development. Not by chance, in *The Castle of Crossed Destinies*, Calvino [17, 18] used tarot as a narrative experiment where characters use illustrations as visual aids to build and communicate their storylines.

In light of such premises, we designed a kit consisting of three decks of cards using analogue stimuli (images, words, quotes, and questions). It aims to support the tools dedicated to creating characters and the narrative world to bring out the participants' imagery: a visual deck, a textual deck, and a white deck that allows them to express themselves freely.

The visual deck has been used for character creation (in combination with the *Character Wheel*) and storyworld building (with the *Storyworld Canvas*). The categories of the visual deck are environments, food, emotions, jobs, lifestyles, sports, and history. In the first instance, we selected images by identifying a mix of sources and styles ranging

from universally recognised images from art and photography to iconographic representations from personal archives or the web. To these were added other images that enriched the deck, and we searched them by following their stimuli.

The textual deck consists of three subgroups associated with specific activities:

- Character creation: consisting of a set of guiding questions for filling out the *Character Wheel* and a set of quotes. The quotes were not only chosen from movies/books and recognised authors but also collected during the listening phase of the project (September 2020–January 2021).
- Storyworld building: a series of questions to guide and stimulate the use of the *Storyworld Canvas*.
- Story writing: a set of questions inspired by the *Six Antenarrative World Questions* [14] to be used with the *Role Map* to support inmates in writing the sports story. We used different questions, such as the following:

  - What has happened before?
  - What is keeping the pot boiling?
  - What motivation made you decide to play sports at that time?
  - How does playing sports make you feel?
  - How do you feel while playing sports?
  - What has sports enabled you to do?
  - What result has it enabled you to achieve?

The aim was to help the inmate express the motivations that lead to playing sports, positioning them with respect to the character's physical and emotional well-being.

4 Final Reflections

The discourse so far highlights how the practice of storytelling, holding reality and imagination together according to a virtuous synergy, can stimulate intention, action, and imagination.

Our main scientific contribution to this topic is twofold: an operative framework for collaborative storytelling activities, namely the narrative-based design framework, and theoretical reflections about the role of imagination and worldbuilding practice within the collaborative storytelling processes.

If we understand storytelling not only as a tool capable of unlocking the potential of people but also as a fundamental practice capable of shaping reality, we can construct collaborative storytelling activities by following the narrative structure of the 'hero's journey' [19, 20], in which the participants become situated heroes who embody a system of shared values that develops a dramatic relationship with the narrative world.

In the project ACTS, inmates and the process of constructing stories (of sports and otherwise) become tools for interpreting life and reality (inside and outside prison). Our heroes (the inmates of the Bollate Prison) were invited to participate in the ACTS project (Part 1: The Ordinary World). The beginning of change started from a preliminary storytelling individual activity (Part 2: The Call to Adventure). While 12 participants continued to work with us, others withdrew from the project because they feared the

unknown (Part 3: Refusal of the Call). We provided those involved with training, equipment, and advice during the five meetings to help them construct stories (Part 4: Meeting with the Mentor). However, the activities got them into an unfamiliar situation (Part 5: Crossing the Threshold) in which they tested themselves and sorted out allegiances with their mates. Finally, the journey's conclusion saw them collaboratively construct a shared narrative world that stems from the values that sport conveys and transforms past experiences into images of the participants in society outside of prison (Part 12: Return with the Elixir).

The result is an inclusive design process in which worldbuilding practice and narrative-based strategies demonstrate the ability to empower people, including marginalised groups – that is, a narrative context in which reality and fiction intertwine, offering people unprecedented points of view and the possibility of exploring alternative opportunities, roles, and identities to those usual and already given.

Roberto Bezzi, head of the Education Area of the Bollate prison, was our mentor. He states that being an adult must not mean the impossibility of continuing to grow, change, improve [7]. Practicing narrative-based design in such a marginal context elicited change also for us adult and researchers. We had our heroes' journey in parallel, facing specific logistical barriers (no internet connection; repeating the same activity twice a day with two small different groups due to covid issues; lack of time to develop ad hoc activities with prison police officers) and relational barriers (in particular, the resistance of police officers, who do not want to be placed on the same level as detained persons and therefore refuse to be involved in the same type of activities; the abandonment of activities by some detained persons, who did not participate when the psychological conditions and the daily harassments imposed by the detention system did not give them the necessary strength to get out of bed, for example: not being accompanied by the officers, for reasons that are never explained; not receiving an answer or a permission they're waiting for; not being able to communicate with their family). We researchers had to carry out the activities each time in different conditions with respect to how the experimentation had been defined, from time to time in the absence of one or more variable conditions, forcing ourselves to give up considering processes and results superimposable and therefore comparable, adapting from time to time ourselves and research practice.

To conclude, we (adult and researchers) learned that design practice is a relational practice based on listening to people and gaining trust. Narratives can support design in setting the relational basic conditions for making people assume the right attitude and encourage dialogue.

References

1. Lueg, K., Lundholt, M.W. (eds.): Routledge Handbook of Counter-Narratives. Routledge, London (2020). https://doi.org/10.4324/9780429279713
2. Bruner, J.: The narrative construction of reality. Crit. Inq. **18**, 1–21 (1991). https://doi.org/10.1086/448619
3. Roche, L., Sadowsky, J.: The power of stories (I): a discussion of why stories are powerful. Int. J. Inf. Technol. Manage. **2**, 377–388 (2003). https://doi.org/10.1504/IJITM.2003.004233
4. Ryan, M.-L.: Possible Worlds, Artificial Intelligence, and Narrative Theory. Indiana University Press (1991)

5. Wolf, M.J.P.: Building Imaginary Worlds: The Theory and History of Subcreation. Routledge (2012)
6. Mastrobuoni, G., Terlizzese, D.: Rehabilitating rehabilitation - prison conditions and recidivism. In: EIEF Working Paper 13/14, pp. 1–42. IEF Einaudi Institute for Economics and Finance (2014)
7. Bezzi, R., Oggionni, F. (eds.): Educazione in carcere. Sguardi sulla complessità. Franco Angeli, Milano (2021)
8. Mariani, I., Ciancia, M.: Character-driven narrative engine. Storytelling system for building interactive narrative experiences. In: Proceedings of the 2019 DiGRA International Conference: Game, Play and the Emerging Ludo-Mix, pp. 1–19. DiGRA, Kyoto, Japan (2019)
9. Piredda, F., Ciancia, M., Venditti, S.: Social media fiction. In: Schoenau-Fog, H., Bruni, L.E., Louchart, S., Baceviciute, S. (eds.) Interactive Storytelling. LNCS, vol. 9445, pp. 309–320. Springer, Cham (2015). https://doi.org/10.1007/978-3-319-27036-4_29
10. Ciancia, M., Piredda, F., Serbanescu, A., Ligi, C.: Building stories from behind a screen: managing the design of story-based strategies remotely. In: EDULEARN21 Proceedings, pp. 6954–6963. IATED, Online Conference (2021)
11. Ciancia, M., Piredda, F., Venditti, S.: The design of imaginary worlds. Harnessing narrative potential of transmedia worlds: the case of watchmen of the nine. Facta Ficta. J. Theory Narrative Media **2**, 113–132 (2018). https://doi.org/10.5281/zenodo.3515110
12. Venditti, S.: Social media fiction. A framework for designing narrativity on social media (2017). http://hdl.handle.net/10589/132153
13. Field, S.: Screenplay: The Foundations of Screenwriting. Dell Publishing Company (1979)
14. Boje, D.M., Jørgensen, K.M.: A 'storytelling science' approach making the eco-business modelling turn **8**, 9–26 (2020)
15. Calvino, I.: Six Memos for the Next Millennium. Harvard University Press (1988)
16. Sheldon, L.: Character Development and Storytelling for Games. Thomson Course Technology (2004)
17. Calvino, I.: Tarocchi. Il mazzo visconteo di Bergamo e New York. Franco Maria Ricci (1968)
18. Calvino, I.: Il castello dei destini incrociati. Einaudi (1973)
19. Campbell, J.: The Hero with a Thousand Faces. New World Library (2008)
20. Vogler, C.: The Writer's Journey: Mythic Structure for Writers. Michael Wiese Productions (2007)

The Role of Infographics in the Representation of Design Research

Vincenzo Cristallo[1(✉)] and Miriam Mariani[2]

[1] Politecnico di Bari, Bari, Italy
vincenzo.cristallo@poliba.it
[2] Sapienza Università di Roma, Rome, Italy

Abstract. This paper examines what the "narrative task" of Communication Design, in its infographic declination, may be in the different stages of "doing research through design". That is to say that - crossing simultaneously the fields of theory and praxis - design research is required to elaborate a visual language capable of coherently presenting the entirety of its development (from the meta-design to final products) made up of data processed in the ante, during and post phases. In other words, the actual, useful and inalienable results of doing research must fully include the communicative and visual design of its "process" that unfolds throughout its desk and field actions. The theme of the "representation of research" therefore becomes the core of the paper, which highlights how the descriptive development of the actions and manifestations of research proceeds through visual models known as process and result models. What is proposed, in fact, in this contribution, is a reflection on the visual models that describe research in its phases, through different tools such as *scientific drawing*, *hypothetigraphy* and *infographic* presentation, the latter to be understood as a conceptual and visual synthesis of complex processes.

Keywords: Research Storytelling · Information Design · Infographics · Visual Grammars · Process Model

1 Representing Research

If 'doing research' is absolutely the development and production of data, its communicative dimension of scientific matrix belongs integrally first to the perimeter of *data visualization* (as data mapping) and then to the field of *infographics* (as visual storytelling). In these terms, we can consider the space of visual information as a place where all those representations of processes that require a mapping-type organization manifest themselves. In fact, from the processing and transposition of data and information to the realization of narrative sequences, it is the task of the researcher-designer to elaborate specific alphabets, syntaxes and visual grammars that are consistent with the phenomenon to be communicated. Furthermore, if to design is to see in advance, the researcher-designer operates first and foremost as a visualizer, using suitable techniques to make manifest and recognizable his or her research path and the results obtained from it. The representation of the process and the result is, therefore, a visualization intended to allow the manifestation of the actions of exploration, analysis and discovery.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 632–639, 2024.
https://doi.org/10.1007/978-3-031-49811-4_60

On the basis of this preface, some observations on the role of infographics in the representation of research in Design are proposed below. More specifically, we intend to think about the theme of information visualization applied to project-research, as well as on the nature and elaboration of research communication models, both in terms of 'process models' and 'outcome models' that derive from research and simultaneously develop as tools of the research itself. First of all, the investigation into the representation of research brought three main issues into focus: 1) how to represent *what is already known*; 2) how to represent the research *process*; 3) how to represent *what is still unknown* or only imaginable. Accordingly, the topics of interest that will be here examined are: 1) the representation of the known and visible through the tool of *scientific drawing*; 2) the representation of the intangible and invisible through the tool of *Information Design*; 3) process modelling through the tool of *hypothetigraphy*.

2 Drawings and Infographics for Scientific Representation

Starting from how to represent *what is known*, a distinction must be made between *what is known and visible* and *what is known and invisible*. In the first case, it is necessary to consider how scientific drawing has been the tool par excellence in the field of research both in the natural sciences and in design sciences such as architecture, with the aim of reproducing and disseminating knowledge but also and above all as a tool for advancing knowledge itself in operational terms. What distinguishes scientific drawing is the objective representation starting from the direct observation of phenomena, just think of the production of graphic and illustrative material about human anatomy produced by Leonardo da Vinci or the three-dimensional cutaways of structures and buildings from the classical or imperial era reproduced for study and dissemination by 16th and 17th century architects.

At the same time, with regard to the second case, as the representation of *what is known but not visible* (such as information and complex phenomena), we can point out what Manfredo Massironi writes, who, taking up the thought of Wertheimer, Koestler and Parry, argues that: "There are conditions in which only reasoning by images makes it possible to solve a problem or achieve an otherwise unattainable cognitive result" [1, 119]. Indeed, as already in the time of the pioneers of information between 1700 and 1900, the representation of information constituted and constitutes, also nowadays, a fundamental tool for research in both operational and communicative terms. It is based on the subjective representation from the interpretation of the phenomenon: we can recall the use of the mapping of London by the doctor John Snow (1854), which enabled him to identify the points of diffusion of cholera in the Soho district, or in the same year the applications of statistics and data representation by the nurse Florence Nightingale on the disastrous English health system in the aftermath of the Crimean War (1853-56).

Even today, in the 'data society', the aim of Information Design (the branch of Visual Communication Design that deals with giving data-information a visual dress according to specific visual grammars) is the representation and revelation of the complexity of the phenomena it is intended to synthesize, through a process that involves the observation of the phenomenon described through its information, the translation of the data derived from it and their interpretation in order to allow a narrative development. As Edward Tufte

[2] states, the aim of these representations is to reveal the complexity of phenomena. It is no coincidence that the importance of information visualization (*Data Visualization*) lies in the set of strategies that allow accessibility, by means of a specially designed language, to complex theoretical knowledge and, due to the aforementioned heuristic value of infographics, to the use of the model as a design tool, and not only as a communicative artifact. With regard to visual models, it is worth emphasising how they allow us to observe the frame of the phenomenon in its entirety and the ways in which each element relates to the others and to the whole, because they "Help us explain and understand how things work by simplifying complexity; […] they can broaden our perspective; […] they provide a common conceptual frame of reference just like a vocabulary; […] they clarify relationships, identify key elements and eliminate confounding factors" [3, XXV].

3 Visual Process Models

The result of this process is an information architecture that aims to present, compare, organize, and relate information, through the encoding of a visual language. From the research and systematization of the main theoretical contributions on the linguistic analysis of the "visual text", some attempts at taxonomic synthesis are characterized by the affinity of the proposals. In particular, the contributions of Robert Horn [4], Jörg Von Engelhardt [5], Massimo Botta [6] and Riccardo Mazza [7] suggest an interpretation of the graphic artefact structured according to a grammar, similarly to what happens with the verbal text (morphology, syntax, semantics). Starting from this assumption, the reading of visual composition through three progressive levels is proposed here:

1) A graphical-formal level based on *morphology*, which concerns the external aspect of representation is addressed, i.e. what is visually perceived, broken down into its basic elements (morphemes);
2) A logical-relational level based on *syntactics*, i.e., the structural composition and configuration of the individual elements that compose it, according to a relational logic in a formal way;
3) A heuristic-interpretive level based on *semantics*, i.e., on the interpretation of the visual representation, hence on the meaning contained within it, interpreted through a relational logic in a semantic way.

According to the proposed levels suggested by the study of *Visual Language*, we can think of applying this structure also to the representation of the research process, considering research as "observed phenomenon"[1]. The transition from the data collection phase in the different steps of the research (desk, field and in the desk + field synthesis) to a data design operation in narrative systems is verified by studying the design dynamics through the linguistic component of the research data configuration, according to the morphological, syntactic and semantic levels of a *process model*.

[1] In the terms of Complexity Science, complexity does not lie in the nature of phenomena, but in the code used to model the phenomenon: «If complexity is not in the nature of things […]), it would reside in the model that the observer constructs for himself of the phenomenon he considers complex. […] Complexity is consequently no longer a property of the Observed System, but of the Observing System» [13, 67].

On the topic of the representation of the process model, it is necessary to point out how the researcher/designer/model-maker's point of view unequivocally influences the development of the model. This particular perspective is developed by the so-called "Second-Order Cybernetics", in particular by Heinz Von Foerster's work "Observing Systems" [8], which emphasizes that cognitive processes are recursive processes of computation and that the phenomena we observe are, in reality, representations of relations. This concept brings with it the consideration that the observer is, therefore, part of the observing system, introducing the shift from linear causality to circular causality. The link between Second-Order Cybernetics and Design is also supported by contributions from Hugh Dubberly and Paul Pangaro, who, quoting Ranulph Glanville, argue that: «Cybernetics and Design are two sides of the same coin» [9, 73]. These arguments also bring the theme of "drawing" with its baggage of perceptual assumptions into design research. If drawing is, therefore, the representation of thought, that is to say, the designer operates according to his or her own "language of thought" [10] which forms the basis of the "internal conversation" between drawing and designer [11]. The conversational model introduced by Schön [Ibid.], later defined by Gabriela Goldschmidt as the "dialectic of sketching" [12, 37], is what enables the designer to handle different levels of abstraction simultaneously and build the bridge that allows him to transit from the problem space to the solution space. If design is founded, therefore, on the observer-observed system relationship and interaction, then it is possible to think that the encoding of a language and the tool of drawing constitute the fundamental elements of a process model that connects thought and drawing in a conversational way.

Having mentioned the first two instruments of research representation (scientific drawing and infographics) and the subject of modelling, it remains to describe a third tool that concerns a key aspect of scientific research, namely its uncertainty in the process phase. If the scientific drawing represents what is directly observed, and infographics act as a translator of what is not visible such as information, it is necessary to reflect on how to represent the intermediate stage that straddles the state of the art of research and its results, i.e. the formulation of hypotheses. As argued in the relevant literature, in Design the formulation of hypotheses for solutions to a given design problem is never presented as a single proposal but as a framework of multiple hypotheses [14, 15] or even as a system of solutions [16–18].

Therefore, in order to deal with the representation of *what is still unknown* within the research process, we report the interesting concept of *hypothetigraphy*, elaborated by Manfredo Massironi in 1982. Massironi defines *hypothetigraphy* as a graphic product that describes processes that are not directly visible but can only be speculated on the basis of fragmentary data collected experimentally: "[…] we could define all this vast cognitive-communicative production with the term *hypothetigraphy*, meaning that graphic product that contributes to giving visual form to hypotheses formulated to explain the behaviour or functioning of natural conditions that have been intuited or observed experimentally and of which an explanatory model is constituted" [1, 126][2]. Massironi further clarifies that the graphic image behaves, in this sense, as a hypothetical model

[2] The visual models described here can be defined as "intuitive models", as: «allowing a visualization or mental representation of processes that are only formally described by theory» [19].

of a phenomenon and of the knowledge about it that has accrued up to that moment and he identifies geometry as the tool on which hypothetigraphy is built, due to its potential for bridging the empirical and the abstract.

4 From Hypothetigraphy to Infographics: From Process Model to Result Model

This leads us to think about the great value of hypothetigraphy in design research, considering in it the need to move from theory, which presupposes invisible conceptual contents, to graphic models of communication of the same, which instead presuppose the visual and perceptible concretization of information (Fig. 1).

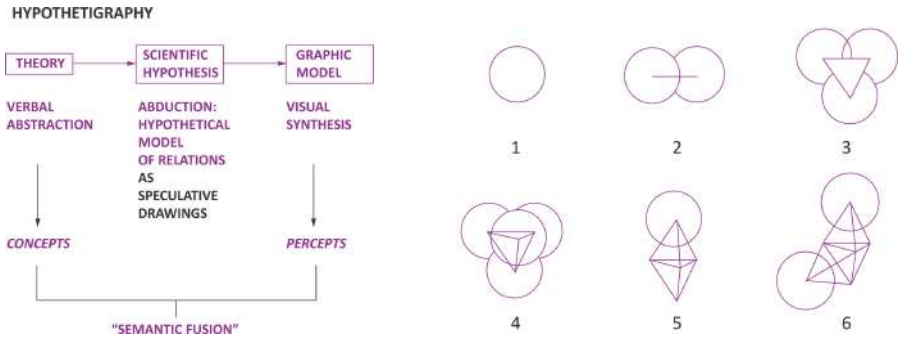

Fig. 1. On the left: From theory to model. The role of abduction and hypothetigraphy in Design research; on the right, a reproduction of hypothetigraphy by Manfredo Massironi (1982). Representation by the authors (2022).

In other words, the shift from process models to result models. We have therefore associated the subject of hypothetigraphy with the cognitive modality of abduction[3], which is typical of the design discipline, as it is based on the elaboration of hypothetical models of relations [12, 20, 21], thanks to which it is hypothesized that it is possible to realize what Horn calls the "semantic fusion" between *concepts* and *percepts*, that means perceiving and interpreting both the specific aspects of verbal concepts and visual elements: «In traditional communication, *concepts* have been treated verbally and *percepts* have been limited to separate boxes in which illustrations or diagrams appear. Visual language emphasizes the selection, inclusion and integration of percepts with concepts» [4, 95]. A conceptual advance on the subject of hypothetigraphy has been proposed by Giovanni Anceschi, who argues that hypothetigraphies are, by definition, only such for a certain period of time, that is, until the phenomenon or artefact they represent becomes visible, known and representable with certainty [22]. Therefore, we can hypothesize

[3] On the concept of "abduction" as a third mode of investigation, it is specified that: «A speculative design cannot be logically determined because the mode of reasoning involved is essentially abductive […]. Deduction shows that something *must* be, induction shows that something *is* actually operative, abduction suggests that something *can* be» [12,19].

that, should this happen, what is made known by research would make it possible to move from a hypothetical to an infographic type of representation (Fig. 2). An example of this transition is the evolution of scientific knowledge on the configuration of the universe and the solar system, starting from the Ptolemaic model, passing through the Copernican model (both hypothetigraphical representations) to the three-dimensional models elaborated by NASA (infographics as they are representative of a phenomenon that has finally been directly observed and made visible).

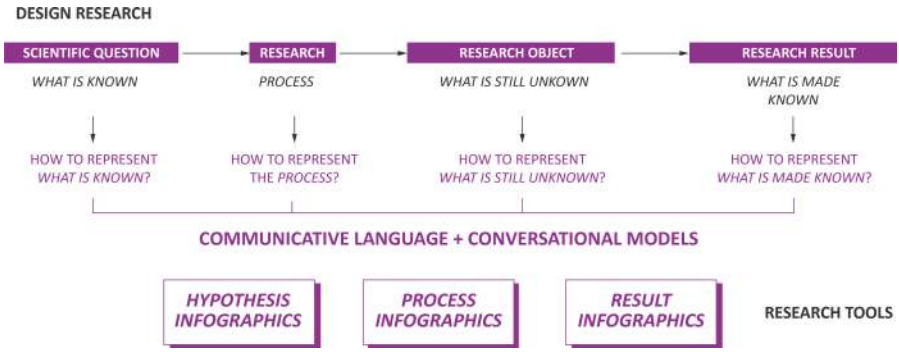

Fig. 2. How to represent Design research? The proposal of conversational models for the representation of research through its phases and tools. Representation by the authors (2022).

5 Conclusions

In conclusion, we can state that the topic of research representation can be investigated in its communicative and instrumental modalities through the consideration of conversational models that can be developed as infographics of hypothesis, process and outcome through the encoding of communicative languages, which in turn serve as tools for the research itself. It is useful to recall that such examples of models are composed of a set of signs to describe, explain or predict something, but above all that models manage to abstract reality while simultaneously preserving its essence [23]. The subject of modelling brings with it the reciprocity between the act of drawing and the thought associated with it, evidence that leads us to state that understanding a problem depends on its very representation [24]. Drawing combined with designing also possesses its own complexity, which for Tomás Maldonado [25] falls within the field of cognitive psychology. He states that drawing in order to design manifests itself at the same time as "drawing while designing" and "designing while drawing". And it is precisely this interacting co-presence between the tool (drawing) and the end (designing) that allows progress towards the sought-after solution. In this bivalent process, the linguistic (semantic) component of design is decisive and central if we consider that through the configuration of the elements-instruments it is possible to study the dynamics of design [26]. If the definition, from a cognitive point of view, of design as an activity of information processing [27] is valid, as well as the "dialectic of sketching" as the transition from problem to

solution [16] the sketching-design symmetry recalls the theme of the "representation of research", mentioned above, not as a mere portrayal choice, but as a processual tool before and after the research itself, in the sense that research requires a communicative language when it instructs, processes, returns and disseminates its outcomes [28].

References

1. Massironi, M.: Vedere con il disegno. 1st edn. Franco Muzzio & C. Editore, Padova (1982)
2. Tufte, E.: The Visual Display of Quantitative Information, 2nd edn. Graphics Press, Chesire (2001)
3. Forsberg, K., Mooz, H., Cotterman, H.: Visualizing Project Management: Models and Frameworks for Mastering Complex Systems, 1st edn. Wiley, Hoboken (2005)
4. Horn, R.: Visual Language. Global Communication for the 21st Century. MacroVu Inc., Washington (1998)
5. Von Engelhardt, J.: The language of graphics: a framework for the analysis of syntax and meaning in maps, charts and diagrams, Doctoral dissertation (2002)
6. Botta, M.: Design dell'Informazione. Tassonomie per la Progettazione di Sistemi Grafici Auto-nomatici, Valentina Trentini Editore (2006)
7. Mazza, R.: La rappresentazione grafica delle Informazioni, Apogeo, Milano (2007)
8. Von Foerster, H.: Observing Systems, 1st edn. Intersystems Publications, USA (1981)
9. Dubberly, H., Pangaro, P.: Cybernetics and design: conversations for action. In: Fischer, T., Herr, C.M. (eds.) Design Cybernetics, pp. 85–99. Springer, Cham (2019). https://doi.org/10.1007/978-3-030-18557-2_4
10. Lawson, B.: What Designers Know, 1st edn. Architectural Press, Oxford (2004)
11. Schön, D.: The Reflective Practitioner: How Professionals Think in Action. Temple Smith, London (1983)
12. Cross, N.: Designerly Ways of Knowing, 1st edn. Springer Verlag, London (2006)
13. Le Moigne, J.L.: Progettazione della complessità e complessità della progettazione. In: Bocchi, G., Ceruti, M.(eds.): La sfida della complessità, pp. 60–78, Bruno Mondadori, Milano (2007)
14. Simon. H.A.: The architecture of complexity. In: Proceedings of the American Philosophical Society, vol. 106, no. 6, pp. 467–482, 12 December 1962
15. Rittel, H., Webber, M.: Dilemmas in a General Theory of Planning, Policy Sciences 4(1973), pp. 155–169, Elsevier Scientific Publishing Company, Amsterdam (1973)
16. Pahl, G., Beitz, W.: Engineering Design. The Design Council, London (1984)
17. Cross, N.: Engineering Design Methods. Strategies for Product Design. Wiley (2000). 1st edn. 1989
18. Buchanan, R.: Wicked problems in design thinking. Des. Issues **8**(2), 5–21 (1992)
19. Treccani Enciclopedia. http://treccani.it. Accessed 15 June 2021
20. Minati, G.: Verso una scienza costruttivista. La scienza come progetto. Dedalus **2–3**, 80–88 (2007)
21. Dorst, K.: Frame Innovation: Create New Thinking by Design, 1st edn. MIT Press, Cambridge (2015)
22. Anceschi, G.: L'oggetto della raffigurazione. 1st edn. ETAS Libri, Milano (1992)
23. Cairo, A.: L'arte del vero. Dati, grafici e mappe per la comunicazione. 1st edn. Pearson, Milano (2016)
24. Rowe, P.: Design Thinking, 2nd edn. MIT Press, Cambridge (1991)
25. Maldonado, T.: Reale e virtuale, 2nd edn. Saggi Feltrinelli, Torino (1998)

26. Van Onck, A.: Metadesign. Edilizia Moderna 65. http://www.metaprogettazione.it/metadesign.pdf. Accessed 1 Jan 2021
27. Christiaans, H.: Creativity in Design. The role of Domain Knowledge in Designing. 1st edn. Lemma BV, Utrecht (1992)
28. Cristallo, V.: Do Research. Make Design. 1st edn. ListLab Edizioni, Barcellona-Trento (2021)

The Open Logo and the Closed History Notes of a Social History of Visual Identities

Michele Galluzzo(✉)

Faculty of Design and Art, Free University of Bozen-Bolzano, Piazza Università 1, 39100 Bozen-Bolzano, Italy
michele.galluzzo@unibz.it

Abstract. The golden age of corporate identity and logo design has always found wide space in visual communication histories as a crucial moment in the evolution of the graphic design profession in a modern direction. This focus in the last ten years has been confirmed by the publication of monographs, magazines and reprints, the launch of digital archives and publishing houses dedicated to the story of 'logo-modernism'. If, on the one hand, this interest in the narrative of the modernist corporate identity season has made it possible to access images, information and biographies that were hitherto known little or nothing, on the other hand, they have perpetuated the presentation of this season according to a 'heroic' reading fuelled by the 'formal lens' and 'visual satisfaction'. In doing so, historical narratives have often ended up showing graphic artefacts as decontextualized objects. Presented as 'works of art', logos were detached from the social context in which they lived, from the meanings they took on in the real world, and from the economic and political messages they conveyed.

Starting from the reconstruction of the historiographical debate that has run through the discipline since the 1990s, this contribution proposes to extend the historical narrative of logo design and the season of corporate identity manuals, trying to also include the dialogue between the end users and these canonical artefacts of graphic design history. Analyzing the way in which public opinion during history has related to logos by loving them, contesting them, modifying them, rejecting them, memeifying them, allows us to look at the trademarks of modernism as cultural objects, as mediators of social relations. Finally, this contribution proposes the social history approach as a lens to open up history to a more inclusive narrative and to look at logos as 'open works'.

Keywords: Graphic Design History · Historiography · Corporate Identity · Corporate Image · Logo · Social History

1 The Logo 'Out of the Context'

The golden age of corporate identity has always found ample space in the histories of visual communication as a crucial moment in the evolution of the graphic design profession in a modern direction. Through the figure of the director and coordinator of complex visual identity systems, graphic designers have seen their professional status

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 640–648, 2024.
https://doi.org/10.1007/978-3-031-49811-4_61

mature and embed itself in the project methodology proper to industrial design, that of problem solving. Particularly between the 1960s and 1980s, this professional strand contributed to defining the canons of modernism on a global scale, becoming one of the fields on which the idea of International Style grew.

Beyond the histories of graphic design, over the last decade more and more printed publications, web platforms and social pages have disseminated and deepened the topic of logo design in the second half of the 20th century. Through in-depth image collection and acquisition work, these projects have provided a growing audience of students, professionals and the general public with a large amount of logos and designers' names, which until some time ago were difficult to find or often never published. In doing so, the projects that are part of what, to quote one of the best-known titles in this series, could be termed the 'logo-modernist' strand have shown common traits in the treatment of the iconographic apparatus and the point of view adopted in the narrative. The volumes that have investigated visual identity manuals, for instance, have often presented such canonical objects of the golden age of corporate identity through 1:1 scale reproductions or through zenithal photos and studio-architected reportage intended to emphasize the materiality of such volumes. This made it possible to enjoy high quality images, close-ups of typographic and stationery details. On the other hand, this editorial and narrative choice of presenting the manuals intact in their 'virginal' stage, highlighted an almost fetishistic view of such objects.

The tendency to isolate the design in order to highlight its aesthetic and formal qualities is most strongly evident in publications dedicated to the presentation of modernist logos. Shown as monochrome images on a white background, the logos are usually associated with short captions relating to name, product category, year, author and country. Furthermore, in preferring the visual aspect of the collection, the archive, the collection, the logos – both in print and web projects – are often arranged in a grid, associated by formal similarity (e.g. by lines, arrows, circles, letters).

By focusing on form, on the stylistic unity of design, on the homogeneity of graphic style, on the authorship of designers, the narrative that emerges from 'logo-modernist' publications and archives ends up privileging the merely aesthetic and formal aspect of these projects, running into a tendency that Italian design critic Silvia Sfligiotti recently identified as a common trait in much of the historical narrative of the sector: the use of images 'out of context'. Sfligiotti in particular reflects on the role of reproductions of visual artefacts in the construction and teaching of graphic design history. "The reproductions we have access to usually either have no background or simply a neutral one. If the object is a poster, it is rarely shown on a wall; if it is a book, it is not shown in the hands of a reader. This way any connection to the context of use and to the historical setting is lost." [1].

Since the first half of the 1990s, one of the themes that emerged in the historiographical debate concerns precisely the way in which artefacts were represented and narrated in the first published graphic design histories. In 1994, Victor Margolin highlights some recurring narrative problems. Among them, he highlights the tendency to use 'visual quality' as the main parameter in the historical narrative. According to the American design historian, describing "how artifacts look does not sufficiently address the question of why they look as they do." [2]. The following year, it was the American design critic

Steven Heller who invited researchers, historians or practitioners to disengage themselves from 'graphic designer' aesthetic parameters, or what he calls the 'formal lens', [3] when constructing the history of graphic design.

In 1992, design historian Bridget Wilkins also emphasized the obsession with appearance within the history of graphic design in an article pivotal to the historiographical debate, in which she stated: "The strangest aspect of the history of graphic design as it is currently written, taught, and discussed is the almost total absence of discussion of how these communications are received by their audiences." [4]. The article traces the causes of the lack of end-users in graphic design stories, first and foremost to the formal reading and heroic narrative of the profession. Wilkins' observations are still relevant if we consider the 'logo-modernist' strand mentioned above. Disassociating logos from the contexts in which they lived, from the public they addressed, showing them as a rich collection of monochromatic trademarks or well-designed manuals, risks indulging a formal reading and presenting the projects as contextualized 'works of art' and the authors as protagonists, as heroes or, in other words, as 'great men'.

2 The Logo as Mediator of Social Relations or the Logo "Out of the Studio"

The history of 'great men' – or 'great men' theory – is an approach to the study of history in which the events of the past are told from the impact of great men, or heroes. This strand, inaugurated by the studies of the Scotsman Thomas Carlyle in the mid-19th century, [5] was opposed in the following century by social history. Founded in Europe by the British historian Edward Palmer Thompson, [6] social history by contrast recounts historical events from the point of view of ordinary people, emphasizing the marginalized, the oppressed, the poor, the nonconformists and also taking the name, depending on the context, of people's history, history from below or history from the bottom up.

In the mid-1990s, the dialectic between great men and people's history, between history 'from above' and history 'from below', also penetrated the historiographical debate on graphic design. "It is complex, it is undefined, it is messy, but the rewards will be great." [7]. With these words Martha Scotford closed her famous essay *Messy History vs Neat History* in 1994. The American graphic design historian proposed extending the point of view of women in the history of graphic design, suggesting social history as an antithetical key to the canonical narration of 'heroes'. "This is the social history of graphic design, a perspective that demands the inclusion of a broad range of activities, people and objects, and the application of ideas and methods from many areas of historical and cultural study." [7]. Scotford's essay featured in the magazine 'Visible Language', within the spring 1994 issue edited by historian Andrew Satake Blauvelt. Mentioning Scotford's contribution in the volume's introduction, Blauvelt emphasizes the role of social history as a solution for "an understanding of art and design outside of the objects and their creators – the transcendence of aesthetics and the artist/designer genius." [8]. The social history proposed by Blauvelt invites historians to place themselves "outside of the objects and their creators" in order to grasp the context and circumstances in which artefacts were distributed, received and consumed by societies.

In 2011, Rick Poynor invites to place the history 'out of the studio', thus avoiding narrowing the analysis, advocating an opening of the investigation to cultural, social, political, environmental and economic fields, and including the views of visual studies, social studies, cultural studies, psychology, audience studies and ecology. In an article published on the "Design Observer" website, the English historian and critic states: "The study of graphic design surely would benefit from opening itself up to these new interdisciplinary perspectives and investigations from the outside." [9]. In Blauvelt's words, to place oneself "outside" means to widen the field of analysis, to zoom out to understand the context. To this meaning, the "out" proposed by Poynor adds that of going outside the graphic design studio to acquire a gaze other than that of the designers, external to that of the discipline, in order to have the scientific tools necessary to consider the effects of visual communication on its audience in greater depth.

Only two years before Poynor's article, in 2009, historians Johanna Drucker and Emily McVarish contributed to the debate with the publication of a *Critical Guide* to the history of graphic design. Among the various topics analyzed and previously unexplored perspectives raised, the authors devote ample space to the relationship between graphic artefacts and society. In the book they place graphic design projects within the "public sphere as a realm of shared information and common assumptions changes" considering them part of the "cultural landscape" and emphasizing how, beyond formal qualities, "every graphic artefact mediates social relations." Through this lens, the two authors devote an entire section of their research to "Corporate identities and International Style" [10].

Drucker and McVarish argue that histories of graphic design, focusing mainly on formal aspects of corporate identity, often lose useful information about the context around such projects. On the contrary, the authors connect logo design to the evolution of society: trademarks define the companies they represent and simultaneously educate and persuade the public that their formal qualities correspond to the qualities of the institution represented. Similarly, the neutrality, minimalism and geometric shapes that characterized many corporate designs between the 1960s and 1980s, according to Drucker and McVarish, "served private interests with seamless efficiency." [11]. In the critical reading of the history of graphic design made by the two authors, logos should not only be considered as 'concise' or 'recognizable' elements of a visual identity but as image-value generating tools within competitive markets also connected with "political battles over the shape and ownership of discourse, intellectual property, and censorship mechanisms." [10].

Even without mentioning social history, the two authors of the *Critical Guide* propose to place the history of graphic design in its cultural and social context. In doing so, they point out in particular the lack of information concerning the interwoven relationship between designers as authors of visual identity projects and their clients, which in many cases were iconic companies of the golden years of booming capitalism. In doing so, they raise questions about the ethics of the designers involved. If on the one hand "the efficient surface forms of logotypes and identity systems might promote an image of stability" [12] on the other hand they have "constructed an image of smooth operations that could gloss over uncertainties in business activity or irregularities in accounting practices" [13] by banks, oil or pharmaceutical companies, multinationals responsible for controversial

financial, labour and environmental policies often contested by the anti-capitalist and environmentalist movements that spread in the mid-sixties. By investigating the social, economic, political and environmental implications that exist around logos, Drucker and McVarish's analyses expand the canonical historical narrative focused mostly on the formal details of the designs and biographical and professional details of the designers of the golden years of corporate identity.

Recently, the lens of social and people's history has become relevant again in the historiographical debate, reflecting the broader ferment on civil and social battles – related to anti-racism, feminism, environmentalism and gender issues in primis – that have swept through public opinion in recent years. In 2020, the People's Graphic Design Archive (PGDA), an online archive founded by Brockett Horne, Briar Levit, Louise Sandhaus, and Morgan Searcy, was born. The intention of the archive is to recognize and preserve "graphic design's and culture's expansive and inclusive history" [14] through "a virtual archive built by everyone, about everyone, for everyone." [15]. The invitation extended to an ever-widening number of users, in the PGDA's goals is aimed at challenging the canonical narrative of history. In the curators' intentions, the involvement of the widest possible pool of "people" lays the foundations for an archive capable of determining the collective history of graphic design from below in a plural and intersectional manner. The American critic Aggie Toppins also recently mentioned people's history as a possible alternative in order to develop more intersectional, inclusive and decolonial counter-narratives. Toppins in an online article called for a move away from a view of graphic design history as a history of the profession, stating that "people's history suggests a bottom-up orientation […] rather than the top-down gifts of good taste and proper function." [16].

Considering this historiographical chronology, it can be said that over the last thirty years, the debate within the history of graphic design has repeatedly invited historians, researchers, curators, critics and designers to extend the field of history, [17] to take the story 'outside of the objects and their creators' or 'out of the studio', to have a bottom-up perspective by trying to broaden the view to the context in which visual communication and graphic designers lived. Despite the invitation to a more 'social' history, the narrative of logo design in particular appears still too often tied to a design/er centric approach and hardly open to include the context, the 'people', the society.

3 Corporate Identity vs Corporate Imagination

In 2012, with the volume *Kommando Otl Aicher*, the German graphic designer and critic Alexander Negrelli analyzed one of the iconic projects of the season of corporate identity manuals: the visual identity of the 1972 Munich Olympics created by the design team Dept. XI supervised by Otl Aicher. However, as already emerges from the title of the book, in presenting the case study, rather than giving credit to the efficiency and complexity of the articulated coordinated image system of the Olympics, Negrelli chooses to describe the unexpected dialogue that existed between this project and the terrorist attack planned by the Palestinian commando Black September against the Israeli Olympic team.

"The principal concern of corporate design is control. […] Maintaining control over the way the rest of the world was to perceive its image was highly important in Munich,

36 years after Berlin." [18]. Negrelli describes Munich's visual identity as a battleground between control and loss of control. On the one hand one of the icons of modernist design, on the other what is called the birth of modern terrorism. On one side the order conceived by Aicher to offer a peaceful and solid image of Germany thirty-six years after the Nazi Olympics, on the other disorder. But above all, on the one hand a visual identity project linked to an international public event, on the other the perception of the entire world in relation to this same event. On the one hand the wish to coordinate and control the image of an event in all its manifestations, on the other hand the bombers, the victims, the police, the left-wing extremists, western public opinion, the Arab world, the Palestinian population, who after 5 September 1972 will not look at such a visual identity system with the same eyes. Certainly not with the gaze desired by the designers; certainly not with the eyes of the designers.

"Products are made in the factory […] but brands are made in the mind." [19]. This sentence, stated by Walter Landor, one of the undisputed protagonists of the golden age of international corporate identity, sums up very well the gap between the communication of a brand and what end users perceive of that particular brand. In the textbooks of corporate communications theory, this difference is well known: on the one hand, there is 'corporate identity' – here understood as a combination of corporate design, corporate communication and corporate behavior – and on the other hand, there is 'corporate image', the image that the public has of a given brand.

Also aware of the relationship between corporate identity and corporate image is also another driving force of the modern logo season, Paul Rand, author of famous visual identity programs, who in 1991 declared: "A logo is a flag, a signature, an escutcheon. […] A logo derives its meaning from the quality of the thing it symbolizes, not the other way around. A logo is less important than the product it signifies; what it means is more important than what it looks like." [20]. A few years later, Rand personally experienced this discrepancy between how a logo looks and what that logo means or ends up representing. Following the financial accounting scandal involving the US energy company Enron to the point of bankruptcy in 2001, the company's logo designed by Rand in 1997 ended up becoming "an instant symbol of corporate greed and corruption." [21]. A few weeks after the explosion of the 'Enron scandal', Rand's 'Titled E' was renamed 'Crooked E', reused through blogs, social networks, banners at demonstrations, graphically modified by users to denounce public outrage. On the one hand, the corporate identity, Rand's 'Titled E', on the other hand the result of what could be called the 'corporate imagination' of large sections of public opinion, the 'Crooked E'.

If such designers as Landor and Rand are aware of the relationship between logos and public sphere, if the difference between corporate identity and corporate image is well reported in technical and theoretical manuals on corporate communication, if the historiographical debate has often denounced the risk of a historical narration 'closed' in the studies, this binomial still seems little investigated in the histories of graphic design. In historical narration even today, this dialogue is often limited or vanished: there is only discussion about corporate identity and little or nothing about the 'image' that the public has made of a given company and its 'imagination' as an active act of resemantization of a logo or identity project.

Borrowing terms from the renowned Shannon-Weaver model of communication, one could say that historical publications – including those referred to at the beginning – focus mainly on the signal (the logo), the sender (the graphic designers) and little or nothing on the receiver (the public). However, while historical publishing narrates logos and corporate projects as untouched and in their 'virginal' state, investigating formal and stylistic aspects or the biographies of their authors, logos once 'out of the studios' are confronted with end users who frequently love them, make them their own, criticize them, use them as a fighting tool, make them memes, boycott them. In particular, this last decade, the years in which 'logo-modernist' publications have been in print, has been marked by social phenomena in which the reuse of logos has played a decisive role: to name but a few, the virtual nostalgia of the vaporwave, the protest of the anti-capitalist Occupy Wall Street movement, the return of 'logomania' in fashion, and the democratic and widespread.

These phenomena of memeified, contested, appropriated, distorted, bootlegged logos have succeeded in what the history of graphic design has often failed at; they have reminded us that in the life of logos, there is not only the moment of production of a mark, but also that of fruition. In the same way, there are not only designers, but also the public to whom their design artifacts are addressed.

The history that focuses on artefacts and their creators only gives us a distorted and partial view of the life of the graphic designer's profession, of society and of logos, but above all it runs certain risks. First of all, it risks being a "professionalizing" history, presenting the story of the designer as author, as genius, as hero, as educator of an unidentified public in order to institutionalize and reinforce a professional status, to canonize a strain, a style, an approach, a circle of authors, studios, agencies [22]. In doing so, he makes no mention of failures or, for instance, of connivance with corporate policies of dubious morality.

Secondly, it runs the risk of being a history that forgets the audience or at best presents it as a passive recipient subject, thus not contemplating the possibility that the user may empathize with or reject a project by appropriating it, through the processes of 'corporate imagination' mentioned above. A story made up of logos presented as untouched objects, to be admired or, to paraphrase Umberto Eco, as 'closed' works of art.

The re-appropriation of logos by end users demonstrates that, once they have entered the social context, and thus left the studio, these symbols become, rather than mere graphic elaborates, cultural products open to receiving processes of re-sematization by the public. Talking about the consumption and decoding of a logo within the histories of design would thus make it possible not to look at graphic artefacts par excellence as closed works. On the contrary, the logo could be understood as being open "to a multiformity of meanings that […] [the end user] must discover; indeed, depending on his state of mind, he chooses the key of interpretation that seems most relevant to him, and will use the work in the desired meaning" [23]. Conceiving the logo as 'open' would allow the historical narrative to open up to the user's and society's narrative, to understand the real impact of the logos analyzed within the real world, showing how, beyond their aesthetics, corporate identities live an autonomous life of their own in popular culture or collective memory.

As the Italian historian Carlo Vinti states, the study of the "traces left by users on artefacts, as well as their comments deposited elsewhere, […] [can] certainly tell us a lot about the wide space that often separates designers from their audience." [24]. Otherwise, as the historiographical debate has already pointed out, a story "closed" in the studio also risks addressing only an audience of insiders, thus increasing the distance professionals and public.

Launched as an Instagram page in autumn 2019, the LOGO In Real Life (Logo IRL) project attempts to collect precisely the traces of the 'bottom-up' ferment mentioned above, with the intention of providing insights into a social history of corporate identity. The project proposes itself as a participatory digital archive of modified, counterfeited, appropriated, memeificated, contested logos by investigating "what happens to logos when they leave corporate identity manuals, brand guidelines, studios, awards, start living in real life". By flanking the historical information on the authorship of a given brand analysed with information on how the public re-appropriated that logo by changing its meaning as well as its form, Logo IRL attempts to open up the historical narrative concerning the 'logo-modernist' golden age.

Poynor suggested that history should be taken out of the studios. The analysis presented here shows that a history 'closed' in its own studio ends up interpreting and disseminating logos as closed works. On the other hand, the phenomena of re-appropriation of logos mentioned above, realized by broad and heterogeneous layers of society, invite us to get out there, into the real world. Logos out in the open, history closed. The open logos and the closed history.

References

1. Sfligiotti, S.: Out of Scale, out of Context. The Use of Images in the Teaching of Graphic Design History (2017). https://silviasfligiotti.medium.com/out-of-scale-out-of-context-the-use-of-images-in-the-teaching-of-graphic-design-history-33f958c9c0b7. ultimo accesso: 6 ottobre 2022
2. Margolin, V.: Narrative problems of graphic design history. Visible Lang. **28**(3), 242 (1994)
3. Heller, S.: Advertising: mother of graphic design. Eye (17) (1995)
4. Wilkins, B.: No more heroes: why is design history so obsessed by appearance? Eye (6) (1992)
5. Carlyle, T.: On Heroes, Hero-worship, & the Heroic in History: Six Lectures. James Fraser, London (1841)
6. Thompson, E.P.: The Making of the English Working Class. Penguin Books, London (1963)
7. Scotford, M.: Messy history vs neat history: toward an expanded view of women in graphic design. Visible Lang. **28**(3), 386–387 (1994)
8. Blauvelt, A.: An opening: graphic design's discursive spaces. Visible Lang. **28**(3), 211 (1994)
9. Poynor, R.: Out of the studio: graphic design history and visual studies. Des. Observer, 01 ottobre 2011. https://designobserver.com/feature/out-of-the-studio-graphic-design-history-and-visual-studies/24048. ultimo accesso: 6 ottobre 2022
10. Drucker, J., McVarish, E.: Graphic Design History: A Critical Guide, vol. 2009, p. xxvii. Pearson (2013)
11. Drucker, J., McVarish, E.: Graphic Design History: A Critical Guide, vol. 2009, p. 247. Pearson (2013)
12. Drucker, J., McVarish, E.: Graphic Design History: A Critical Guide, vol. 2009, p. 265. Pearson (2013)

13. Drucker, J., McVarish, E.: Graphic Design History: A Critical Guide, vol. 2009, p. 250. Pearson (2013)
14. People's Graphic Design Archive, About. https://peoplesgdarchive.org/about. ultimo accesso: 6 ottobre 2022
15. People's Graphic Design Archive. https://peoplesgdarchive.org. ultimo accesso: 6 ottobre 2022
16. Toppins, A.: Four Counter-narratives for Graphic Design History, Aggie Toppins (2020). http://aggietoppins.com/fourcounternarratives.html. ultimo accesso 2 aprile 2020
17. Mura, M.D., Vinti, C.: Grafica, Storia, Italia: Estendere il campo, Progetto Grafico, no. 24, p. 15, Autunno 2013
18. Negrelli, A.: Kommando Otl Aicher, Jan van Eyck Akademie, p. 10, Maastricht 2012
19. Landor, W., Klein, N.: No Logo. Knopf Canada and Picador, p. 195 (1999)
20. Rand, P.: Logos, Flags, and Escutcheons. AIGA J. Graph. Des. **9**(3) (1991)
21. Coneglio, L., Blauvelt, A., Lupton, E.: Graphic design: now in production. Walker Art Center, p. 190 (2011)
22. Lzicar, R., Unger, A.: Design histories: visual historiography and canonizations in Swiss graphic design history. In: Fornari, D., Lzicar, R. (eds.) Mapping Graphic Design History in Switzerland, Triest Verlag, pp. 249–276, Zurich 2016
23. Eco, U.: Opera Aperta, Bompiani, p. 37, Milano 1962. Translation by the author
24. Vinti, C.: Interrogare le tracce, Progetto Grafico, no. 26, p. 86 (2014)

An Advanced Design Tool for Archiving, Mapping, and Narrating a Complex System: The ADU Packaging Innovation Observatory

Clara Giardina(✉)

Department of Architecture, University of Bologna, Bologna, Italy
clara.giardina@unibo.it

Abstract. Packaging sector is a complex system: it is a phenomenon with a high degree of economic and cultural cross-sectoriality, a multi-dimensional object that involves a plurality of specific players in an interconnected value chain. Packaging is also a driver and an accelerator of the social, economic and environmental phenomena in which it is immersed. In a context consisting of several crises, the paper explores how research in Advanced Design - an articulated system of practices used to design processes, products or services in complex scenarios to outline possible futures - can help to embrace change, accelerate systemic and responsible innovation and narrate it in companies operating in complex, multidisciplinary sectors such as packaging. The hypothesis is that it could take place through an Advanced Design-led project such as an Observatory: an ecosystemic monitoring system, which collects case studies, gathers and processes knowledge and disseminates it in narratives that can be understood by all the actors in the supply chain, contributing to the creation of a network that connects the actors. After describing the methods and practices of ADU's Packaging Innovation Observatory, the applied research developed by the Observatory for Giflex is described: a work example that starts from data and interprets them with the aim of defining an identity and value profile of flexible packaging, and creating *value stories* to be told in the context of dissemination and promotion.

Keywords: Innovation Observatory · Packaging System · Advanced Design · Complexity · Storytelling

"*Maybe stories are just data with a soul*".

Brené Brown.

1 The Complexity of the Packaging System and Current Crises: An Advanced Design-Driven Project as a Tool for Embracing Change

Packaging today is a multi-dimensional subject. It is a driver and an accelerator of the social, economic and environmental phenomena in which it is immersed: following the evolution of the packaging system makes it possible to perceive the mutations of the

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 649–657, 2024.
https://doi.org/10.1007/978-3-031-49811-4_62

territory, it reveals the processes of distribution, production and waste management, and it highlights how the behaviours of citizens are evolving. Packaging is therefore a complex phenomenon with a high degree of economic and cultural cross-sectoriality: for the quantity and variety of subjects and disciplines involved, and for its ability to convey socially or environmentally relevant messages and information, to act on the quality of life and climate, to monitor safety, to connect people and companies. Packaging finally appears as a map which guides the consumer within a complex system of stakeholders: it suggests consumption or disposal practices, it warns and informs, it promotes social and environmental causes and highlights the company purpose. Object and interface as well, the packaging involves a plurality of specific players, operating in a value chain that is no longer linear but interconnected, called Value Web [1]. The combination of these actors, relationships, disciplines give life to a Product System that can be defined as "Packaging System" [2, 3], moving within a context where several crises coexist - economic, social, environmental, health - changing our needs as citizen-consumers and as companies.

The community of people working in the Packaging System in fact needs today to be resilient and sustainable and balance the needs of Profit, People, Planet: an indispensable but difficult transition for companies. This need to embrace change and thus trigger innovation requires a renewed toolbox to move in a new reality. As Carmelo Di Bartolo explains, quoting in turn Renzo Piano, 'when you make innovation you have to create the tools to make it happen' [4]. In this changed global scenario, the role of Design and Advanced Design (ADD) in particular, takes on even greater value, due to its ability to facilitate these changes with a system of practices aimed to design "processes, products or services for complex scenarios located in the future" [5]. ADD, framed within the field of the Design of Processes and seen as a systemic approach, relies on multi-stakeholder collaborative practices to drive change.

The question underlying this paper is therefore: how can research in ADD and its tools help to embrace change, accelerate systemic and responsible innovation and narrate it in companies operating in complex, multidisciplinary sectors such as packaging? ADD in fact moves mainly around 4 factors:

- Time factor: Planning with respect to an earlier future, and thus in a logic of anticipation.
- Without Market: Designing without solicitation of a client and market demand [5].
- Extreme design: Designing by looking for references and stimuli in places which are geographically or culturally very distant from those of the project itself.
- BtoB, Shelf innovation and design of research tools: studying processes where innovation aims to be a continuous process [6].

Returning to the Packaging System, the hypothesis is thus that supporting change in such a complex system and triggering responsible and systemic innovation in this sector, can take place through an ADD-driven project such as an Observatory: a monitoring system, which collects case studies, gathers and processes knowledge and contributes to the creation of a network that connects the various players. The Packaging Innovation Observatory is therefore an eco-systemic project of the Advanced Design Unit (ADU: a research group of the Department of Architecture of the University of Bologna) and represents one of the tangible forms that ADD can take, a field of experimentation to

verify the theoretical premises, but also the tools and practices, of this branch of industrial design.

2 ADU's Packaging Innovation Observatory: Background, Processes, Methods and Tools

The Packaging Innovation Observatory of the University of Bologna, in particular, was created to narrate, interpret and act on the phenomenon of packaging as an expression of contemporary cultural complexity, starting from the mediating sensitivity of Design - capable of bringing together the knowledge of different scientific and technological sectors - for the creation of a system that can spread knowledge and multiply collaborative projects of responsible innovation.

2.1 The Packaging Innovation Observatory Process

The Observatory acts with different instruments, in an organic process made up of 4 elements:

- Research: It monitors the industry, archives significant case studies and collects industry trends and insights in a digital database, to study data and extract common dynamics and predictive elements.
- Analysis: It observes, cross-reads and interprets qualitative-quantitative data from a multidisciplinary, ADD-oriented perspective, carrying out specific studies and research.
- Storytelling: It simplifies complexity and communicates it through "value stories", that are able to tell the observed phenomena at different levels.
- Networking: It facilitates the relationship between different actors in an integrated system approach to create a cross-sectoral network of stakeholders.

2.2 The International Symposium "the Future of Packaging Design. Toward a Smart and Sustainable Era"

The process of collecting cases and documents, which was the starting point for the Observatory, began in 2019 when a Symposium was organised by ADU. On that occasion we adopted a process that involves gathering and interviewing experts on a topic ("observers"), in order to collaborate on data research and case study reporting. The results of this investigation are then brought to a wide audience through the organisation of an international Symposium, where the results are disseminated, fostering the creation of a network on the topic, the basis for the construction of a potential Observatory on the topic itself.

This research model has also been adopted on the topic of innovation in the Packaging system. During the 2019 Symposium we coordinated qualitative-quantitative research that collected more than 300 cases studies of packaging innovation, reported by 80 international observers. In front of an audience of 250 people, 6 global case studies were presented and 8 other local experts were invited for discussion. On 6th December of

that year, the 1st International Symposium entitled "The Future of Packaging Design. Toward A Smart And Sustainable Era" has been held in Bologna.

The results of that preliminary research presented at the conference have been:

the identification of 6 innovation *drivers*, engines for the industry into the future;
the detection of six '*design alerts*', as we named them, i.e. the translation of the drivers into concrete actions for all companies and designers handling packaged products.

The conference ended with a call to action to companies on the idea of creating an Observatory, continuing the research process started in the months preceding the Symposium and continuing to connect the stakeholder network. Over the next two years, the Packaging Innovation Observatory continued working, although the formalisation took place in October 2021 with the launch of the digital platform https://adu.unibo.it/osservatoriopack/

The Observatory digital platform. The platform consists of 4 main sections: Explore, Learn, Design and Connect.

- Explore. The first section is dedicated to the exploration of case studies and is based on an archiving system developed by ADU. The packaging system section was developed starting from an in-depth indexing work started as early as the Symposium with prof. Erik Ciravegna of the Pontificia Universidad Católica de Chile, at that time Visitor Fellow in Unibo.
- The sheet consists of a descriptive part of the project and an analytical part, in which each case is marked with different tags describing the 'type of intervention', a label that scientifically indicates the type of project action carried out, and defines the type of innovation (meant as adaptation to change) that emerges. The system makes it possible to navigate through these tags interactively and in all directions. To date, more than 500 case studies have been archived, 50 of which are made available free of charge on the website, while all others are accessible to Observatory Members (companies receiving its services in consideration of a fee).
- Learn. The second section of the site is dedicated to shared content and is in turn divided into 3 other subsections:

  - Insight: an aggregator of articles, podcasts, reports, books, news, videos and papers. A selection of content coming from specialised italian and foreign sites to deepen the topics of innovation in the packaging sector. It is a dynamic snapshot of the state of the art to understand change, looking at different thematic fields outside and around the sector in a ADD 'extreme design' logic.
  - Research: this section is dedicated to cross-driver and in-depth research (on innovation agents and for vertical analysis), accessible to Members of the Observatory. On the website some examples of the two types of research are available.
  - Events: the page aggregates sector's events in Italy and around the world, for a deeper understanding of packaging innovation issues and to keep up with sector continuous innovation.

- Design. The third tool of the platform is related to projects and refers to the type of services that the Observatory can offer, Talent Labs (projects that hybridise project

skills inside and outside University and companies), competitive or cross-company collaborative projects. Project planning is not at the heart of the Observatory's services, focused on research, but is meant as a tool of experimentation or validation for research purposes.

- Connect. The Packaging Innovation Observatory is a network, but also a point of reference and connection for the community of people in the Packaging System. The page highlights the relationships in place, such as ADU's internal Project Coordinators, the members of the Scientific Commission (in which several Italian and foreign Universities converge), the Members (affiliated companies) and the Supporters (bodies and organisations that patronise the Observatory project).

3 The Narrative Dimension of the Packaging Innovation Observatory: The *Value Story* Concept in the Giflex Applied Case Study

In the process started with Symposium and still continuing with the monitoring, analysis and data transformation carried out by the Observatory, we consider the narrative and qualitative aspects as more important than the quantitative ones: without neglecting the importance of data, the Observatory's design-driven approach does not aim at measuring phenomena statistically. Rather, it has the capacity to interpret and narrate phenomena in a transversal manner, to connect aspects relating to different disciplines and to establish a dialogue between different actors. In this way, complexity can be simplified and communicated through effective storytelling accessible at different levels. The data will be read and interpreted as *data stories*, to understand what they tell about the phenomenon in object and to interpret the society and the companies.

The amount of case studies collected does not aim at being an exhaustive mapping of the packaging ecosystem, but rather a tool for narration and identification of innovation drivers, to facilitate the dialogue among stakeholders and to stimulate research projects into the ecosystem itself.

3.1 The Giflex Research Case Study

In order to delineate in depth the aspect of integration between the different fields and languages, and the importance of knowledge translation and narration to the different actors, it will be significant to report the specific research that the Packaging Innovation Observatory has carried out for Giflex [8], the Italian association grouping manufacturers of flexible packaging designed for the packaging of food, pharmaceuticals, chemicals and other industrial applications. The brief and aim of the research programme were the definition of an identity and value profile of flexible packaging, based on the innovative elements of the sector, and the positive impacts that these elements have on people's lives and on the environment, in order to create a *value story* to be told in contexts of dissemination and promotion. In fact, flexible packaging suffers from the negative reputation of the plastic with which it is associated, often leaving in the background its inner qualities of lightness, durability, adaptability, practicality and safety, which are essential in everyday life and in industrial and logistical environments. The study

examined flexible packages, their qualities and the values they express, analysing them according to ADD-driven interpretations. The research, which is still ongoing, has a total duration of 12 months and will end in December 2022.

Desk Research and Field Research

- Desk Research. In the first phase, a large quantity of documents was analysed, 70 specialised websites and 145 technical-scientific readings. The collection and organisation of information also involved the study of flexible packages and their qualities on the market in Italy and worldwide: over 300 case studies were collected and analysed, starting from an observation of national and global packaging design awards. A specific case study analysis sheet was developed for the research, based on the Observatory sheet but with specific "type of interventions" grouped into 6 macro thematic areas.
- The first two results of the desk research were the construction of an identity profile of flexible packaging - made up of visible and hidden qualities, the expression respectively of an evident and a discreet innovation - and the identification of 4 drivers of innovation in the packaging sector, to understand how flexible packaging is adapting to the changes. Furthermore, the 6 macro thematic areas of the sheet were the starting point for outlining 6 Value Drivers, i.e. factors that determine the creation of value in flexible packaging: Sustainability, Materials, Production and Logistics, Digital Technologies, User-centred Solutions, Communication.
- Field Research. The research programme included a second stage of activities to receive insights directly from industry players, in an Open Innovation process that involved Giflex members in participatory activities. The first two activities were aimed at collecting insights from industry actors on the qualities, strengths, weaknesses, prejudices and their vision of the future (2050) about flexible packaging:

  - Interactive survey: it was carried out live during the GIFLEX Congress on 18–19 May 2022 in Rome, where the first results of the research were presented. Using the Mentimeter tool, 98 responses were collected live from people in the room.
  - Web survey: A questionnaire was sent via e-mail to all GIFLEX members during June 2022. Using the Google Form tool, responses were collected from 195 people.

The third field research activity was aimed at co-creating value stories with associates.

- Online workshop: Held remotely on 9 June 2022 via the Zoom platform, the Miro tool was used and a co-creation activity was conducted with a group of 14 participants (Observatory members, companies, designers, journalists) divided into 3 mixed working groups for the creation of 3 different value stories.
- The results of the Field Research started with the definition of a narrative method (tested in the workshop) for the construction of flexible packaging *value stories*. The question underlying each story is: How can flexible packaging help people solve problems and satisfy their needs in everyday life (and beyond)?

A generative and combinatory narrative method. The result was the conception of a combinatory method, which mixes 5 'narrative elements' - need, context, content, form, quality - within a story composed of 4 'narrative phases':

1. Starting situation.
2. The unexpected.
3. Magic object.
4. Happy ending.

The stories, still being defined as the research is in progress, will be composed as follows: a person expresses a certain need in relation to a goal or problem, in a specific context, at a specific place and time of day. To help the person fulfil this need, flexible packaging comes to their aid in the most appropriate form to wrap a certain content, and offering benefits associated with the qualities that the specific packaging solution presents.

The power of this narrative method is its generative aspect. Indeed, not only will it enable the research team to generate a series of ''value stories" for the association's use in their communication, with the objective of enhancing the qualities of the flexible packaging category. But being an open tool, it allows a potentially infinite combinatory game for the generation of new stories, both for use and benefit of the association and all associated companies.

4 Orienting Processes, Building Effective RTBTC Narratives

> *"Process is more important than outcome: When the outcome drives the process we will only ever go to where we've already been. If process drives outcome we may not know where we're going, but we will know we want to be there"* [9]

In conclusion the Packaging Innovation Observatory - as an ADD-driven tool for archiving, mapping and narrating a complex system - proved to be a good answer to the paper's initial research question (i.e.: "how can research in ADD and its tools help to embrace change, accelerate systemic and responsible innovation and narrate it in companies operating in complex, multidisciplinary sectors such as packaging?").

Design, seen as a mediator between needs and knowledges (Celaschi, 2008) of different scientific and technological sectors, was the starting point for a process of analysis and planning to create a system capable of spreading knowledge and multiplying collaborative projects in the packaging sector in its various declinations, as well as bringing out the trends of responsible innovation within this context.

The method defined for Giflex makes it possible to elaborate short narratives around the qualities of flexible packaging and the benefits it offers to people in everyday life as well as in unusual or extreme contexts, proving to be a generative and open-ended tool that allows for a potentially endless combinatorial game of creating ever new stories that can be used to promote the values of flexible packaging, placing them at the centre of communication actions to promote this sector.

If it is true as Bruce Mau states that "Process is more important than outcome", we can ultimately conclude that the Packaging Innovation Observatory is an ADD-driven tool

that integrates knowledge and languages and translates them into an RTBTC (Research To Business To Consumers) narrative language, guiding the actors of the Packaging System in orienting processes: not by defining goals but rather by suggesting possible directions, mixing data with qualitative observations, and translating these analyses into effective narratives.

References

1. Bouwman, H., Janssen, M.: Dealing with technology and actor views in designing ICT service systems. J. Des. Res. **8**(4), 359–374 (2010)
2. Ciravegna, E.: La qualità del packaging. Sistemi per l'accesso comunicativo-informativo dell'imballaggio. Franco Angeli, Milano (2010)
3. Ciravegna, E.: Diseño de packaging. Una aproximación sistémica a un artefacto complejo. RChD: creación y pensamiento (2017)
4. Parilli, M.: Il design bionico, quando l'uomo si ispira alla natura (e la migliora). Corriere della Sera, Milano (2020). https://www.corriere.it/bello-italia/notizie/design-bionico-quando-l-uomo-si-ispira-natura-migliora-8efa3302-6888-11ea-9725-c592292e4a85.shtml. Accessed 22 Sept 2022
5. Advanced Design Wikipedia definition. https://it.wikipedia.org/wiki/Advanced_design. Accessed 22 Sept 2022
6. Celaschi, F.: Non industrial design. Contributi al discorso progettuale. Luca Sossella Editore, Roma (2017)
7. Celaschi, F., Celi, M.: Advanced design as reframing practice: ethical challenges and anticipation in design issues. Futures **71**, 159–167 (2015)
8. Giflex Homepage. https://giflex.it/limballaggio-flessibile/. Accessed 22 Sept 2022
9. Mau, B.: An incomplete manifesto for growth (1998)
10. Blok, V., Lemmens, P.: The emerging concept of responsible innovation. three reasons why it is questionable and calls for a radical transformation of the concept of innovation. In: Koops, B.-J., Oosterlaken, I., Romijn, H., Swierstra, T., Hoven, J. (eds.) Responsible innovation 2, pp. 19–35. Springer, Cham (2015). https://doi.org/10.1007/978-3-319-17308-5_2
11. Bucchetti, V., Ciravegna, E.: Le parole del packaging. Glossario ragionato per il sistema imballaggio. Edizioni Dativo, Milano (2009)
12. Celaschi, F.: Il design come mediatore tra saperi. In: Germak, C. (Ed.), L'uomo al centro del progetto. Allemandi, Torino (2008)
13. Celaschi, F.: Il design della forma merce. Il Sole 24 Ore, Milano (2000)
14. Celaschi, F.: Verso la fondazione di un Osservatorio Permanente sull'innovazione nel packaging. Internal Report, University of Bologna (2019)
15. Giardina, C., Celaschi, F.: Collaborative and responsible innovation in the packaging system towards a new normal. RChD: creación y pensamiento. **5**(9), 1–14 (2020)
16. Mauri F.: Progettare progettando. Strategia. Il design del sistema prodotto. Dunod, Milano (1996). In Ciravegna, E. (Ed.) Diseño de packaging. Una aproximación sistémica a un artefacto complejo. RChD: creación y pensamiento, (2017)
17. Sennett, R.: Together: The Rituals, Pleasures, and Politics of Cooperation. Yale University Press, New Haven (2012)

18. Thackara, J.: In the Bubble. Designing in a Complex World. The MIT Press, Cambridge (2006)
19. Zamenopoulos, T., Alexiou, K.: Co-Design as Collaborative Research. Bristol University/AHRC Connected Communities Programme (2018)

NARRATIVES. Cultural Heritage, Museums, Territories

From Narrative to Phygital. An Experimental Semantic Survey

Marco Borsotti(✉)

DABC | Department of Architecture, Built Environment and Construction Engineering, Milano, Italy
marco.borsotti@polimi.it

Abstract. The concept of *narrative* has radically changed how the content of events devoted to enhancing cultural heritage is offered. This evolution not only concerns the curatorial but also and above all the design aspects, with a revision of the very realization of exhibition environments. Within the design discipline of exhibition design, the *narrative* corresponds, therefore, to a conceptual principle of coordinated and relational *habitability* between space, content, and user, which is structured synchronously as scenario, tool, and process, and finds resonance in the implementation of digitized experiential modes.

Where the narrative and the digital are integrated, the innovative concept of *phygital* exhibition design develops, based on their mutual interaction.

Here, then, we elaborate on some key concepts and tools (paradigm shifts and semantic statements) whose interaction has generated and consolidated this new scenario, such as:

- the *narrative* script;
- the *storytelling* principle;
- the action of *transduction*;
- the added value of *specification* and *articulation.*

Keywords: Exhibition Design · Narrative · Phygital

1 Introduction

This essay investigates some possible definitions of contemporary exhibition design, to find new interpretative tools regarding its conceptual paradigms, such as to also represent opportunities for effective design repercussions. Methodologically, a vast bibliography on the topic of contemporary exhibition design was consulted and organized according to homogeneous thematic arcs; in parallel, countless international case studies were tracked down, classified, and analyzed, with a focus on the presence of innovative, hybrid, and strongly narrative exhibition design modes. The intent is thus to trace a sort of semantics, however experimental, of the exhibition design.

Here it is argued, how, within the design discipline of exhibition design, narration no longer corresponds simply to a conceptual need (the exhibition exists because it aims to express something of itself), but rather to a conceptual principle of coordinated and relational habitability between space, content, and user, which is structured synchronously

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 661–670, 2024.
https://doi.org/10.1007/978-3-031-49811-4_63

as a scenario, tool, and process. It is therefore argued that *narrativity* has overcome the status of a mere operational category, to assume the role of a methodical approach and development of the whole design chain, from curatorship to architectural concept. A method that substantiates each scenario to generate unknown ways of developing knowledge, as well as the fruition of its memory, accessible and shared.

The evolution of the narrative instance develops in tune with the revision of the communicative and social characteristics that enrich the concept of culture as material and object expression, proper to artifact collections, with what is defined by cultural anthropology, which privileges languages, ideologies, behaviors, and trends [1, 2]. The impact of narrativity also finds resonance in implementing digitalized experiential modes.

This essay proposes, then, where these two horizons – the narrative and the digital – are co-present and integrated, the concept of *phygital* exhibition design, based on the interaction of the physical and digital environment thanks to technologies that create hybrid and innovative communicative and interactive levels. Finally, the analytical aggregation of some key concepts and tools, the interaction of which has generated and consolidated the scenario described above, is developed here, experimenting with the intersection between well-established theoretical/practical disciplinary elements and hybridizations from other disciplines: an experimental semantic survey.

2 The Strengthening of the Concept of Narrative. The First Paradigm Shift

The concept of *narrative* has radically changed the way the content of events dedicated to enhancing cultural heritage is offered. This evolution, consolidated over the last twenty years, does not only concern the curatorial aspects but also, the design ones. It has led to a revision of the creation of exhibition environments, today increasingly understood as involving places capable of activating, in visitors, different levels of approach, exploration, and comprehension of the contents of the collections on display. This evolution represents, therefore, a true paradigm shift in the world of exhibitions, which accompanies the principal prevailing principle of the neutrality of the exhibition design, provoking a profound critical review. The design of the contents of a cultural exhibition event, its spaces, and facilities, therefore, increasingly converge, bringing the topics of curatorship and exhibition design together at the very beginning of the process of conceiving and configuring the event.

"Every exhibition harbors an idea – a thought or a consideration of a programmatic nature. This consideration is founded on the assumption the exhibited is worth showing and it is essentially a selection criterion. Now, selections may result from impulse, as a willful, subjective act, or from a carefully objective process of reasoning, supported by analysis and scholarship. But be it willful or premeditated, inspired by intuition or the intellect, every exhibition concept inevitably engages two fundamental spheres of our reality that have been recognized since time immemorial as the domain of things and the domain of words: *res* and *verba*" [3, 6].

3 First Semantic Statement: The Habitability of the Exhibition

The affirmation of the principle of the narrative value of an exhibition system implies a shift of critical and design attention from the art of *exhibit* to the art of *exhibit and tell*. We can say, therefore, that exhibition spaces evolve from the *space of displaying* to the *space of giving meaning*. A meaning that always originates from the individual object on display and from the combination of artifacts that set up the collection, but which finds resonance in the capacity of the exhibition system to contribute to the construction of relational systems between the objects themselves, as well as them and their different contexts (historical, social, technical, etc.). This paradigm shift is also accompanied, not surprisingly, by the progressive attention to the preservation and dissemination of the so-called intangible heritage, officially sanctioned by the Unesco *Convention pour la sauvegarde du patrimoine culturel immatériel*, held in Paris in October 2003. The Convention, indeed, officially recognized for the first time the need to support cultural manifestations and expressions that include oral traditions, performing arts, social practices, rituals, festive events, knowledge, or practices concerning nature and the universe, and the knowledge and skills to produce traditional crafts.[1]

"The General Conference of the United Nations Educational, Scientific and Cultural Organization (…) Considering the importance of the intangible cultural heritage as a mainspring of cultural diversity (…) Considering the deep-seated interdependence between the intangible cultural heritage and the tangible cultural and natural heritage, (…) Considering the invaluable role of the intangible cultural heritage as a factor in bringing human beings closer together and ensuring exchange and understanding among them, adopts this Convention on this seventeenth day of October 2003" [4].

To convey meanings and values that are expressions of human knowledge and practices that cannot be represented exclusively by physical, "tangible" artifacts, it is necessary to resort to the construction of innovative scenarios, capable of communicating meaning through the description of behaviors, habits, and customs. The narrative not only makes comprehensible these contents, but through its transposition in terms of equipped physical scenarios, which act as active matrices, involving the experiential capacities of the visitors, it becomes a founding part of the whole conception and realization process of the exhibition and its setting. «In other words, storytelling, or the narrative mode of thought, is about *both* the storytellers *and* the listener (or viewer or visitor). Narrative stimulates personal interpretation; the person (…) experiencing the exhibition is engaged in his own kind of internal dialogue with the story. In this process

[1] The *Convention for the Safeguarding of the Intangible Cultural Heritage*, in its chapter 1 GENERAL PROVISION also gives this definition of intangible cultural heritage: «The 'intangible cultural heritage' means the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts, and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity». (Unesco 2003). https://ich.unesco.org/en/convention, last accessed 2022/9/7.

of making meaning, he creates story out of story so that perceiving and creating become two sides of the same coin» [5, 59].

In this way, a new systemic order is defined between space, exhibits, and the public supported and mediated by the message, i.e. by the multiple stories that can be told to visitors through the cultural testimony that the very contents of the exhibition event can trigger. A fact that seems to affirm the growing primacy of narration over the materiality of the historical or artistic object, its representation in space, and the very structure of communication. The narrative propensity of contemporary exhibition design, however, is not in competition with the actual value of the objects on display; on the contrary, it represents a strategy placed at their service, to amplify the potential for reciprocal relations between the collection, its intrinsic meaning, its multiple and stratified contents and its public, to whom more tools for fascinating and understanding are made available. The result generates exhibition environments full of narratives made physically inhabitable by people.

4 Second Semantic Statement: The Memory

Narrative, therefore, introduces itself as a method of approach and development, the primary aim of which is broadening the accessibility to knowledge. The availability of this knowledge, as it happens with any narrative, draws on the memory of events, evokes it, synthesizes it into consolidated but linguistically up-to-date (that means comprehensible) information, and aspires to the renewing of its transmission. The construction of an accessible and shared memory becomes possible through exhibition narrative. In this sense, the exhibition design can no longer be considered mere technical/technological support: it is itself a *memory source*. As Macdonald and Basu [6, 2] state: "Contemporary exhibition practices cannot be conceived merely as means for the display and dissemination of already existing, preformulated knowledge (…) contemporary exhibition practice is—or should be—also an experimental practice (…) exhibition, too, is a site for the generation rather than the reproduction of knowledge and experience".

Exhibition design, therefore, is not a neutral tool: it defines the dynamism of memory access since it can interact with the visitor to introduce, connect, and root information. Indeed, exhibition design is perhaps the only design discipline capable of implementing strategies to tune in to all the different accesses to memory that human beings have at their disposal: individual, social, and cultural [7, 8]. The *narrative* exhibition implements an open process of suggestion and stimulation for individual memory (that means the brain's capacity to record events and sensations in a personal way), realized thanks to the potential to draw on and process social memory. It is a critical-communicative action with a holistic nature that assimilates and subjects to criticism the so-called cultural memory, which is a broad sphere of communicability that delimits the area in which the various collective memories compete for the relevance and plausibility of their discourses.

"Living memory dissolves into a memory supported by mediators because it is linked to material supports such as monuments, memorial sites, museums, and archives. While the mechanism of individual remembrance occurs overall spontaneously and according to the generic laws of psychology, on the collective and institutional level, this process is driven by a clear policy of remembering, or, more precisely, by a clear policy of forgetting.

There is no cultural memory capable of self-determination: it must necessarily be based on mediators and targeted policies. (…)" [8, 15–16].

On the one hand, the exhibition design acts as an *operational mediator* on different levels: the messages characterizing the exhibition intent, the contents of the collection on display, the hosting environments, the characteristics of the individual artifacts displayed, and the visitors. On the other hand, making it an active part from the very definition of the narrative structure of the curatorial palimpsest makes it a mediator also and above all at the level of communicative, perceptive, and sensorial shaping, allowing a deeper and more conscious definition of the exhibition environments that are part of the visiting experiences.

5 Third Semantic Statement: The Storytelling and the Narrative *Partitura*

Looking at the exhibition design as a narrative meta-structure requires the development of effective tools to manage and make the communicative intent available to the public. That is, it is necessary from the very first steps of the design process to give order and substance to different presences (collection and content) according to coordinated sequences. The telling takes the form of a story, and the setting becomes a storytelling activity. It should be noted, however, that the narrative meaning of exhibition design goes beyond the simple idea of the application of an operational script structure: storytelling is a simulacrum of knowledge. "When we read, listen to, or watch a story, we exploit our capacities for meta-thinking" [9, 25]. Through storytelling, the exhibition design decodes, translates, reveals, and, in doing so, transforms the narrative into open work and offers itself as a source of interpretation, individually renewable [5, 10–12].

Storytelling allows the exhibition structure that orders and makes available the contents of the collection to develop an invisible but concrete dialogue between them and the visitors, activating perception, and critical confrontation and thus generating experience. Storytelling, as Alessandro Baricco [13, 291] states "is not a thing that packages, or disguises, or makes up reality: it is a thing that is part of reality, it is a part of all things that are real. (…) Strip away the facts from reality and what remains is storytelling".

Through the development of a storytelling approach, the logic, the main elements and the goals of the critical-scientific perspective for which an exhibition is conceived can be defined, as a real plot. With it, it is possible to start the activity of "translation" into usable space, where precisely the plot will find a way to develop through the elements of the collection and those of the design: what Uwe R. Brückner calls *dramaturgy* [14, 15]. «Content and information become intensively told stories that are absorbed and internalized intuitively and reflexively – or sometimes merely playfully» [16, n.d.][2].

It was precisely Uwe R. Brückner who systematized the way the narrative plot is developed and managed through a meta-planning tool he called *partitura.* Just as with musical composition, the exhibition *partitura* is an instrument that accommodates, modulates, and distributes all the components of an exhibition project, from the physical (collection, location) to the perceptive and sensorial (atmosphere, experience) to

[2] Studio Uwe R. Brückner, *The Dramaturgy.* https://studio-uwe-brueckner.com/philosophy/, last accessed 2022/9/7.

the operational (actions, instruments, interactions) by arranging them in several homogeneous areas. In a continuous process of refining, all the elements thus identified and selected converge towards their most significant collocation, both in terms of realization of the identified plot, and in terms of enhancing the spatial dramaturgy that thus takes shape. It allows the strategic direction of the process of transition, conceptualization, synthesis, and formalization of the project.

6 Looking at Cultural Anthropology. Latest Semantic Statements

In this experimental process of revising the semantics of the exhibition design, it is helpful to draw, in a transversal manner, on the analytical languages adopted by cultural anthropology. Not by chance, anthropology is also interested in a revision process of what are the communicative characters capable of defining the concept of culture: a principle very close to the mandate of the exhibition design. If, as Tim Ingold [2, 11] states, «to produce means to establish a correspondence between the maker and the material», this is as true for anthropology as it is for exhibition design. In the latter, the search for the revelation of correspondence becomes an integral part of communicating and making a collection comprehensible.

An understanding that looks both at intrinsic, object value and its relational dimension, establishing connections with the historical context to which the collection belongs and with the contemporary one in which it is presented.

Some innovative tools of analysis are particularly interesting: *transduction*, *specification*, and *articulation.*

Transduction, explains Ingold, "converts (…) the kinetic quality of the gesture, that is, its flow or movement – from one register, that of bodily kinesthesia, to another, that of material flow" [2, 173]. Similarly, we can say that a display generates interactions of movements (the paths of visiting, the dynamics of approach to the environments, the interaction) and flows (informational, sensory, perceptual) that define differentiated relational relationships between collection, environments, visitors, and content.

Although the concept originated in acoustics studies, the philosopher Gilbert Simondon[3], cited by Ingold, extends the principle of *transduction* to philosophy, explaining that it is "a process – be it biological, mental or social – during which an activity is set in motion by propagating itself within a given area, through a structuring of the different zones comprising the area in which it operates" [2, 173]. *Transduction*, therefore, can be an enchanting design tool for the configuration of exhibition environments equipped with primary narrative elements (thematic highlights) whose value, in terms of content to be transmitted, is developed according to a controlled and planned resonance involving several surrounding areas, defining a coordinated multilayer and multiscalar communication system.

Specification and *articulation* are actions that establish different narrative depths and thus determine various correspondences between the content, the modes of its narration, and the freedom of assimilation they provide to the visitor. If *specification* implies the explicit indication, the detailed description, the adjectival determination, again with

[3] See Simondon, G.: "The genesis of the individual". In: Crary, J., Kwinter, S. (eds.), Incorporations. Zone, New York (1992).

Ingold's words "Assembling or concatenating rigid elements (…) within a larger totality is (…) what articulation means" [2, 186] In the act of staging, therefore, *specification* and *articulation* represent two possible approaches to the drafting of the narrative score: on the one hand, an exposition system that focuses on a few subjects of which it develops a complete and detailed treatment, and on the other hand, a scenario that favors, instead, the assembly of several elements that activate among themselves cross-references and enhancements of meaning, aimed at portraying a broader horizon of events.

7 Towards the Phygital Exhibition. The Second Conceptual Paradigm Shift

Today, the narrative instance of the exhibition design is also being consolidated in the context of the process of digital transformation of museums and exhibitions, not so much in terms of the mere implementation of their technological apparatuses, but of the integration and extension of organizational and exhibition practices themselves. There are countless innovative exhibition scenarios that digital tools have been helping to build for years: from interactive to immersive environments, through different strategies of integration with the usual analog practices. We are now accustomed, therefore, to relating to Smart Exhibition Modes based on the use of Information Technologies, to confronting the enhancement of our perceptive capacities through Virtual Reality and Augmented Reality, to expanding our relational boundaries, thanks to experiences guided by Motion Capture or Interactive Media, and, finally, to dislocating our knowledge in space and time, thanks to the use of social media.

Among the countless experiences developed in these areas, two paradigmatic milestones can be mentioned: from Gallery One[4] realized at the end of 2012 at the Cleveland Museum of Art, one of the first cases of articulated use of digital interpretative technologies within exhibition environments and which, through the use of multi-touch interactive screens, proposed to visitors a strongly playful linguistic-experiential approach, aimed at the discovery of different levels of narration, according to the principles of entertainment and education, up to the multicoloured and almost dreamlike visions of pure digital aesthetics of teamLab Borderless, where the action/reaction of visitors triggers continuous modifications and evolutions of the immersive scenario in which they move, generating a new experiential dimension that becomes, as in the Mori Building Digital Art Museum[5] in Odaiba, Tokyo, a hybrid museum model, 'absent' in terms of the physical presence of collections, but alive and pulsating in terms of sensorial and performative involvement.

Digital tools make it possible to introduce new scaling of how culture is valorized and disseminated, understood, however, as variables for the interpretation of significant data, such as language, behavior, ideologies, etc.

[4] Media design and development by Local Projects; exhibit design by Gallagher and Associates; see https://www.clevelandart.org/artlens-gallery/first-iteration.

[5] *teamLab Borderless* in Odaiba has been closed on August 31, 2022, and is going to be relocated to the Toranomon-Azabudai Project (completion 2023); see https://www.teamlab.art/e/borderless_azabudai/

"Our cultural period is characterized by an unprecedented scale of production and circulation, as well as global integration in cultural production, reception, and reuse. (…) We need new methods to see culture in its new scale, speed, and connectivity, combining both qualitative and quantitative approaches" [17, 104].

Digital, therefore, can no longer be just a communicative extension of the collection, making a greater accumulation of information available: instead, digital complements the visitor's behavioral and experiential modes, summarising and enhancing them. We define this as the *phygital* exhibition: a condition of interaction between the physical environment (which is still strictly analog, based on direct, tangible, tactile communication and relational systems) and the digital environment (which is introduced as a set of virtual enhancements that intercept and modify the experiential structure of the visit).

"Linguistically, the word phygital is a combination of the words "physical" and "digital" to signify the ever-growing experiential cross-referencing and amalgamation of these two worlds. In other words, the term refers to the ways and means how these two realms – physical and digital – have melted into each other and hence increasingly difficult to inhabit them separately" [18][6].

Thanks to new technologies, exhibition environments can be configured according to hybrid and innovative communicative and interactive levels, based on the concept of cultural intelligence. This holistic and human-centered vision expands the exhibition's narrative potential based on the active involvement of the visitor, who is offered augmented and enabling digital experiences that expand accessibility to material and especially immaterial content. In *phygital* exhibition environments, the digital action is simultaneously independent and interconnected to the physical human action/reaction in a mutable whole that takes shape thanks to the synergy between the visitor and the sensitive environment.

Nofal, Rabee and Vande Moere [19, 221] propose the "Phygital Heritage" definition that refers to a scenario where "(…) heritage information can be disclosed via simultaneous and integrated physical and digital means. By blending the digital empowerment of cultural learning, storytelling, and entertainment into the heritage artifact, activity, or environment, heritage forms an ideal application field to give meaning to the digital experience, and in turn, the digital medium can truly provide immediate access to the dynamic relevant resources". In the *phygital* exhibition, the digital medium is inserted into the exhibition apparatus in a coherent manner, not as a supplementary system, but as an integral part of the whole narrative-exhibition structure. This insertion pursues user-friendly modes of implementation, to overcome the psychological, linguistic, and technological limits that digital systems can provoke, to approach, rather, more usual and established human gestural models, thus comprehensible and operationally easy. In this sense, it is the fruition models of the digital, rather than its technologically

[6] In the essay "Phygital … What's That? Introducing the Phygital Museum Scale", Debono (2022) proposes five different scenarios, looking for the possible combinations that, in the museum field, come from the contamination of physical and digital; he talks about "Physical with a token of digital", "Physical with digital as an extension", "Digital as a pointer to the physical", "Parallel and cross-referenced existence of physical and digital" and "Digital with a token of Physical".

advanced display, that assumes a central role in the development of innovative theoretical and applicative scenarios. Through the humanization of its modalities of fruition, the experiential interaction between real and virtual physical space favors and enhances the liveability of the exhibition apparatus and, through it, of the contents inherent in the collection on display.

8 Conclusion

This experimental semantic survey, aimed at the construction of possible semantics of contemporary exhibition design, has focused on two important paradigm shifts: one that is now consolidated – the narrative instance – and the other that is now beginning its historical journey – the *phygital* exhibition. We have verified how the latter provides the former with an important platform for coherent development that reshapes the presence of digital according to its operational humanization, strongly marked precisely by the enhancement of a broad, immediate, and customizable accessibility to content. Moreover, we have traced, also thanks to multidisciplinary hybridizations, some semantic statements useful to reconfigure the theoretical and operational approach of the design discipline of exhibition design. In both perspectives of analysis, exhibition design emerges as a privileged sphere where the narrative vocation finds a dimension of scenario, tool, and process.

References

1. Manovich, L.: Il linguaggio dei nuovi media. Original ed. 2001. Olivares, Milano (2002)
2. Ingold, T.: Making. Original edition 2013. Cortina Editore, Milano (2019)
3. Kossmann, H., Mulder, S., Den Oudsten, F.: Narrative spaces. On the Art of Exhibiting. 010 Publisher, Rotterdam (2012)
4. UNESCO: Convention for the Safeguarding of the Intangible Cultural Heritage. Paris (2003). https://ich.unesco.org/doc/src/01852-EN.pdf. Accessed 7 Sept 2022
5. Bedford, L.: The Art of Museum Exhibitions. Routledge, New York (2014)
6. Macdonald, S., Basu, P. (eds.): Exhibition Experiment. Blackwell Publishing, London (2007)
7. Halbwachs, M.: La memoria collettiva. Original edn. 1950. Unicopli, Milano (1987)
8. Assmann, A.: Ricordare. Forme e mutamenti della memoria culturale. Original edn. 1999. Il Mulino, Bologna (2002)
9. Storr, W.: La scienza dello storytelling. Come le storie incantano il cervello. Original ed. 2019. Codice, Torino (2020)
10. Trocchianesi, R.: Design e narrazioni per il patrimonio culturale. Maggioli, Sant'Arcangelo di Romagna (2014)
11. Groenlandbasel (ed.): Co-creating Scenography. Avedition, Stuttgart (2021)
12. Houtgraaf, D., Negri, M.: Developing exhibitions. European Museum Academy and Waanders & de Kunst, Zwolle (2020)
13. Baricco, A.: The Game. Einaudi, Torino (2018)
14. Brückner, A.: Scénography. Atelier Bruckner 2002–2010. Avedition, Ludwigsburg (2011)
15. Brückner, A.: Scénography 2. Staging the Space. Birkäuser, Basel (2018) N.d. see footnote
16. Manovich, L.: L'estetica dell'intelligenza artificiale: Modelli digitali e analitica culturale. Original edition 2018. Luca Sossella, Roma (2020)

17. Debono, S.: Phygital … What's That? Introducing the Phygital Museum Scale. The Humanist Museum, (2022). https://medium.com/the-neo-humanist-museum/phygital-whats-that-7d2c701c1662. Accessed 7 Sept 2022
18. Nofal, E., Rabee, M.R., Vande Moere, A.: Phygital Heritage: an approach for heritage communication. In: Verlag der Technischen Universität Graz, Coimbra, 2017/6/26–29, pp. 220–229 (2017)
19. https://limo.libis.be/primoeplore/fulldisplay?docid=LIRIAS1954095&context=L&vid=Lirias&search_scope=Lirias&tab=default_tab&fromSitemap=1. Accessed 7 Sept 2022

Enhancing Local Cultural Heritage by Designing Narrative and Interactive Exhibitions. MEET at the "Museo del Territorio di Riccione"

Alessandra Bosco[1], Silvia Gasparotto[2(✉)], and Margo Lengua[2]

[1] IUAV University of Venice, Venice, Italy
amlbosco@iuav.it
[2] University of the Republic of San Marino, San Marino, San Marino
{silvia.gasparotto,margo.lengua}@unirsm.sm

Abstract. The paper presents the application of the research project "MEET - Multifaceted Experience for Enhancing Territories" at the "Museo del Territorio di Riccione". The project aims at enhancing the local cultural heritage by involving institutions, professionals, and citizens in the realization of a co-designed interactive exhibition. The enhancement considers the narrative processes strategic for the inclusion of and broader access by different types of public and for a more effective learning process. After explaining the different types of narratives used in the installations, the contribution lists all the phases of the project, synthesised in a visual roadmap. The contribution is then carried out by mentioning all the stakeholders involved – together with their role – the cultural assets enhanced, the development of the process that brought to the creation of the audio-visual content and the realization of the exhibition path. Finally, in the conclusion, the research team presents the result of the qualitative and quantitative evaluation phase conducted through questionnaires useful to understand the actual appreciation and the effectiveness of the project.

Keywords: Design for Cultural Heritage · Co-design Processes · Interactive exhibition

1 Introduction

The contribution aims at illustrating the application of "MEET - Multifaceted Experience for Enhancing Territories" at the "Museo del Territorio di Riccione". The project is one of the winners of the contest "Io amo i beni culturali - X edizione" promoted by the Cultural Heritage Service of Emilia-Romagna (Servizio Patrimonio Culturale)[1].

MEET is a collaborative and replicable project that involves institutions, professionals, and citizens in the realization of an interactive exhibition dedicated to the enhancement and promotion of local cultural heritage through storytelling and co-design processes [8]. It was conceived in 2021 by the "Design for Heritage and Cultures" research

[1] The documents are available at: https://servizissiir.regione.emilia-romagna.it/deliberegiunta/servlet/AdapterHTTP?action_name=ACTIONRICERCADELIBERE&operation=leggi&cod_protocollo=DPG/2021/25012&ENTE=1.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 671–681, 2024.
https://doi.org/10.1007/978-3-031-49811-4_64

unit of the University of the Republic of San Marino[2] and combines the research fields of digital humanities and exhibition design by using co-design tools [16, 17] and digital manufacturing tools [14, 23] in order to share knowledge through storytelling processes [2, 5, 20].

The project fits within a framework where co-design processes are used to activate and promote the cultural heritage of an area by involving those who live there, thus fostering social innovation [1, 7, 9].

The research program, which can be applied to different themes and contexts, involves three main stakeholders: the university, which proposes and coordinates the entire collaborative process, the local public or private institution which provides the heritage to be enhanced, and the school which involves teachers and students in defining the content and creating the installations for the exhibition path. Alongside the abovementioned stakeholders are scholars, professionals, and enthusiasts.

The creation of an interactive exhibition path is aimed at developing a newfound sense of belonging in citizens, as well as generating the acquisition of awareness related to the existing local heritage. The project promotes the activation of new networks between institutions, professionals, and local authorities. This context offers schools room for experimenting with unconventional teaching practices [13, 18] (Fig. 1).

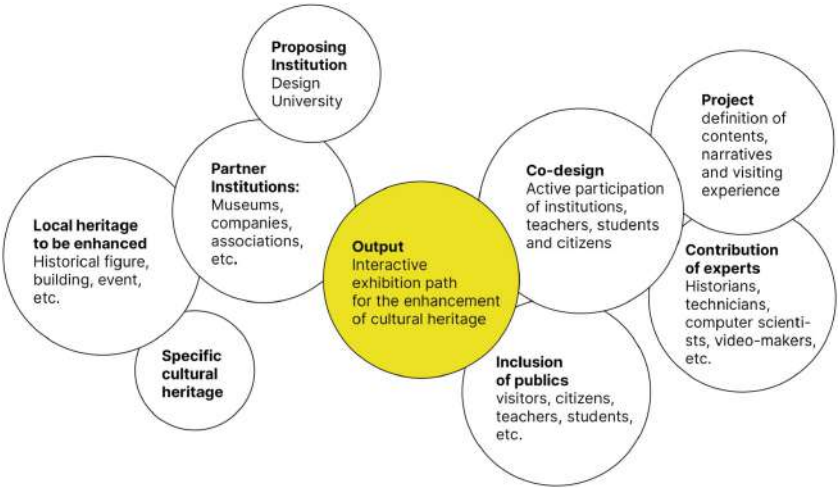

Fig. 1. General Framework of MEET - Multifaceted Experience for Enhancing Territories, 2022. Credit: Silvia Gasparotto.

Many existing projects for the enhancement of tangible and intangible cultural heritage propose a collaboration between schools and local public and private institutions.

[2] Since 1 October 2021, Alessandra Bosco, a former permanent researcher at the University of the Republic of San Marino, has been an Rtdb (B-type temporary researcher) industrial design researcher (Icar/13) at the Iuav University of Venice.

In the 2000s, research programs were set up which used participatory and co-design processes to involve students in redefining the experience of accessing museum collections by directing reflection towards accessibility and inclusion [6, 19].

The introduction and spread of digital technologies and tools have subsequently boosted this type of projects by extending the field of application to the experimentation of new languages[3]. Outputs are often aimed at institutional communication or specific projects for a younger community oriented towards developing content that can be used on social platforms [22].

The inclusion of universities in the network of subjects involved in enhancement processes has finally broadened the contexts of investigation by relating them to multidisciplinary networks [3, 10, 12].

Intended for a wider public, mainly consisting of citizens and the scientific community which in turn could apply the project to other contexts thanks to its open-source nature, MEET combines the articulated structure and complexity of a university research program with the objective of enhancing local cultural heritage by building co-design processes that involve citizens. The use of interaction technologies and the implementation of specific training activities introduce project opportunities that can be adapted to various themes and are inclusive in terms of tools used, type of location, fruition and expected duration (Table 1.).

Table 1. Peculiarity of the project MEET

Output	Exhibition path	Peculiarity
Tools	Interaction Design	Enhancement of heritage not yet displayed Open-source technologies
	Storytelling	Simple and direct mediated by video, animations, illustrations, audio
	Co-design processes	In the research phase, the design phase and during the realization of the output
Space	Public and private space	Low- invasiveness
Fruition	Interaction	Inclusiveness through a narrative tone
Duration	Open System	Implementable and upgradeable over time

Among the tools used, interaction design practices, which do not necessarily imply a physical dimension, make it possible to display unvalued cultural heritage stored in depositories or considered too fragile to be shown to the public. They also provide students with the opportunity to experiment with open-source, economically viable technologies.

Another tool that determines the quality of the project output is the character and tone of communicating the content created by students. The proposed storytelling is simple

[3] See: https://festivalinnovazionescolastica.it/ and https://patrimonioculturale.regione.emilia-romagna.it/io-amo-i-beni-culturali.

and inclusive, mediated mainly by videos, animations, illustrations and accompanied by audio recordings capable of rendering the story empathetic.

Co-design processes are tools that characterise different project phases and allow involving specific interlocutors in the research, design, and creation of the output.

The interactive exhibition path can be placed in public or private spaces such as a museum, a foundation, a library, the headquarters of an association or even a company.

The exhibition venue, given the low economic resources required, the versatility, scalability, and unobtrusiveness of the visit path, can be a room normally used for another function, a connecting or distribution space or part of a building to be redeveloped.

As far as fruition is concerned, the project is inclusive both for its simple and expressive narrative tone and for the involvement of ordinary people as protagonists of the installations. Among stakeholders, a citizen can indeed find friends, relatives, and acquaintances.

The accessibility and usability with which the interactive installations are designed make their use intuitive and immediate.

Lastly, as for the time dimension, the system, which uses open tools and processes, can be implemented and upgraded both by those already involved and by other professionals able to access digital platforms and open-source languages. From time to time, the system customised on the context can support the enhancement of different assets considering a variety of narrative viewpoints.

2 Storytelling as a Design Tool for Enhancement

In the area of design for the enhancement of local cultural heritage, storytelling and its techniques play a major role as they can improve understanding and fruition of heritage by fostering effective learning processes.

"Narrating means […] properly sharing, co-producing, transforming images. And at a more complex level, it means sharing, co-producing, and transforming media"[4] [15, p.42]. The co-production operation described here by Ragone is interpreted in MEET not only with regard to the content to be enhanced, shared between all project stakeholders and especially selected and processed by the staff of the cultural institution, the teachers and the students, but it is also applied to the design of the installations. In this way, the development of the storytelling is filtered through a variety of viewpoints –both scientific and curatorial, as well as common and immediate– and is expressed in a visit path that can be enjoyed by an enlarged audience, actively involved thanks to the interaction dynamics mediated by "invisible technologies" [5, p. 48].

The MEET format associates three narrative models with the three types of interactive installations (Table 2.).

The path includes a map, which highlights the theme addressed in relation to the area; an interactive table, whereby peculiarities are explored and interpretations are offered regarding the cultural asset; a 1:1 scale projection providing testimonies in the form of a dialogue between two people from the local community.

[4] The translation has been made by the authors. The original sentence quotes: "Narrare significa […] propriamente condividere, co-produrre, trasformare immaginari. E a un livello più complesso, significa condividere, co-produrre e trasformare media.".

Table 2. Types of interactive installations of the MEET project and their narrative models.

Installations	Interactive Map	Interactive Table	1:1 Scale Projection
Focus	Territory	Object	Person
Type ofNarration	Contextualand systemic narrative	Interpretativeand focused narrative	Interpersonaland dialogic narrative

The map is based on a *contextual and systemic narrative* that allows users to have an overview of the relationships between the cultural asset being enhanced and at the same time to orient themselves towards a system of remarkable points.

The interactive table proposes an *interpretive and focused narrative* that reinterprets and explores heritage through various types of narration by means of audio-video content and is oriented towards the dissemination of cultural concepts with a view to expanding knowledge [4]. An off-screen narrator who presents the events from an external point of view is alternated with interpretive videos in which actors, professionals or amateurs read texts in first person or excerpts from interviews recalling private and public anecdotes.

The 1:1 scale projection proposes an *interpersonal and dialogic* narrative [11] with the aim of engaging and intriguing the visitor. The dialogue between the projected characters takes place dynamically; the tone and mime lead the user to feel involved and empathise with the actors [21].

3 Methodology

The application of the MEET format in Riccione took place following the model developed, theorised, and only partially applied in the first months of 2021, due to the pandemic, in an initial pilot project on Dante in Ravenna.

The roadmap in Fig. 2 represents in a visual summary the entire process carried out in the Riccione area.

The first phase of the process provided for the definition of the network of stakeholders involved as project partners, and the identification of local professionals to be invited as experts. At the same time, the research led to the strategic choice of the cultural heritage elements to be enhanced and the verification of the existing skills in the overall work network.

The second phase involved the search for funding, the writing of the project together with partners and the subsequent application for competitions.

The third phase, concerning the project launch, involved the choice of the installations to be realised, the definition of the economic resources necessary for the development and implementation of the project, the identification and selection of sources, documents, and statements functional to the interpretation and representation of the content.

In the fourth phase, which was mainly dedicated to collaboration activities, after receiving installation guidelines from the university, the students were coordinated by their lecturers and the museum managers and helped by professionals in the co-design of the visualisation of installation content and structure.

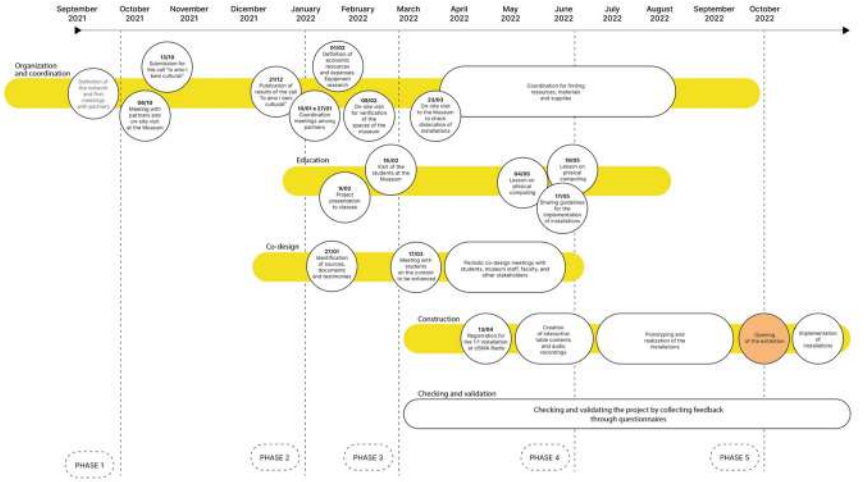

Fig. 2. Roadmap. Visual summary of the entire process carried out in the Riccione area, 2022. Credit: Silvia Gasparotto.

The fifth phase, which finalises the project, required the commitment of all stakeholders: the students created visual representations, videos, animations, and sound recordings useful for the narration of the content to be enhanced; the university, together with partners, coordinated the group and dealt with finding materials and equipment. Finally, once all the content had been developed, the IT professor, assisted by some students and the museum staff, prototyped and realised the installations.

The last phase depicted in the diagram started simultaneously with the third phase and concerned the verification and validation of the project by collecting feedback after submitting questionnaires. The process ends with the qualitative and quantitative analysis of the data shown in the conclusions.

4 MEET at the "Museo del Territorio di Riccione"

The application of the MEET format to the Riccione area was made possible thanks to the competition "Io amo i beni culturali – 10th edition"[5]. The competition is aimed at promoting new initiatives to enhance the heritage related to cultural institutions such as museums, archives, libraries, or theatres through the active involvement of high school students, fostering cross learning methods and approaches that bring together historical-artistic and technical-IT disciplines[6].

[5] The competition was announced in 2010, promoted by the Cultural Heritage Service of the Emilia-Romagna Region, designed to develop cultural heritage education projects for middle and high schools, museums, archives, libraries, and historical theatres in Emilia-Romagna.

[6] In the 10 years of the Prize, 120 enhancement projects have been financed and implemented, such as: eBooks, audio guides, videos, interactive and emotional maps, design objects, educational paths, websites, tourism promotion projects, virtual reconstructions, catalogues, and exhibitions.

The project was designed with the aim of enhancing cultural heritage, partly previously unknown, kept by the Museum, whose collection retraces, from a historical perspective, the evolution of the Riccione area: from the geological structure to prehistoric findings, up to the urbanization in Roman times.

The format consists of two interactive installations. The first, the 1:1 scale projection located at the entrance to the museum, describes the history of Riccione seafarers. The second, the interactive table, is placed at the end of the visit path and illustrates the archaeology in the Riccione area through some excerpts from the diary of Luigi Ghirotti, one of the founders of the Museum.

Among the main partners of the project are two fifth-grade classes of the Fellini Arts High School. Thanks to the specific educational plan, the 40 students were able to put in play some of the skills they had already acquired at workshops held by Andrea Solomita, professor of audio-visual and multimedia disciplines, working on the development of motion graphic elements and audio-video shooting for the representation of the installation content. The strong aptitude for technical and IT disciplines was also evident in the curiosity and willingness to explore interaction design practices for the enhancement of heritage. Together with Paolo Petrangolini, professor of computer science relating to FabLab Romagna, the students dealt with IT design and installation prototyping.

As for the scientific part and the development of the content, whose sources were identified and provided by the museum, the classes were supported by Andrea Tirincanti, manager of the "Museo del Territorio", who lectured in the history of Luigi Ghirotti's diary and the local archaeological excavations and explained the history of the Museum and its collection. The historical re-enactment association Legio VI Ferrata, alongside Carlo Volpe, an expert in Riccione seafaring, also played an important role in these educational activities.

Usma Radio, the research centre for radio broadcasting at the University of San Marino, supported the recording of some audio and video tracks thought up with the students, offering the equipment and the skills of Alessandro Renzi, station manager, and Emanuele Lumini, in charge of the photo-video laboratory for the Design degree courses, who made two video interviews that were later published and interpreted through editing by the students. The graphics illustrating the interactions were created by Ilenia Balella, interaction designer.

4.1 1:1 scale Projection

The first installation, the 1:1 scale projection, is placed near the entrance to the "Museo del Territorio", inside the premises it shares with the public library Osvaldo Berni. The choice of the location derived from the desire to intrigue passers-by who are invited to enter the museum rooms when accessing this public space.

The installation projects two people from the local community: Carlo Volpe, an expert of Riccione seafaring and an Arts High School student.

The dialogue is divided into two moments: initially the projected characters look around while waiting for the user to pause in front of them for more than 3 s. After this period of time, the conversation between the two protagonists begins.

The narrative expresses two interconnected themes: an initial conversation on Riccione seafaring is followed by an in-depth look at Saviolina, an example of a traditional

Adriatic boat – among the oldest still existing today – that represents the economic and cultural transformation of the Romagna coastline and the development of the city of Riccione. At the end of the projection, once the dialogue has ended, the two characters look back around waiting for another visitor.

4.2 Interactive Table

The second installation, the interactive table, is placed at the end of the section dedicated to the Roman Age, which completes the Museum's exhibition path. The interactive table offers an overview of the figure of Master Luigi Ghirotti through the narrative of parts of his personal diary, still unpublished, that can draw a significant picture of the history of archaeological finds in the Riccione area. The interactive table consists of a series of audio-visual content that can be enjoyed thanks to an activator object: an organizer that ideally represents the master's diary. Once the object is placed on the table at a spotlight, thanks to an RFID tag contained therein, the visitor will be able to access four specific contents:

- In the section "***Who is Ghirotti***", a narrative voice describes the figure of the master and his relationship with the "Museo del Territorio" by means of historic photographs.
- The section "***Archaeological Map***" displays the many areas discovered by Ghirotti, delving into some of them through an account of the excavations and finds.
- The section "***Diary***" narrates his passion for archaeology and his relationship with the area through the reading of excerpts.
- Finally, in the section "***Testimonies***", two video interviews to Monica Ghirotti, the master's daughter, and an archaeologist friend, Fosco Rocchetta, offer personal anecdotes and stories.

The interactive table provides for possible extensions. An additional thematic level, which can be accessed thanks to a second activator object – the archaeologist's trowel – will be dedicated primarily to the already known and studied Riccione sites, such as the archaeological area of San Lorenzo and the former Podere dei Conti Spina. The installation will also show sites still being explored, such as the area of the Castello degli Agolanti, whose excavations began in the summer of 2022. In this case, the narrative will develop through the navigation of a timeline enriched with historic photographs and images of finds from different eras.

5 Conclusions

The research group, which played an active coordination role from the design, the writing of the application and the establishment of the work team to the support to training and design activities by ensuring their feasibility, combined the realization of the exhibition path with a verification and validation phase. Alongside the design activity, evaluation questionnaires were distributed to all stakeholders in order to collect feedback.

Data, both qualitative and quantitative, provide an overview of the perception of the project and the entire process carried out by the students, the professors, and the museum staff.

Two questionnaires were submitted to the students: one at the beginning and one at the end of the experience. The first questionnaire mapped the degree of knowledge of the "Museo del Territorio" and the cultural heritage to be enhanced, as well as their level of familiarity with the activities on which they were supposed to work actively.

The data collected showed relatively low knowledge of the historic boat Saviolina, the archaeological area of San Lorenzo and the "Museo del Territorio" itself, as well as a lack of familiarity with Master Ghirotti's diary. The results of the questionnaire also showed the level of difficulty perceived by the students towards the subsequent implementation of the installations. The data reported that 79.4% of the students considered the work to be done to be corresponding to their level of competence, and on a scale of 1 to 5, most of them rated the degree of interest perceived in participating in the project with a grade of 4.

The second questionnaire, which was shared at the end of the work, collected data on the students' experience of processing the content of the interactive installations. The project, which took place during school hours with the coordination and support of teachers, was carried out independently for 50% of the groups.

The analysis of the results also showed that the experience was particularly positive for 87.5% of the students and that they felt part of a project that made them more aware of the cultural heritage of the Riccione area (95.8%). MEET was experienced as a project with a strong educational impact at both the historical-archaeological and technical levels: students dealt with topics outside the study plan, acquired skills in the fields of computer science and technology, and reinforced soft skills such as teamwork.

Lastly, the classes report the importance of the project in enhancing the cultural heritage of the Riccione area, emphasizing the key role played by the interactive installations in offering historical-archaeological content in alternative ways. Technology made information more accessible and interesting, and the development of different types of storytelling represented in a dynamic form made for a personalised feel that was more inclusive to younger and inexperienced audiences.

In the face of a predominantly positive impact, the application of the MEET format to the Riccione context ran into two critical issues: the first concerns the time required for content creation, which was perceived as insufficient by the teacher and the two classes. The second critical issue is about the coordination of the partners, which did not guarantee continuity and planned deadlines in advance due to a series of previously scheduled unbreakable commitments, lengthening the time for sharing historical-archaeological content and the related class processing phase.

Ultimately, considering the point of view of the research group, the MEET project proves to be, in its implementation in the Riccione area, an opportunity to test and apply the theoretical model in all its phases on a real context, thus building a case study that will form the basis for the scientific and critical validation of the whole project alongside other future applications, in the event of research.

The implementation phase showed that the development of a complex project involving interactive installations benefited from the specific skills and relationships of researchers, professors, and partners, without the enthusiasm and dedication of whom the project would not have been effectively completed.

Having more resources available would have allowed for the respect of timing and everyone's skills, delegating procurement, logistics and administrative procedures to specific figures.

Therefore, a preliminary phase of critical feasibility analysis concerning the availability of the people involved, their aptitudes and skills, the conditions and peculiarities of the locations, the organizational structures of the institutions involved, their network of relationships in the area and the resources available is essential for future applications of the project.

The recent organisation of research programs financed by national and international competitions, in which schools are included among the stakeholders involved in collaborative networks alongside research centres, universities, businesses and other public or private institutions, makes the MEET format particularly interesting.

As a matter of fact, because of its flexibility and scalability in terms of issues addressed, people involved and assets enhanced, the project, based on the interpretation of the place parameters, guarantees a process customised on the enhancement of the local cultural heritage in which the community is also directly involved.

References

1. Amatullo, M., Boyer, B., May, J., Shea, A.: Design for Social Innovation: Case Studies from Around the World. Routledge, New York (2021). https://doi.org/10.4324/9781003021360
2. Bonacini, E: I musei e le forme dello Storytelling digitale, Aracne, Aprilia, LT (2020)
3. Bonetti, R., Cohen, N., Ugur Yavuz, S.: Enabling relationships in a co-creative process with children. In: Proceedings of the 4th Biennial Research Through Design Conference, vol. 16 (2019). https://doi.org/10.6084/m9.figshare.7855919.v3
4. Bussolino, C.: Glossario di retorica, metrica e narratologia. Gli Spilli, Milano (2015)
5. Cirifino, F., Giardina Papa, E., Rosa, P.: Musei di narrazione: percorsi interattivi e affreschi multimediali. Silvana Editoriale, Milano (2011)
6. Dindler, C., Iversen, O. S., Smith, R., Veerasawmy, R.: Participatory design at the museum: inquiring into children's everyday engagement in cultural heritage. In: Proceedings of the 22nd Conference of the Computer-Human Interaction Special Interest Group of Australia on Computer-Human Interaction - OZCHI 2010, pp. 72–79. ACM, New York (2010). https://doi.org/10.1145/1952222.1952239
7. Fagnoni R.: Service design, pratiche collaborative, prodotti-servizi. In: Criticity (eds.) Futuri Urbani, vol. 3 Città viva, 2022, pp. 96–111, Contrabbandiera, Firenze (2022)
8. Gasparotto, S., Bosco, A., Lengua, M., Baruzzi, P.: MEET. Un percorso espositivo interattivo tra co-design e valorizzazione/ MEET. An interactive exhibition itinerary between co-design and enhancement of the territory. AGATHÓN – International Journal of Architecture, Art and Design 10, pp. 242–249 (2021)
9. Manzini, E.: Design, When Everybody Designs: An Introduction to Design for Social Innovation. The MIT Press, Cambridge (2015)
10. McCaw, C.: Design education and forest environments. Learning from and with living systems. In: Design Culture(s). Cumulus Conference Proceedings, vol. 2, p. 3282 (2021)
11. McKee, R.: Dialogue: The Art of Verbal Action for Page, Stage, and Screen. Twelve, New York (2016)
12. Moura, H., Cardador, D., Vega, K., Ugulino, W., Barbato, M., Fuks, H.: Co-designing collaborative museums using ethnography and co-creation workshops. In: Proceedings of VIII Simpósio Brasileiro de Sistemas Colaborativos (SBSC 2008), pp. 152–159, ACM, Paraty, RJ (2011)

13. Penuel, W.R., Roschelle, J., Shechtman, N.: Designing formative assessment software with teachers: an analysis of the co-design process. Res. Pract. Technol. Enhanc. Learn. **2**(01), 51–74 (2007)
14. Parisi, S., Bolzan, P., Stepanovic, M., Varisco, L., Mariani, I: Between digital and physical. Envisioning and prototyping smart material systems and artifacts from data-informed scenarios. In: Di Lucchio, L., Imbesi, L., Giambattista, A., Malakuczi, V. (eds.) Proceedings of Design Culture(s), Cumulus Roma 2021, pp. 181–198. Sapienza University of Rome, Rome (2021)
15. Ragone, G.: Storytelling, immaginari, heritage. In: Calabrese, S., Ragone, G. (eds.) Transluoghi. Storytelling, beni culturali, turismo esperienziale, pp. 41–60. Liguori editori, Naples (2016)
16. Rizzo, F.: Strategie di co-design: teorie, metodi e strumenti per progettare con gli utenti. Franco Angeli, Milano (2009)
17. Sanders, E.B.N., Stappers, P.J.: Co-creation and the new landscapes of design. Co-design **4**(1), 5–18 (2008)
18. Stiglitz, J.E., Greenwald, B.: Creating a Learning Society. Columbia University Press, New York (2014)
19. Taxén, G.: Introducing participatory design in museums. In Proceedings of the Eighth Conference on Participatory Design: Artful Integration: Interweaving Media, Materials and Practices, vol. 1, pp. 204–21. ACM, New York (2004). https://doi.org/10.1145/1011870.1011894
20. Trocchianesi, R.: Design e narrazioni per il patrimonio culturale. Maggioli Editore, Santarcangelo di Romagna, Italy (2014)
21. UOS Centro Studi e Ricerche ASL Roma e Studio Azzurro (eds.) Museo laboratorio della mente. Portatori di storie. Silvana Editoriale, Cinisello Balsamo (2012)
22. Villa, D.: Social media per l'educazione al patrimonio del sito Unesco Sacri Monti di Piemonte e Lombardia. In: Luigini, A., Panciroli, C. (eds.) Ambienti digitali per l'educazione all'arte e al patrimonio. Milano, FrancoAngeli (2018)
23. Walter-Herrmanm, J., Büching, C. (eds.) FabLabs: of Machines, Makers and Inventors, Transcript Publishers, Bielefeld (2013)

Making Value: Storydoing Actions for Cultural and Creative Industries

Simona Colitti, Ami Liçaj(✉), Lorela Mehmeti, and Elena Vai

Department of Architecture, University of Florence, Bologna, Italy
ami.licaj@unifi.it, elena.vai@unibo.it

Abstract. The paper develops a comparative analysis of the cultural and creative competencies within the educational offer of the University of Bologna, using multiple sources and tools. This contribution is based on the hypothesis that the narration around the value of the cultural and creative disciplines in academia needs to be critically reviewed. This path of observation, mapping, narration, and visualisation resulted in being consistent with the critical role that cultural and creative disciplines have played at the University of Bologna since the 1970s; by developing unprecedented educational models and impacting the territory through the generation of new economic models and the development of a diverse system of cultural and creative industries. The methodological approach of the research is based on a comparative analysis of the main documents regulating the cultural and creative economy on the international, national, and regional levels. The second stage of the research process was built on an explorative strategy based on desk analysis to create the dataset. The question arose about how to make a database accessible to a broader audience: the conclusions show that data visualisations, as a creative tool, can enable story-doing processes and thus create awareness and value.

Keywords: cultural and creative disciplines · data visualisation · storydoing · CCIs · cross-disciplinarity

1 Developing Awareness of Cultural and Creative Competencies to Enable Cross-Disciplinarity

The Made in Italy creativity is a trademark: an all-Italian ability to convey elegance and beauty by incorporating an essential component of culture and creativity into products [1]. Creativity as human behaviour that enables life is essential in the way our species adapt to the environment [2]; creativity as a cultural model that, since the 1990s, has itself become a cultural product and an agent of regeneration of cities [3]; creativity as an embodied, material and social practice for the creation of products and services which design critical geographies [4]. For these and many other reasons, creativity must be preserved, innovated, financed, educated, and narrated.

In Italy, therefore, developing an active dialogue between the university education system in creative cultures and design and the main stakeholders of the production, institutional and social system is increasingly becoming a strategic objective.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 682–693, 2024.
https://doi.org/10.1007/978-3-031-49811-4_65

This objective has been defined "Third Mission" [5][1] – which is the set of activities of scientific, technological and cultural transfer and productive transformation of knowledge through processes of direct interaction of the university with civil society and the business fabric, to promote the economic and social growth of the territory – and it is aligned with the knowledge triangle model and the objectives of the European Institute of Innovation and Technology (EIT).

What is the relationship between creativity, innovation, and technology?

How is knowledge instrumental in achieving social, cultural, and economic benefits?

Through what processes of communication and representation?

The paper develops a comparative analysis of the cultural and creative competencies taught at the University of Bologna, using multiple sources and tools; our contribution is based on the hypothesis that the narration of the value of the cultural and creative disciplines in academia needs to be critically reviewed; the conclusions show that data visualisations, as an innovative tool, can enable story-doing processes and thus create awareness and value.

The research methodology described below exhibits degrees of applied knowledge innovation that were deemed of interest during the design of the proposal submitted to the first European Institute of Innovation & Technology (EIT)[2] call on Culture & Creativity. The advanced approach applied for the creation of an open and scalable mapping to detect emerging creative disciplines and professions has been taken up as a possible model by the Una Europa Alliance[3]. The model integrates mapping and data visualization tools that aim to synthesize and communicate the productive value of creativity and culture to educational institutions, governments, and creative business.

Over the past decade, the EIT, through the selection of globally relevant but "a-sectoral" themes (Climate, Digital, Food, Raw Materials, Innoenergy, Health, Manufacturing, Urban Mobility), has identified in the creation of Knowledge Innovation Communities (KIC), the possibility of spreading open innovation applied to knowledge innovation at a European scale. This new EIT Culture & Creativity confirms the role of culture and creativity as cross-sectoral knowledge, and the goals of this new pan-European community are (EIT Culture & Creativity, 2022):

- Break boundaries in Cultural & Creative Sectors and Industries (CCSI) education by teaching cutting-edge technology to creatives and creativity as a cross-industry skill;
- Deliver mission-driven innovations leveraging the change-making power of CCSI to develop eco-systemic services and products;
- Transform CCSI businesses through custom-fitting innovation support, incubation schemes, and novel investments;
- Mainstream the impact and value of CCSI, especially culture and heritage, as an enabler for economic regeneration;
- Deepen the acknowledgement and knowledge of CCSI's unique contributions to research and innovation ecosystems based on the novel, data-driven methods.

[1] Italian National Agency for the Evaluation of the University and Research Systems.

[2] https://eit.europa.eu/.

[3] Una Europa is an international network of European research-intensive universities. Launched in early 2019, the alliance is headquartered in Brussels, Belgium and connects eleven universities, nine of which are in the European Union.

The University of Bologna participates at the EIT Culture & Creativity through the partnerships within Una Europa, through the collaboration with ART-ER[4] who will coordinate a new Co-Location Centre in the South area of Europe dedicated to Policy Making in Culture and Creative Sectors, and the H2020 project *Time Machine: Big Data of the Past for the Future of Europe*.

During the months of writing the proposal (2021) and in the first phase of project start-up (2022), the need emerged to measure culture, creativity and the business sector in the various territories with comparable tools.

This need already emerged in the last decade in the Anglo-Saxon productive circles, as evidenced by the qualitative mapping studies of the Culture and Cretive sector conducted in the mid-2010s [6]; a result of the rise of the digital tools and the consequential emergence of new specialised creative profiles [7] and 2.0 sharing platforms as well asthe social network society.

Thanks to a project originated at the University of Bologna, a group of researchers and professors since 2016 together with the regional system of stakeholders (gathered in associations and laboratories: Clust-ER Create[5] and Open Laboratories[6]) and in line with the Smart Specialization Strategies of the Emilia-Romagna region, developed educational paths (1st and 2nd cycle degrees, masters, etc.) aiming at reviewing the training modules for creative experts, as figures of mediation between culture, creativity and industry. With the publication of the CCI Manifesto [8], the University of Bologna had an anticipatory vision in the study, analysis, and comparison of data referring to education in the cultural and creative fields, their impact on new start-ups and the production of cultural and creative manufactures, as already occurred since the 1970s with the innovative birth of the first course in Italy devoted to the Disciplines of Visual Arts, Music, Performing Arts (D.A.M.S.) [9].

In 2019, the establishment of C.R.I.C.C. (Research Center for Cultural and Creative Industries[7]) led to innovative processes and methodologies in conceiving new products and services thanks to interdisciplinary approaches and the interaction with the CCI realities, thanks also to the adoption of cutting-edge and enabling technologies.

The continuous quantitative mapping of cultural and creative competencies within the University of Bologna, as experimental research by C.R.I.C.C. supported by Area Servizi alla Ricerca (ARIC)[8], has therefore adopted a cross-disciplinary approach in analysing the elements to enhance a wider overview and start the creation of a qualitative ecosystem between different departments.

This mapping model represented through data visualisation can be considered a methodological reference as evidence that the University of Bologna offers Una Europa a new model to share and integrate processes to be adopted in the start-up phase of the EIT project. Thanks to the expertise gained in these years of experimentation and

[4] ART-ER Attractiveness Research Territory is the Emilia-Romagna Joint Stock Consortium born with the purpose of fostering the region's sustainable growth by developing innovation and knowledge, attractiveness and internationalisation of the territory. https://www.art-er.it/.

[5] https://create.clust-er.it/.

[6] https://www.laboratoriaperti.it/.

[7] https://site.unibo.it/cricc/en.

[8] https://www.unibo.it/it/ateneo/organizzazione/amministrazione-generale/4082.

prototyping, Una Europa has proposed C.R.I.C.C. to coordinate a workshop within one of the first Action Programmes in June 2023. The workshop will gather the mappings conducted within the 11 universities belonging to Una Europa, taking a step toward the first goals the Knowledge Innovation Community (KIC) has set for itself, which are:

- EDUCATION - SO1. AP1. Mapping of existing programs running within the university/educational partners in the ICE consortium/EIT PhDs and Masters;
- EDUCATION - SO1. AP2. Mapping of the lifelong learning practices for CCSI within the Partners/The mapping should also include innovative digital approaches (MOOCs).

This path of observation, mapping, narration, and visualisation resulted in being consistent with the critical role that cultural and creative disciplines have played at the University of Bologna since the 1970s; by developing unprecedented educational models and impacting the territory through the generation of new economic models and the development of a diverse system of cultural and creative industries.

2 Data-Mining: A Methodological Comparison of Multiple Sources

The methodological approach of the research is based on the dual analysis of two data sets and their respective extraction methods. By comparing the results of the data sets extracted, one carried by a researcher (human-based model) and one based on algorithm[9] (semantic-based), the research team claims that semantic extraction is not comprehensive and inclusive. A more complex understanding of cultural and creative skills could be methodologically approached by human analysis or a trained AI.

The first methodological step of the research was developed by analysing the main documents regulating the cultural and creative economy on the international, national, and regional levels and consisted of identifying the CCS tags; the comparative methodology was used to harmonise the selection of the tags from different multimodal sources.

The concept of tags, in a data-driven approach [10] is to be understood not as a product, considered objective, derived from the measurement of a phenomenon, but as a filter. This tool allows us to categorise its aspects, make them comparable, and relate meanings. The design of the qualitative/quantitative research reading model followed an iterative process that led to the definition of CCI tags. A process that went through several steps marked by the critical readings of the following documents:

1) REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing the Creative Europe programme (2021 to 2027)[10] and repealing Regulation (EU) No 1295/2013;
2) UNESCO's Framework for Cultural Statistics[11];

[9] Provided by APOS – University of Bologna.

[10] REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing the Creative Europe programme and repealing Regulation (EU) No 1295/2013, (2021 to 2027).

[11] UNESCO's Framework for Cultural Statistics. (2009).

3) EIT Call for Proposals 2021[12] for a new EIT - Knowledge and Innovation Community (KIC) in the Cultural and Creative Sectors and Industries;
4) Culture and the creative economy in Emilia-Romagna, Italy by Local Economic and Employment Development (LEED)[13];
5) *CCI Space*[14], an online and interactive platform developed by the Research Center for the Cultural and Creative Industries.

By exploring the macro-categories defining the cultural and creative sector in each report, the research team has drafted the first list of tags to filter the cultural and creative competencies of the educational offer at the University of Bologna.

This first list has been later compared to the extraction of semantic information provided by the APOS Division[15] of the University of Bologna. The results of this comparative process have detected eighteen tags overall:

- Architecture
- Cinema
- Communication and Multimedia
- Craft
- Cultural Heritage
- Digital
- Education
- Fashion Design
- Food
- Landscapes
- Performing Arts
- Publishing
- Reactivation
- Tech
- Tourism
- Visual Arts
- Wellbeing

This process aimed to select the specific tags that could reflect the Creative and Cultural Sector in the international and regional scenarios, namely the EU and Emilia-Romagna region; the goal was to contextualise the range of cultural and creative professional competencies provided by the University of Bologna with a bottom-up approach.

The second step of the research process was devoted to data collection based on exploratory human-based analysis. Through desk research, the observation has examined

[12] EIT Call for Proposals 2021 for a new EIT Knowledge and Innovation Community (KIC) in the Cultural and Creative Sectors and Industries (CCSI). https://eit.europa.eu/eit-community/eit-culture-creativity

[13] OECD: Culture and the creative economy in Emilia-Romagna, Italy. OECD Local Economic and Employment Development (LEED) Papers, No. 2022/05, OECD Publishing, Paris (2022). https://doi.org/10.1787/841f1338-en.

[14] https://adu.unibo.it/osservatorioicc/cc-stories/

[15] APOS - Settore Sviluppo organizzativo e formazione - Organisational Development and Training Sector.

each department of the University of Bologna (32 departments) in the academic year 2020/2021. The data collected were integrated into a database which contains the cultural and creative educational offer of each department divided into (Table 1.):

Table 1. Matrix of data-set based on human-based research

	Bachelor's degree	Master's degree	Doctorate	Higher Education and Specialisation School	Labs and research centres	European Projects and outreach activities
Department xy						

As explained above, each finding has been associated with a tag to facilitate the data visualisation. As an example (Table 2.):

Table 2. Matrix of data-set based on human-based research of the Department of Architecture.

	Bachelor's degree	TAG
Department Architecture	Industrial Design	design; communication and media; visual arts; tech; craft; publishing

This process has been completed for each educational activity presented in all the Departments. As a result, each data collected in the database has been associated with a tag, generating an interesting matrix of information that was never explored before (Fig. 2). Therefore, the research team deemed it necessary to share the findings with the community of the University to increase awareness and engagement concerning the cultural and creative sector. The question arose about how to make a database accessible to a broader audience. Here, design comes to our aid. The evolution of technologies in participative approaches to the user experience has highlighted the power of interaction in raising awareness and education [11]. One-way storytelling has been overcome in favour of a more participative and empathic interaction [12] through data visualisation, gamification and fictioning. In the meta-universe of future design, design praxis must fully deliver capabilities to collect, manage and visualise datasets using a fair and intersectional approach, to be a tool for anticipations, influencing decision-makers and empowering citizens.

As we can also see from the visual comparison, compared to the data visualisation resulting from the analysis of the database derived from the semantic extraction (Fig. 1), the data visualisation designed from the human-based analysis (Fig. 2), shows a greater complexity that is worth communicating, analysing and enhancing. In fact, for the second mode of analysis, it was necessary to design a matrix to bring everything into system.

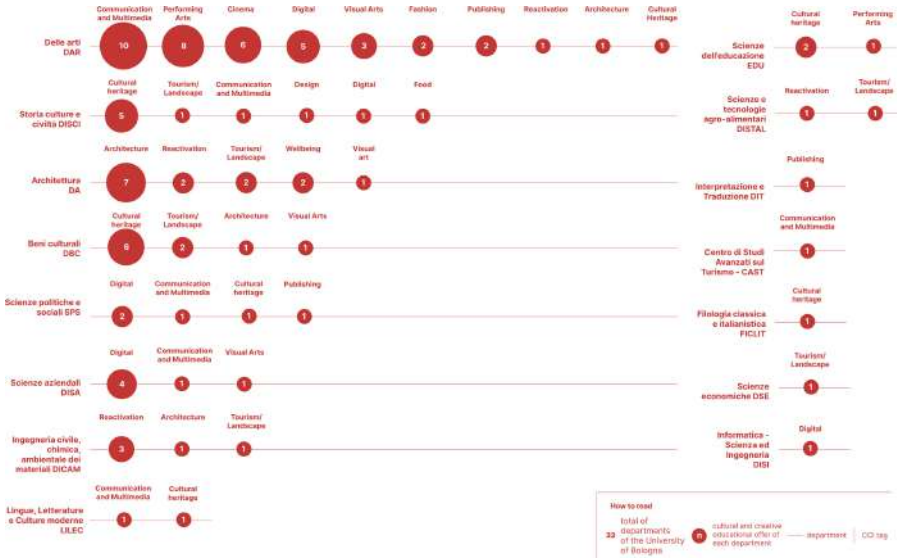

Fig. 1. Cultural and creative disciplines in the University of Bologna ecosystem. A data visualisation based on the semantic extraction of the database provided by the APOS Division of the University of Bologna.

In the context of a broader academic audience, how can a multi-directional and multi-layered communication of the data be driven to generate awareness about the relevance of cultural and creative skills and their impact?

3 Driving Awareness Through Data-Visualisation and Story-Doing

As can be seen from the preceding paragraphs, the primary objective of this research is to develop awareness on the need of renewing educational models that can have impacts on the territory generating new economic models and the development of a diversified system of cultural and creative industries. To do this, it is necessary to structure a communication strategy capable of raising awareness of the importance and urgency of these actions. The targets of the campaign could be divided into two categories: other bodies such as Italian and European universities, creative and creative companies. The task of communication in this case therefore is not only to raise awareness of urgency but also to create strong relationship networks and a new active community.

But what are the paradigms on which a communication of this type must be based today?

Nowadays, in the Data-driven Social Network Society, the medium and modalities in which we communicate, relate, and exist have radically changed.

The inhabitants of today's society exist in a digital/virtual space for many hours a day, almost half of the waking hours [13], and they recognise this space as the source of their daily new experiences and knowledge. Therefore, in this context, it occurs that all types of communication take place. There, where algorithms, bots, fake news and filter

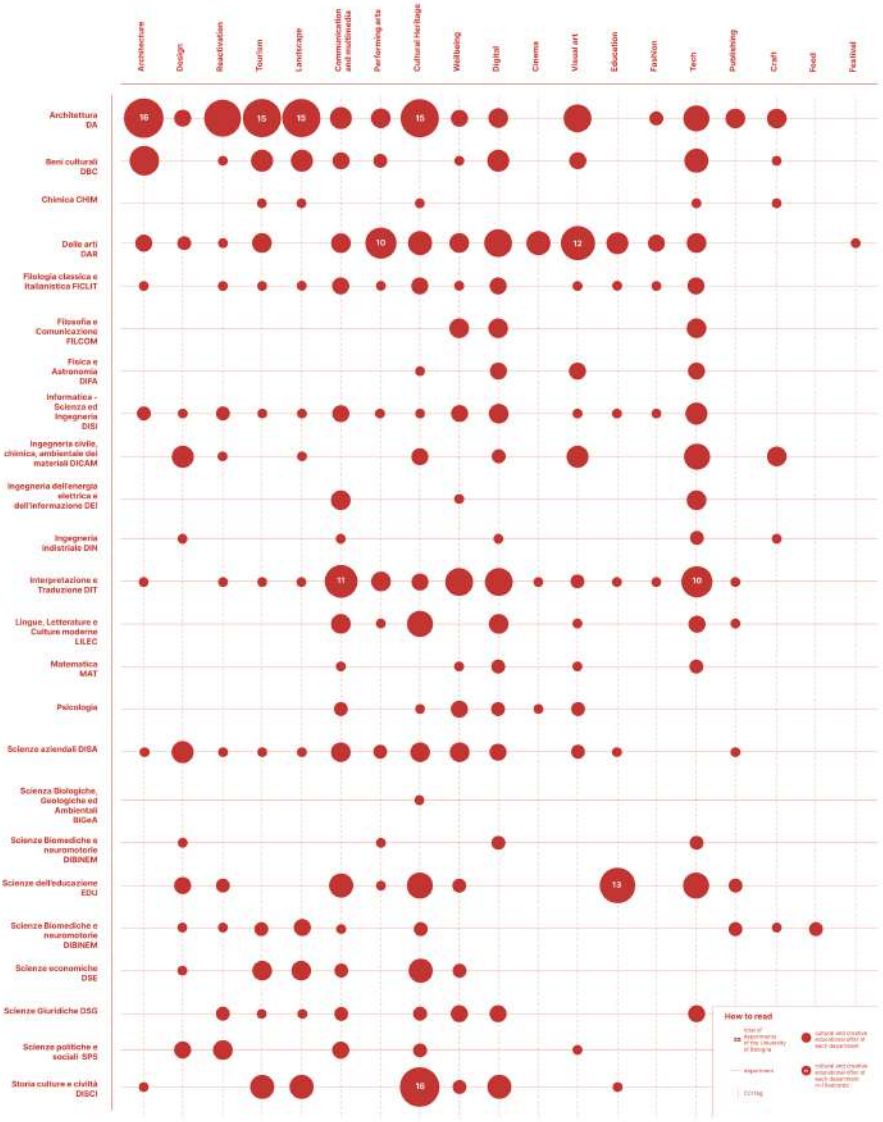

Fig. 2. Cultural and creative disciplines in the University of Bologna ecosystem. A data visualisation based on a human-based extraction and analysis model.

bubbles mediate experiences and knowledge, or if not, the concept of reality and truth itself. There, millions of posts on social networks contend at every access to emerging in our feed, to overcome our digital distraction, to be effective in 8 s - the new detected threshold of our maximum attention span, against the 9 s of the goldfish [14]. There are at least two new paradigms in communication today; it is undoubtedly becoming fragmented and frighteningly fast [15].

But how does the human mind operate in such a fragmented and fast flow? The function of our left hemisphere is precisely that of finding meaning among information. It tries to bring order and find purpose by generating a coherent account; in short, it creates a story [16].

Storytelling has never enjoyed better health than today. We live enveloped in the perfused and subtle narrativity radiated by a global communications system whose interstitial penetration force is unequalled in human history [17].

Storytelling has always been a vital tool for effective communication, but in recent years it has undergone a new evolution, strongly influenced by the advent of social networks. Indeed, experts talk about the transition from storytelling to story-doing where, unlike the models of the past that favoured symbolic and unidirectional communication, there is a preference for communication that aspires to the authentic and multidirectional narration [18]. Going beyond concepts such as exclusivity, simulation, passive identification, [19] to embrace a more active, engaging, co-partecipated, co-designed, but above of all authentic, communication model.

Thus, we have understood how today, social networks and new forms of storytelling are essential elements in the evolution of communication. Still, the third, and perhaps most important, element that has strongly influenced this field is data.

That data is closely connected to this new form of storytelling and social networks as it was understood from the recent political, social and economic events that have also made this triad a weapon for the manipulation of mass thought [20]. However, the history of data teaches us that they have always been used by publishers or institutions as a means of mass communication, using data visualization to explain complex phenomena and create awareness of important social, political and economic issues, such as the Statistical Exhibits of 1913 in New York [21].

The power of data is precisely that of making the invisible visible, while that of data visualisation is that of making the visible accessible, moving, today more than ever, from the scale of one to one to that of many to many, especially via the Net and Social Networks. In addition, in the data we find those characteristics of storydoing, such as authenticity, involvement, participation, these being used in this research as a means of revelation and generation of strong connections between CCI, University and territory. Some experts, however, point out that the relationship between data visualisation and Social Networks is still little explored in the scientific sphere [22]. And it is precisely on this relationship that research could take some of its future steps.

4 Conclusions and Future Steps of the Research

"Even the practices of data visualisation, as applied to so-called big data, seem to want to delude us today about new forms of objectivity, making us forget the debates on iconism of the 1960s that seem to have exhausted the visual's claim to mimetic objectivity forever, recognizing the inevitable quota of conventionality and culturality implicit in any form of content processing and translation" [23].

Across Europe, we are witnessing a transformation within the academic sector motivated by the need to innovate and design new courses to adapt cross-disciplinary competencies based on culture and creative skills about the emerging professional markets expressed in productive and societal spheres.

The need to renew skills and adopt processes of lifelong learning practices has increased the relations between the University of Bologna and the businesses and private foundations overall that have co-designed new master's programs with the University. This metabolic dynamic reflects the increase of professionalising masters and the proliferation of MOOCs supplied through the innovative and digital learning platform BOOK (UniBO Open Knowledge[16]).

The data extraction model tested in the presented research aims to visualize the penetration of culture and creativity transcending the disciplinary scientific fields or sectors. The graphics of the data-viz of this new experimentation are still in prototypical form; however, they aim to demonstrate how the concept of story-doing is crucial to complement the action of making value and functional to create new relationships and impacts in the territory.

Considering the establishment of the Co-Location Centre South in Bologna coordinated by ART-ER, this project contributes to increase the strategic role that the European Union entrusts to this sector and cultural heritage for the future of its identity and recognition in the world.

Thus, narrations exist thanks to innovative data extraction models and have become a political tool to give voice to those who are not traced, represented, or do not produce findings worth measuring and communicating. Examples of this underrepresentation are culture and creativity. It was only in the last decade that policymakers began to believe that measuring performance through the economic impacts and counting those working in the cultural and creative industries could be a multiplier of value. This trend has led to the emergence of networks and websites in the form of observatories all over Europe, which have focused on this phenomenon, elevating it to the status of a driver of new economies and targeting policies to support them.

The future steps of the research will focus on elaborating a communication strategy that will consider the paradigms outlined in the previous paragraphs to create a new interactive platform. An example of this is the post published on Instagram District – Design & jobs, a matching platform between designers and companies, dedicated to narrating through data the fundamental role of creative jobs in the Italian economy (https://www.instagram.com/p/CmOYS4YNatV/). This new tool based on AI intelligence could enable a periodical analysis of the educational offer of all the academic programs, filtered by the CCS tags identified by this research.

The platform is intended to be:

- multidirectional: to make information digital and fully open-access;
- custom: with UX/UI experience filterable according to different targets/stakeholders;
- A.I. driven: able to implement artificial intelligence features that can generate an automated data implementation system at an advanced stage to arrive at a final real-time data model.

Finally, to connect the platform's outputs to the social networks for communication purposes, the research will explore the relationship between data-visualisation and social networks to enable effective communication campaigns that can overcome the fragmentation and speed of the social space through the complexities of data visualisation. The

[16] https://book.unibo.it/.

aim of the campaign will be to show how fundamental CCI are as a productive sector in Europe and Italy. Another goal will be the expanding of communication target going beyond boundaries of this community, looking for new and unexpected realities that can become part of the CCI world.

References

1. Fondazione Symbola (Ed): Io sono cultura. I Quaderni di Symbola (2022)
2. Garroni, E.: Creatività. Quodlibet (2010)
3. Landry, C., Bianchini, F.: The creative city. Demos (1995)
4. Hawkins, H.: Creativity. Routledge (2017)
5. ANVUR: Regolamento istitutivo dell'ANVUR D.P.R. 76/2010 (2010)
6. Bakhshi, H., Freeman, A., Higgs, P.: A Dynamic Mapping of the UK's Creative Industries. Nesta (2013)
7. Floridi, L.: La quarta rivoluzione. Come l'infosfera sta cambiando il mondo. Raffaello Cortina (2017)
8. Vai, E.: Cultura, creatività, industria. Culture del progetto e innovazione di sistema in Emilia-Romagna. Luca Sossella (2017)
9. Celaschi, F., Vai, E.: Design processes in cultural and creative industries' oriented development: a regional case. In: diid – disegno industrial industrial design, vol. 73, pp. 12–23 (2021)
10. Kirk, A.: Data Visualisation: A Handbook for Data-Driven Design. Sage Publications (2016)
11. Markussen, T., Knutz, E.: The poetics of design fiction. In: Proceedings of the 6th International Conference on Designing Pleasurable Products and Interfaces, pp. 231–240, (2013). https://doi.org/10.1145/2513506.2513531
12. Jensen, T., Vistisen, P.: Ethical design fiction. ORBIT J. **1**(2), 1–14 (2017). https://doi.org/10.29297/orbit.v1i2.56
13. We are social, Digital 2021 (2022). https://wearesocial.com/it/blog/2022/01/digital-2022-i-dati-globali/
14. Gausby E.: Attention Span:Consumer Insights. Microsoft Canada (2015). https://dl.motamem.org/microsoft-attention-spans-research-report.pdf
15. Licaj, A.: Social network society. New design contexts and new virtual identities. In: diid – disegno industrial industrial design, vol. 74, pp. 156–167 (2021). https://doi.org/10.30682/diid7321n
16. Gottschall, J.: L'istinto di narrare: come le storie ci hanno reso umani. Bollati Boringhieri, Torino (2014)
17. Calabrese, S., Fioroni, F.: La comunicazione narrativa: dalla letteratura alla quotidianità. Mondadori, Milano (2010). da vedere
18. Montague, T.: True Story: How to Combine Story and Action to Transform Your Business. Harvard Business Review Press, Boston (2013)
19. Morace, F.: L'alfabeto della rinascita. 26 storie di imprese esemplari. Egea (2022). da vedere
20. Shao, C., Ciampaglia, G.L., Varol, O., Yang, K.C., Flammini, A., Menczer, F.: The spread of low-credibility content by social bots. Nat. Commun. **9**, 4787 (2018). https://doi.org/10.1038/s41467-018-06930-7
21. Brinton, W.C.: Graphic Methods for Presenting Facts. The Engineering Magazine Company (1914)

22. Advanced Design Unit, University of Bologna, Department of Architecture Channel: From Knowledge to Wisdom, and Back! YouTube https://www.youtube.com/watch?v=W0V9pjJqy-c. Accessed 30 Sept 2022. cambiamo accesso?
23. Lorusso, A.M.: Accuratezza, informazione e verità. Paginette Festival Filosofia (2018)

Ustica, a Whole World in an Island Fragment

Cinzia Ferrara(✉) and Marcello Costa(✉)

Università degli Studi di Palermo, Palermo, Italy
{cinzia.ferrara,marcello.costa}@unipa.it

Abstract. In 2019, a memorandum of understanding has been signed by the Visual and Graphic Design Laboratory (part of the Design and Territorial Culture Master's Degree Course) and the Study and Documentation Center operating on the Island of Ustica. The above-mentioned agreement officialises a synergic relationship of exchange between the Course and the Center, which has always been active in promoting knowledge and divulgation of the many island's patrimonies. This knowledge allows both professors and students from the Design School in Palermo to access data, documents, and present research through publications, as well as having access to archival, textual and iconographic materials. The projects developed within the Laboratory, from 2018 to 2022, concern the development of artifacts in the fields of visual identity, editorial graphics, infographics, and interactive graphics. The afore-mentioned projects are all based on a digital archive, built through the collection of fragments during the first phase of the research. Territorial identity signs are re-interpreted according to new unprecedented points of view.

Keywords: Visual design · web design · infographic · territory · Ustica

1 State of the Art

Ustica is a "little piece of land" in the Mediterranean Sea. All of its numbers are little, concerning the area measurements, perimeter, altitude, distances, demographics; the "littleness" of these number, however, is inversely proportional to the importance of its history: an emerged land, a remainder of an extended volcanic system that "lives" under the sea abyss. Ustica island is located North-East of Palermo, from which it is distanced by 67 km of water. This proximity is the reason why Ustica is considered as part of Palermo's urban area. The island's surface barely covers 9 km^2, with a population of less than 1500 residents.

The most ancient forms of life on the island date back to Neolithic Age, followed by different settlements of many ancient Mediterranean populations (Phoenicians, Greeks, Carthaginians, and Romans). Right after them, Ustica was inhabited by a community of farmers, then replaced by a corsair's hideout until 1759, the year in which King Ferdinand of Bourbon issued an order that helped repopulate the island. This way, Ustica lived through an alternance of periods of population and long desertions, also due to the challenging life conditions. However, describing the ancient history of the place would

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 694–701, 2024.
https://doi.org/10.1007/978-3-031-49811-4_66

require too much space and in-depth analysis, which could lead us astray from the main theme: the relationship between design and narration, meant as the designer's ability to fulfil his role as a translator of contents of different natures (both visible and invisible). According to this point of view, a designer shall be able to bring those contents to a visual dimension, by giving them a culturally accessible narrative structure, whose purpose is to share and transmit new forms of knowledge, to communicate, divulge, add value to the many stories that can emerge from a single territory (Fig. 1).

Fig. 1. P. Reginella, Ustica tells her own story

In 2019, a memorandum of understanding has been signed by the Visual and Graphic Design Laboratory (part of the Design and Territorial Culture Master's Degree's Course) and the Study and Documentation Center operating on the Island of Ustica[1]. The above-mentioned agreement officialises a synergic relationship of exchange between the Course and the Center, which has always been active in promoting knowledge and divulgation of the many island's patrimonies. This knowledge allows both professors and students from the Design School in Palermo to access data, documents, and present research through publications, as well as having access to archival, textual and iconographic materials. Yet another benefit originated by this agreement is the chance to open a discussion with some

[1] Study and Documentation Center of Ustica Island, http://www.centrostudiustica.it/index.php/il-centro-studi-ustica.html last accessed 2021/10/14.

of the foundingmembers of the Study Center, such as Vito Ailara[2], Mariella Barraco, Nicola Longo. All of them have been involved in a series of meetings and conferences organized and hosted by the University, the Center (on the island itself), the Sicilian Gramsci Institute and online during the pandemic period.

2 Methodology

All of the above, allowed the research project to adopt the normal methodology used in history of design's studies: combining contents collected from both primary sources (involving different kinds of archival materials and oral testimonies) and secondary sources (represented by scientific publications).

The island's territory has been chosen as object of study exactly because of the density of its history and also individual stories linked to places, people, objects. This never-ending density continues unveiling new data on the island, allowing more studies and research to develop, and showing what a true microcosm Ustica really is.

The research project is developed within the new Master's Degree Course in Design and Territorial Culture, which was issued in 2018 and which bears in its title the vocation to take care of the territory and its heritage (historical, archaeological, cultural, naturalistic, eno-gastronomic…) through practises and methodological instruments taken from the discipline of design. The final purpose of this process is the one of promoting the territory, innovating it, making it accessible by also respecting its past and the will to build future sustainable scenarios. In the context of the Laboratory, within the period 2018–2022, many projects have been developed, concerning some of the island's stories (both major and minor stories) and developing artifacts in the fields of visual identity, editorial graphics, infographics, and interactive graphics.

Those projects, those little pieces of a whole (as in Leo Lionni's fable)[3], are meant to compose a sort of digital archive, a great container divided through themes and macro-areas, comprehending single words or entire lists of words (which are incomplete, at the same time, given the extent of contents). Every word or list tells something about the island: a story, a character, an object, any aspect from the most remote to the more recent past.

A digital archive, composed by significant fragments of the rich and multi-faceted history of Ustica, has been created in order to be implemented through time, by involving further research and studies, embodying the spirit that has always led the Study and Documentation Center's actions. The purpose of the project has always been the one of making Ustica's heritage known, both by foreigners and inhabitants of the island. The methodology employed is less conventional and more participative, relying on an interactive digital archive that could help preserving cultural contents (as well as creating new ones).

Over the years, the project focused on different themes, starting from the knowledge and the analysis of the entire island, passing through specific historical topics (which have already been studied by the Center) such as political exile, the Gramsci School,

[2] See Ailara, V., Caserta, M.: Il confino politico a Ustica nel 1926–27 "Immotusneciners", Ustica. Study and Documentation Center of Ustica Island (2016).

[3] Lionni, L: Pezzettino. Babalibri, Milano, (1975).

Ustica's transformation from confinement island to touristic island. The project also involved taking care of the Study and Documentation Center's visual identity, as well as its publications' editorial planning, represented by the tomes and the review *Lettera*, by the web site and event communication. The Laboratory literally took care of the many resources of the Center, transforming them into study material and object of the research project, restoring the fundamental relationship between shape and content on which the design of visual communication is based.

During the development of the digital archive, we started by working on defining the word lists, which revealed themselves as irreplaceable instruments for knowing, collecting, and cataloguing the many elements in which we ran into during the research.

We imagined collecting them and grouping them according to their theme, assonance, affinity, in order to overcome the fragmentary nature of the data and to create a disconnected (yet rationally organized) system, whose purpose is to focus on single themes in different ways.

The list is the origin of culture. It is part of the history of art and literature. And what does culture want? To make infinity understandable. It wants to create order – not always, yet frequently. And, as human beings, how can we face infinity? How can we grasp for the incomprehensible? Through lists, catalogues, museum collections, encyclopedias, dictionaries. Lists don't destroy culture, they create it. [1,33].

What has been built is the seed of a digital archive structured as a taxonomic list. A potentially endless list that could recall the Echian memory's vertigo. Moreover, there is also a reference to Peter Greenway's research and theatrical project named *One hundred objects to represent the world*, staged in Palermo during the 1997's edition of Festival del Novecento. Greenway's project is linked to the visionary project of Carl Sagan, the American astronomer who sent two Voyager Satellites in the space, in 1977. On the inside of those satellites, Sagan put the Golden Records: two records made of gold that were engraved with rationally ordered lists of words, sounds, images, whose purpose was to be a testimony of the human genre presence on Earth, for eventual alien living forms.

Greenway works follow a list of voices, a catalogue with no linear or prearranged order [2]. In the same way, the Laboratory's digital archive assumes the shape of an unordered ensemble of fragments, in which the narration is not linear, it has no start nor end, and it doesn't follow a predetermined sequence. Every story stems from a single fragment and traces a trajectory towards other fragments and stories. Or, sometimes, it just ends in itself.

In the archive, the fragment is a media object [Ibid.] with its own features and functions: it is an image, a text or a single term, a video or an audio. It is characterized by a language or a specific technique: photography, drawings, maps, icons and pictograms, interviews, excerpts from repertoire films, live audio.

3 Process

The students in the Laboratory classified the fragments according to six categories of media objects: text, video, audio, single image, gallery of images, maps.

Such classification originated a multidimensional database, as far as possible from the tree structure based on taxonomic classification systems that only consider the presence

of an object within a specific category. In the multidimensional system, the media object, the fragment, is like one of a polyhedron'smany faces: an object that just describes a part of a whole; the ensemble of all the faces gives us the complete form of the polyhedron, as an exhaustive description of the object that has to be represented. It is an object that doesn't classifies as an indivisible whole, whereas it decomposes in an ensemble of features, each one representing an aspect of the object, giving a different way to examine it [3].

Nevertheless, what is the exact number of faces we need to compose the polyhedron? In which order, interlocking or sequence do these faces have to be put together?

Quoting George Perec, in his preamble to *Life: a User's Manual*: "we can look at a piece of a puzzle for three years straight, believing to know everything about its configuration and colour, without making a bare progress: the possibility of linking that piece to the others is all that matters […] just the recomposed pieces will assume a readable character, a sense: when isolated, a piece of a puzzle has no meaning" [4].

Yet, if the puzzle has but a unique solution (the one of its own author), recomposing the fragments hasn't always a predictable result.

For its own definition, the fragment is the part of that whole that doesn't exist anymore. A whole that we can barely imagine or reinvent through our personal vision.

Moreover, the writing in the digital archive is electronic, it is not traditional and that is why «it defines its own positive aspects in terms of non-linearity, non-consequentiality, non-finiteness and non-closure» [5].

How can this electronic writing be managed then? Starting by the semantic organisation of contents put in a HTML structure, the visual representation of the archive (or rather, its interface) has been generated by using a single component system, that can be recomposed in different contexts. Therefore, the archive creation process didn't concern the design of single pages but the one of single components, of atoms: HTML elements that, if recomposed, generate molecules whose composition gives life to the organisms who populate the templates, by receiving contents that create the pages [6].

The passage from atoms to molecules, from organisms to templates in order to achieve a final product (the pages), traces the path that brings to the definition of the base elements of a design system: a totality of standard objects for the project management on a large scale, reducing redundancies and creating a shared language, which is visually coherent between the web pages or other communication artifacts [7].

4 Results

From the beginning, the stated aim has been the one of giving independence to a unique coherent and structured information (the archive of fragments) from its multi-faceted visual representation. This representation presents hierarchies that change according to the weight with which every component is bestowed, bearing in mind that those components are reconfigurable according to each student's personal vision.

Every student has developed his own design system, by defining not only the single components but also the user flow and the interactions generated by the users [8].

Moreover, the guidelines for a correct use of typography, icons and colours have been issued; a manual of visual identity, traditionally linked to the typography world, which is

now encompassed within a broader system in which styles and behaviours are normed, being the electronic writing fluid and mutational (recalling Maldonado's definition).

The Ustica's Study and Documentation Center web site redesign was a starting point for the application of this process, even though many hypotheses of other web projects have been developed, concerning specific topics that came across as relevant (consequently needing further examinations). The process naturally extended to the analogic traditional communication artifacts: the review *Lettera*, a divulgation periodic by the Study Center, the posters, signage, merchandising, infographics.

Hereafter, we are about to describe the experience of some of the selected projects, particularly the ones we consider examples of the effectiveness brought by the theorical fundamentals chosen for the research and on which the Laboratory based the work discussed until this point. Some of the afore-mentioned projects have some common denominators: typography as a minimal element; a unique matrix to decline in various components and communication artifacts; the synthetic sign of the pictogram, which becomes texture when reiterated; the infographics, in order to bring clearness and synthetize the eventsfrom a specific historical period.

In his project, Pietro Reginella decomposes single typographical characters of the Alegreya font in smaller parts, in order to detect all the common anatomical parts: ascenders, descenders, eyes, serifs, shoulders that can be mixed and recomposed to shape a system of icons that represents the terms of a glossary made of fragments (divided in categories and subcategories). The glossary is represented through two different shapes: the first is a list, the second one is the orthogonal interlocking of single terms within a grid. Exploiting weights and variants of the font, the shape of the island is recreated. The detail of the single term is expressed by putting the icon in the center, an icon which presents itself to the user with a short animation that simulates a movement linked to the sense and the nature of the term itself (a rabbit that jumps, the spinning light of a lighthouse). Another purpose of the animation is to show the anatomical parts that meticulously compose the term. The interface is minimal, the negative space and the hierarchies are managed in order to achieve as much clearness and accessibility as possible.

Mattia Baffari, Francesca Immorlica and Roberta Lo Giudice chose the graphic sign of the parentheses, instead, as a metaphor for a container of objects or a delimitator for a precise and closed time frame. Through infographics, they narrate the history of the continuous migration of politically confined people in the Mediterranean, concerning specifically the ones who had a forced stay in Ustica between 1926 and 1927, describing their trajectories, meetings and exchanges (Fig. 2).

As for Reginella, a glossary of fragments for a new representation of the island is the starting point of Luisa di Martino and Susanna Lisma's project. Every fragment assumes the shape of a piece of the texture that recalls a landscape element of the island. The textures are the base elements of the design system, as their combination generates the dynamic mark of the island, together with a series of merchandising customizable products. All of this is possible thanks to an online configurator that allows to generate a graphic motive, which can be downloaded and printed autonomously, or even ordered and picked up directly on the island.

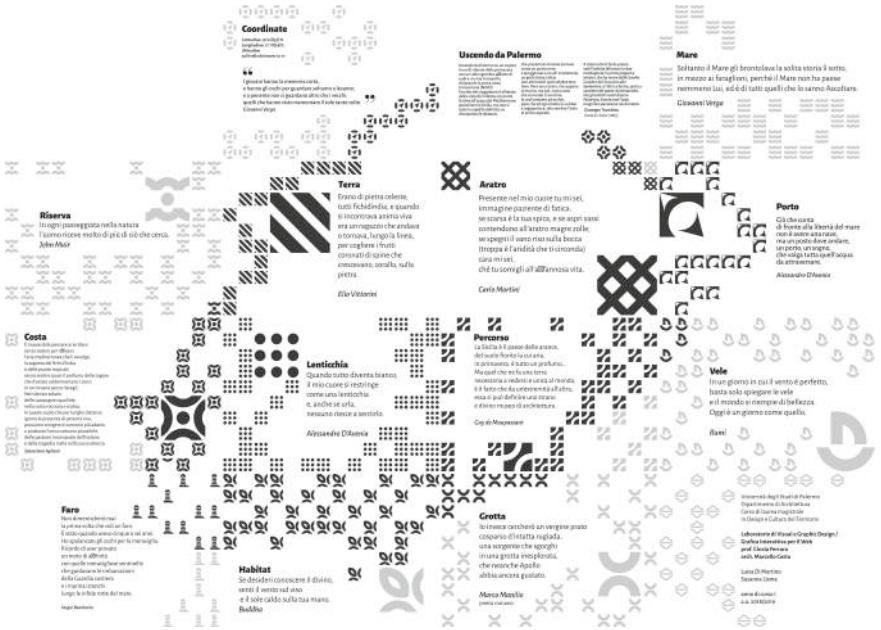

Fig. 2. M. L. Di Martino, S. Lisma, Interactive map of Ustica

The nautical alphabet flags constitute the list from which Mariangela Vaccara takes the inspiration to create a personal alphabet connected both to concepts that are linked to the island's identity (such as exile, connections, tourism, marine reserves) and to a signage system for the territory.

The complex infographics system adopted by Martina Coniglio and Filippo Maria Nicoletti frames the historical period between 1950 and 1961, a period that witnesses Ustica's transformation from a place of confinement to a touristic destination. A succession of facts that involved everyone (residents and foreigners) in a continuous exchange of ideas, positions, and interests. In order to talk about this transformation, the focus was put on the single characters and their interactions. The many crucial events that occurred during the afore-mentioned period have been synthetized, paying attention to the single characters and the personal positions each one of them occupied during the transformation of the island. These characters were put in three different categories: *Usticesi*, *Foresti*, *Non usticesi*. Moreover, those categories were divided in subcategories: *Pro turismo*, *Contro turismo*, *Pro e Contro*, *Non schierati*.

A broader period, the one from 1770 to 1998, was investigated and addressed by Maria Rita Zodda and Stefania Russo, who examined a wide collection of cartographic representations of Ustica. In every representation, the extrapolation of content was limited to the physical outlining of the island and its borders; the overlap of all the borders resulted in a new dynamic and interactive form. By intercepting a single border, it is possible to access a determined historical period and its corresponding collection of fragments from the shared digital archive. It is, therefore, an interface which compresses an otherwise long timeline in a unique element.

The research on fragments as identity signs of a territory, together with their re-interpretation according to newpoints of view, gave life to new stories. During the four years of the Laboratory experience, those stories (borrowing Mario Cresci's words) behaved as textures, woven together through analogies, overlapping and chasing each other while asking the observer for an effort of his fantasy. These textures, these stories make him a part and a prisoner of the narration at the same time [9].

A path towards knowledge acts through research, projects, and education. «All the islands, even the ones we already know, are unknown until we don't land on them» [10].

References

1. Eco, U.: Vertigine della lista. Bompiani, Milano (2009)
2. Manovich, L.: Il linguaggio dei nuovi media. Edizioni Olivares, Milano (2002)
3. Rosati, L. La classificazione a faccette. Cos'è e come funziona. https://www.lucarosati.it/blog/classificazione-a-faccette. Accessed 21 Apr 2022
4. Perec, G.: La vita istruzioni per l'uso. Biblioteca Universale Rizzoli, Milano (1983)
5. Maldonado, T.: Memoria e conoscenza. Feltrinelli, Milano (2005)
6. Frost, B.: Atomic Design. https://bradfrost.com/blog/post/atomic-web-design/. Accessed 11 Oct 2022
7. Fessenden, T.: Design Systems 101, Niels Norman Group. https://www.nngroup.com/articles/design-systems-101/. Accessed 12 Oct 2022
8. Kholmatova, A.: Design Systems. Smashing Media AG, Freiburg (2007)
9. Cresci, M.: L'officina dei segni, Matera. La Bautta, Collana Zetema (2002)
10. Saramago, J.: Il racconto dell'isola sconosciuta. Einaudi, Torino (2003)

NARRATIVES. Interaction, Digital, Sustainability

Craftmanship and Digitalization in the Italian Knitwear Industry. A Paradigm Shift for the Narrative of Made in Italy

Martina Motta(✉), Giovanni Maria Conti, Giulia Lo Scocco, and Rachele Didero

Politecnico Di Milano, Milan, Italy
{martina.motta,giovanni.conti,giulia.loscocco,
rachele.didero}@polimi.it

Abstract. Knitwear is a consolidated industry in Italy and, at the same time, a typical expression of the Made in Italy paradigm linked to the ideas of craftsmanship. While, on the one hand, knitwear is associated with the idea of craft and manufacturing traditions, on the other hand, it is nowadays produced by numerical control machines (CNC) where the technological contribution and the level of automation are very relevant. The convergence of physical and digital environments, at the heart of the Fashion Industry 4.0 debate, is an established feature of knitwear design practice.

In the contemporary industrial scenario, knitted items are produced on digitally programmed machines through sophisticated software, and the manual contribution of the individual operator during the knitting phase is reduced to a minimum. In the light of these premises, this contribution questions the opportunity and value of the integration of digital technologies in the storytelling of traditional manufacturing without losing the power to evoke Made in Italy's values such as quality, aesthetic refinement, and exclusivity. To analyze these issues, the authors report the case study of SMT – Società Manifattura Tessile, a leading knitting company where the technological presence equals that of traditional manufacturing craftmanship, keeping both elements at balance. The case study suggests the importance of the contemporary knitting craftsman to increasingly develop communication skills to make the relationship between technology and manufacturing explicit and possibly smoothly blend it with the Made in Italy archetypes.

Keywords: Knitwear · Craftmanship · Digitalization · Italian Knitwear Industry · Made in Italy

1 Introduction: Narratives of Made in Italy. Focus on Fashion

Widely treated in the literature, Made in Italy has been defined as an aggregation of heterogeneous sectors. Mainly belonging to the 4A stated by Fortis [1], namely Food, Fashion, Furniture and Automation (in Italian Alimentari, Abbigliamento, Arredo,

Paragraph 1 is authored by Martina Motta, paragraph 2 is authored by Rachele Didero, paragraph 3 is authored by Giulia Lo Scocco, paragraph 4 is authored by Giovanni Maria Conti.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 705–713, 2024.
https://doi.org/10.1007/978-3-031-49811-4_67

Automazione) and located in local industrial clusters with highly skilled human capital and strong roots in craftmanship [2, 3]. Together with the close relation with artisanal tradition, Made in Italy represents a vehicle for the symbolic value of Italian culture [4]. Thus, it involves not only the quality of the products but the ability to communicate values and meanings related to the Italian way of living [5, 6].

Product, cultural values, communication, plus what Verganti defines as "a special relationship with professional design communities and culture, where design moves from technological innovation, manufacturing specialization, and supply chain management to promote an innovation in product meaning" [7]: this is the essence of the Italian industrial model, and more and more these aspects are gaining relevance in the ongoing transition towards the Industry 4.0, with the adoption of advanced industrial technologies to pursue innovation in meaning and practice.

In the time being, there is indeed a detachment between what Made in Italy is today and the idea that the world has of it. If this concerns all the sectors, this article puts a focus on the Italian fashion industry, and precisely on the knitwear sector, that is par excellence labelled as the typical expression of the Made in Italy paradigm linked to the ideas of craftsmanship [8], while being one of the most advanced and consolidated industries in terms of industrial and digital technologies [9].

The narrative around Made in Italy fashion was initially created by the British and American press as a romantic idea of something "strictly related to the Italian Renaissance tradition characterized by the key elements of its cultural heritage and artisanal tradition" [6]. Luz Neira Garcia [10] recalls Eugenia Paulicelli when she explains that the campaign for the Made in Italy was launched in the 1970s to identify the Italian garment with "some examples of innovations in design and history that maintain and reinforce the high levels of Italian craftsmanship, attention to detail, beauty, and cultural heritage, the values that define the Italian character and style at its best." [5].

From there, Made in Italy has been depicted with images related to craftmanship, slow artisanal procedures, manual expertise of elderly people; but this idea of handcrafted luxury that still many brands ride with their communication, no longer has anything innovative [11] and is associated with misleading stereotypes and narratives that "mix reality and fiction in order to produce a credible symbolic meaning for foreign consumers" [6].

If we go back in time, to the birth of Italian fashion with Giovanni Battista Giorgini in 1951, that romance does not find any correspondence with the very precise idea that Giorgini had: he selected the most contemporary companies of the time, he planned events, he chose collections and products, and made those companies operate from a local to a global scale. This first intuition made possible the raise of the typical entrepreneurship of Italian fashion: a kind of entrepreneurship directly based on the continuous innovation of creative and manufacturing processes and "is today one of the most mysterious and least studied sectors, even if it is the founding part of the Italian system and therefore also of the meaning of Made in Italy" [11].

For knitwear, the innovation and update of industrial manufacturing processes led to a production made by numerical control machines (CNC) where the technological contribution and the level of automation are very [12] and the convergence of physical and digital environments, at the heart of the Fashion Industry 4.0 debate [13], is an established feature of knitwear design practice.

Is there the possibility to integrate digital technologies in the narratives of traditional manufacturing without losing the power to evoke Made in Italy's values such as quality, aesthetic refinement, and exclusivity?

2 Why is Digital not Included in the Narrative?

Indeed, some examples confirm how this is possible; think of Artknit Studios, BSam-ply, Italian Artisan, and Up To You Anthology - born to connect in an innovative way the different subjects involved in the design and production processes of fashion [14].

Nevertheless, why is it still difficult to talk about digital? Why is digital often not included in the storytelling of the realities of Made in Italy and appears to be in conflict with some of its archetypical images, such as craftsmanship, *savoir-faire*, slowness?

We can find an answer considering that made in Italy comes from an idea linked to the social capital of the districts in which it is formed. Social capital is understood as "a set of active relationships between people" in which "trust, understanding reciprocal, shared values and behaviors keep the members of a community firmly united and make cooperation possible" [14].

Moreover, Made in Italy has a strong link with the physical interaction with the product and interpersonal relationships, which fall when the processes are digitized.

Even if active interpersonal relationships can therefore be cooled with digital, as the physical distance between people increases, there are aspects related to this that represent opportunities and assets. These are not only resources from a production and design perspective, but also narrative and communicative.

The article reports here some case studies related to three levers for innovation that can be strengthened by the digital dimension: personalization, non-standardization, and tailoring.

The first lever is customisation, defined not only as personalisation that offers the customer an experience, but also one that enables a lower environmental impact by reducing waste.

In this sense, UnmadeOS helps fashion and sportswear brands realize the full potential of products, unlock market opportunity, and connect demand directly to production. This operating style leads the end customer to interact with simplicity, creativity, and fun in their knitwear design and produces exclusively what has been already sold, eliminating large scraps and waste of the clothing world.

The second lever is non-standardization. The authors notice a vast improvement in the industry when industrial automation, business, and trade are integrated [15]. An example of this is how software, such as computer-aided design (CAD) and computer-aided manufacturing (CAM), can now interact with innovative physical prototype systems in real-time via 3D printing integrated with CPS and augmented reality [16]. This interaction allows for a development of the Internet of Things (IoT), where physical objects communicate with each other to share formation and coordinate decisions, and also an Internet of Services (IoS), concerned with the systematical use of the internet for new ways of value creation through the materialization of Product-as-a-Service (PaaS) and establishing a direct link to consumers offering them complementary services [17].

The case study related to this lever is Stratasys, a company that produces 3D printing systems, quality materials, software connected to the cloud, and a wide range of services have transformed the entire value chain of development and digital realization of products that go towards a non-standardization.

Thanks to its innovative 3D machines, Stratasys can make various products that can be designed, prototyped, and produced without the need for large production. The precision design and breadth of remarkable materials that adapt to the needs of many brands have managed to lower the cost by increasing efficiency and the possibility of creativity.

Tailoring is the third lever and among the most representative examples where tailoring interacts effectively with digitalisation is the case of Lanieri.

Lanieri is the first e-commerce platform to offer online menswear entirely made-in-Italy and made-to-measure, drawing on slow fashion and locally sourced drivers [18]. In fact, Lanieri was born as a purely digital brand that offers services of sartorial excellence.

In this regard, there is no doubt that digital transformation and technological innovation have put many players in front of a great opportunity: to revolutionize the way we see things, do business, and offer services. Being digitalization so relevant in the updating of processes, how could it be also relevant in the updating of how these processes are told in the narratives around Made in Italy?

3 Italian Knitwear. The Experimental Case Study of SMT, Società Manifattura Tessile

As previously mentioned, this article explores the different possibilities behind the digital transformation of manufacturing and artisanal activities.

The authors choose to apply these theories to the field of Italian Knitwear, an industrial sector hinging on many of the traditional and symbolic images described in the previous paragraphs.

Integrating a symbolic reference to Made in Italy [19], knitwear is often associated with the narrative of "slow manufacturing", leveraging on images of traditional craftsmanship, slow artisanal techniques and handmade products.

Knitwear, as a technique for producing a textile element, has long been associated with the idea of manual and hobby work [20], and even after the introduction of industrial looms in the 16th century, the manual element remained very much present [21]. Throughout the 19th century and most of the 20th, progress in the knitwear industry was aimed at making production technology more efficient [22], while maintaining the manufacturing vocation of this industrial sector linked mainly to the stages of prototyping, quality control, linking and finishing. At the end of the 1970s, the advent of analogue knitting machines marked a sudden shift from a scenario of craftsmanship made of individual producers to a prevalence of the technological element over the manual one [23].

Technology has become a predominant part of knitting companies, and the professional figure of the knitter has moved from that of a craftsman with manual skills to that of a software programmer. This digitalization process allows to produce highly refined

and creative products, which would have been inconceivable using manual production techniques or mechanical looms.

This research then investigate how the archetypal Made in Italy narrative has taken this digital shift into account, trying to identify its level of integration into the storytelling of luxury craftsmanship.

In order to do so, the authors analyzed the case study of SMT – Società Manifattura Tessile, a leading knitting company founded in 1984 in the Province of Reggio Emilia, manufacturer of weft knitwear garments for French high-end luxury groups LVMH and Kering.

The company is a place full of creativity drives, where designers from all over the world go to "take inspiration", participate in product development and meet with knitwear technicians to enhance their imagination.

The manufacturing process of SMT's products encompasses all stages from design, through collection development, fashion show presentation to production and delivery to shops.

Everything begins with a sketch drawn up by a knitwear designer and is then handed over to SMT developers, who in turn select and purchase the necessary yarn(s), identify the most suitable knitting technique, and test the types of washing and finishing to finally produce the complete garment.

The garments produced in the company, far from solely being the result of craftsmanship and manual activities, stem from technical inputs and machine adjustments that determine the type of interlacing of the yarn and its arrangement.

The shape of the garment too is formed directly by the knitting machine on the basis of mathematical calculations made by the programmer and sent to the machine that, at this stage, manages these controls automatically. In other terms, in this area of the company, the manual contribution of the individual operator is reduced to a minimum if not completely absent.

Considering these premises, the dominance of technology within the SMT product cycle appears evident. Even from the point of view of the man-machine relationship, a single programmer/operator, through digital programming and remote controls, can preside over several machines simultaneously.

However, despite this technological extent, the artisan dimension with a one-to-one man-machine relationship turns out to be dominant in the linking stage, where the piece of knitwear produced by the machines get assembled, and hand finished. In this department of the company, an operator works on a single machine, providing manual inputs and adjustments highly dependent on the degree of experience and manual dexterity.

Reasoning in terms of Made in Italy archetypes, this part of the company appears to integrate many of the typical images of "slow manufacturing" described in the previous sections. Moreover, besides traditional linking, this part of the production process is characterized by other manual processes such as hand finishing, hand embroidery or crochet, ironing, brushing, darning and so on.

In this regard, a stroll through the company departments reveals an iterative dialogue between craftsmanship and Industry 4.0 technologies, a place where these seemingly opposing drives seem to hold each other in constant balance.

The substantial presence of cutting-edge technology in the knitting, modelling and 3D simulation departments is in conversation with the areas of the company where the level of craftsmanship is highest and employees use tools such as knitting needles, crochet hooks or darning equipment.

In the final analysis, SMT seems to have integrated the "special relationship with professional design communities and culture, where design moves from technological innovation, manufacturing specialization, and supply chain management to promote an innovation in product meaning" [7].

In this sense, the dialogue between tradition and technology described here can act as a stimulus for the debate on Made in Italy in order to identify new levers and insights for its renewal.

4 Conclusions

Technological innovation triggered by information technology and telecommunications has contributed to radically overturning the forms of access to information, the organization models of production and the ways of consumption.

Digital transformation (DT) is becoming a prime topic for firms across the globe [24]. It is anticipated that companies that are unable to adapt to the digital world will undoubtedly fall victims to "digital Darwinism" [24], where incumbents may disappear and only the most adaptable enterprises, responsive to technological trends, will survive to remain on the competitive landscape [25].

The spread of technologies like the ones for additive manufacturing (3D printers) and robots at increasingly low costs marks a new step forward in the introduction of digital technology in business activities. These new technologies have a revolutionary impact not only because they contribute to substantially redefine the geography of production worldwide but also because they introduce new elements at the level of business strategies by providing companies with the ability to customize the production at levels they have never experienced before [26]. This is one of the challenges of the contemporary Made in Italy, where personalization distinguishes what is called Cultural Manufacturing.

The digital transformation requires companies to rethink their processes putting the consumer at the centre. Peter, in *the Digital Transformation Canvas. The 7 Action Fields of Transformation* [27] place a strong focus on customer orientation, personalised offers, digital communication and sales channels, envisioning the understanding of consumer behaviors and personalized offers for services and products as one of the key points in the future.

In a context that has been radically changed by technological innovation and by the consequences of the Covid-19 Pandemic, we are therefore witnessing a paradigm change where all the stakeholders no longer play the same role as in the past. In this context, we are in a moment when, taking up what Bettiol and Micelli wrote [28], Made in Italy can become a Cultural Experience that does not concern the production process itself but the context of use of the product, and this will happen just if we will be able to credibly rework our cultural roots. We are designing more and more products and services for a world subject to continuous disruption and Industry 4.0 should not be seen only from the technological point of view, but also from the point of view of the ability to coordinate

science, technology, skills and social context, in order to have the best ability to bring together different but complementary technologies, to respond both to the great global issues and to the individual demands of millions of people who are citizens even before being customers [29]. There is no longer the company at the center, but the man.

The complementarity of knowledge, the importance of relying on different skills to be harmonized on common objectives, activities and motivations represent the real challenge for any business idea [30]. A dynamic definition of creativity identifies as crucial elements of creative processes not only the potential originality of the contribution to knowledge, but also the degree of interaction with the social environment, that is to say how this creativity grasps and use the same context in which it was generated, to become an element of dynamism [29]. The artisanal production is an example of the advantages derived from using the same skills and the same machines to produce differentiated goods: the tailor who can make both wedding dresses and sports trousers has skills and equipment able to pass continuously from one production to another, of which in any case it carries out all the phases [29]. The elements that distinguish Made in Italy such as craftsmanship, authenticity, aesthetics, and cultural traditions take on meaning from a global perspective and they become an integral part of the fundamental narrative to tell the cultural complexity that underlies each product made in Italy, realized with the combination of the more traditional expertise and the more updated, technological one. If storytelling is no longer an activity delegated to external communication agencies but has become an integral part of what it means to be producers and craftsmen in the new millennium, all the components of being producers and craftsmen should be included in the story. In other words, knowing how to make and how to communicate are now merged skills, and in this sense, digital technologies could play an essential role in the new storytelling of the Made in Italy model.

References

1. Fortis, M. (ed.): The Pillars of the Italian Economy. Springer, Cham (2016). https://doi.org/10.1007/978-3-319-40186-7
2. Becattini, G.: Distretti industriali e made in Italy: le basi socioculturali del nostro sviluppo economico. Bollati Boringhieri, Turin (1998)
3. Brusco, S., Paba, S.: Towards a History of the Italian Industrial Districts from the End of World War II to the Nineties. DEMB Working Paper Series (n. 37). University of Modena and Reggio Emilia (2014)
4. Corbellini, E., Saviolo, S.: La scommessa del made in Italy: e il futuro della moda italiana. Etas, Milan (2004)
5. Paulicelli, E.: Fashion: the cultural economy of Made in Italy. Fash. Pract. **6**(2), 155–174 (2014)
6. Lazzeretti, L., Oliva, S.: Exploring the marriage between fashion and 'Made in Italy' and the key role of G.B. Giorgini. Eur. Plann. Stud. 1–9 (2020)
7. Bertola, P., Colombi, C.: Rebranding made in Italy: a design-driven reading. Fash. Pract. **6**(2), 175–200 (2014)
8. Sennett, R.: The Craftsman. Yale University Press, New York (2008)
9. Motta, M.: Designing Knit Designers. Franco Angeli, Milan (2019)
10. Neira García, L.: Fashion: Cultural Heritage and the Made in. ZoneModa Journal, 8(1). (2018)
11. Batilla, A.: L'alfabeto della Moda. Gribaudo, Milan (2021)

12. Affinito, L., Maria Conti, G., Motta, M.: New vision on Knitwear design. How the traditional craft methodologies are evolving into fashion international scenarios. Des. J. **20**(sup1), S2760–S2770 (2017)
13. Bertola, P., Teunissen, J.: Fashion 4.0. Innovating fashion industry through digital transformation. Res. J. Text. Apparel **22**(4), 352–369 (2018)
14. Conti, G.M., Franzo, P.: Remanufacturing Italy. L'Italia nell'epoca della postproduzione. Mimesis, Milan (2020)
15. Wang, S., Wan, J., Li, D., Zhang, C.: Implementing smart factory of industries 4.0: an outlook Int. J. Distrib. Sens. Netw. **12**(1), 3159805 (2016)
16. Zheng, P., Wang, H., Sang, Z., et al.: Smart manufacturing systems for Industry 4.0: conceptual framework, scenarios, and future perspectives. Front. Mech. Eng. **13**, 137–150 (2018)
17. Bravi, L., Murmura, F.: Industry 4.0 enabling technologies as a tool for the development of a competitive strategy in Italian manufacturing companies. (2021)
18. Villa Todeschini, B., Nogueira Cortimiglia, M., Callegaro-de-Menezes, D., Ghezzi, A.: Innovative and sustainable business models in the fashion industry: entrepreneurial drivers, opportunities, and challenges. Bus. Horiz. **60**, 759–770 (2017)
19. Bettiol, M.: Raccontare il made in Italy: un nuovo legame tra cultura e manifattura. Marsilio Editori spa, Venezia (2015)
20. Conti, G., M.: Design della maglieria. Strumenti e metodologie progettuali. Lupetti, Milan (2019)
21. Tremelloni, A., Ceriani, L. (eds.): Manuale tecnico per l'industria della maglieria. Vol. 1, 2, INDUSTRIA Pubblicazioni Audiovisivi, Milan (1975)
22. Matković, V.M.P.: The power of fashion: the influence of knitting design on the development of knitting technology. Textile **8**(2), 122–146 (2010)
23. Conti, G.M., Lo Scocco, G., Motta, M.: The Digitalization of Knitwear: Towards a Redefinition of the Conventional Design Boundaries. In: Ahram, T., Karwowski, W., Di Bucchianico, P., Taiar, R., Casarotto, L., Costa, P. (eds.) Intelligent Human Systems Integration (IHSI 2022): Integrating People and Intelligent Systems, pp. 1–10. AHFE publisher, USA (2022)
24. Ismail Mariam, H., Khater, M., Zaki, M.: Digital business transformation and strategy: what do we know so far? In: IHSI 2022 Conference Proceedings Edited Book, 5th ed., pp. 1–35. Cambridge Service Alliance, University of Cambridge (2017)
25. Schwartz, E.I.: Digital Darwinism: 7 breaktrough business strategies for surviving the cutthroat web economy. Broadway (2001)
26. Micelli, S.: Le tre rivoluzioni del management digitale. Sinergie. Ital. J. Manag. **35**(103) (2017).
27. Peter, M.K.: Digital transformation Canvas. The 7 Action field of transformation. University of Applied Sciences and Arts Northwestern Switzerland - School of Business. www.marcpeter.com (2018)
28. Bettiol, M., Micelli, S.: Design e creatività nel made in Italy. Proposte per i distretti industriali, Mondadori, Milan (2005)
29. Bianchi, P.: 4.0. la nuova rivoluzione industriale. Il Mulino, Bologna (2018).
30. Pellegrini, D.: Sharing Economy. Perché l'economia collaborativa è il nostro futuro, Hoepli, Milan. (2017).

Design in the Metamorphosis of Matter

Michele De Chirico(✉)

Università Iuav di Venezia, 30135 Venice, Italy
mdechirico@iuav.it

Abstract. The contribution refers to the research topic of materials experience by framing a methodology related to the way materials are catalogued and interpreted in design.

The study specifically concerns the design for the sustainable management of production residues in the tanning supply chain and is aimed at their semantic valorisation as material resources.

Starting from the interpretation of by-products as the material legacy of a know-how, the valorisation takes place through the application of a specific method based on the definition of expressive-sensorial parameters. The project prefigures the prototype of a cataloguing system in the shape of a multi-level map.

As a matrix of design possibilities belonging to a territorial culture, the tool intercepts values such as identity and recognisability of a know-how processes, whose by-products become evidence of it and represent the "material" of the project that acquires physical form in the tangible surface of the artefacts.

Keywords: Secondary Raw Materials · Materials Experience · Know-how · By-products · Contextual Design

1 Introduction

1.1 Tangible Legacy of a Know-How

In the contemporary scenario, the principles of sustainability and the paradigms activated by the circular economy set at the centre of design issues, among others, the topic of production by-products, which means understanding how to use them and to overcome the notion of production residues as waste. As Ingrid Paoletti [1] suggests, it is necessary to think about by-products at the beginning of the design activity, that is, to anticipate the use of what she calls "residue". Such premises lead to a focus on "designing with the residue".

The contribution refers to the research topic of material design and frames a methodology related to the design and cultural organisation and interpretation of secondary raw materials coming from production residues. The "design in the metamorphosis of matter" refers to the possibility of interpreting production residues as a resource that embodies a form of knowledge [1], as a tangible legacy of the production transformations of matter [2] through the processes of a specific know-how.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 714–723, 2024.
https://doi.org/10.1007/978-3-031-49811-4_68

The research field of investigation, in a broader sense, concerns materials as enablers of sensory relations between user and artefact, and therefore as enablers of cultural meanings. This becomes relevant if by "material culture" we mean the transition of the intangible aspects of a civilisation onto the tangible world around us, which can be said to sediment on the surface of objects [1, 3, 4]. Therefore, design is the discipline that allows us to develop such connections between the tangible and intangible, and providing design insights is fundamental to outline new production and consumption scenarios based on a systemic perspective, in which the outputs of one production chain become the inputs of another [5].

The study concerns the design for the sustainable management of production by-products in the tanning supply chain and is the outcome of a research project, funded by the Regione Veneto's FSE POR 2014–2020 through an inter-university research grant that involved the Università Iuav di Venezia and the Università Ca' Foscari di Venezia, jointly with the partner company Dani, a tannery in Arzignano in the centre of the Veneto tanning district [6, 7].

1.2 Design for the Sustainable Management of Tanning Supply Chain Residues

The first step of the research consists of a review of best practices in terms of circular economy, so the production chain and the conditions of the local and national scenario as regards sustainability are analysed. In particular, the relationship with logics and tools for the valorisation of production waste and by-products is investigated. As a result, the hypothesis of a research path concerning leather production residues is proposed, aimed at overcoming the notion of the production residues as waste, supporting its valorisation as a material resource.

It is intended to propose examples and possibilities related to the integration of raw materials, semi-finished materials, or materials coming from disposed goods, within processes mediated by the development of an interpretative design key provided by the expressive-sensorial qualification of materials. The research focuses on promoting the development of leather manufacturing companies in Veneto through the valorisation of production residues and on innovating the production processes in relation to the synergy of methods, systems and skills involved in the disciplines of design and economics. This is implemented with the identification of the quantity and the quality of leather production residues to design a classification model that is the basis of a system shared by the supply chain, in order to collect leather production residues according to their quality, resulting in lower disposal costs. In this way, the research task may generate new design scenarios and enable the development of a set of indicators to measure resource savings through material reuse and recycling.

The main goal is to highlight the relationship between a local cultural identity and the globalised context [8], that is how processes resulting from the sedimentation of a specific know-how increasingly enrich knowledge by shaping the tangible surface of artefacts. Assuming these premises and in order to enable the territory to acquire values such as sustainability, identity and recognisability, the required shift is a cultural one [9]. This is intended to make the company aware of the design potential and tools useful to trigger innovation processes and added value.

1.3 Rethinking Materiality

In Veneto there is one of the most important districts in the world where big brands find small and medium-sized companies developing top quality products for the international market [7, 10–12]. The Veneto district is characterised by constant research in terms of innovation of internal supply chain relations, more sustainable technologies, and efforts in training through incubators for new skills [10]. The search for a sustainable industry requires significant investment in research for innovative technologies and production solutions. The issues related to processing and disposing of waste assume a significant role among the research areas related to the production sector, [13].

As a continuation and implementation of a previous research project that identified the re-use of production waste as one of the potential design approaches to investigate the meaning of "traceability for sustainability" [14], the study proposes to show how the integration of good practices for sustainability – in its environmental, social and economic multi-dimensionality – in the Veneto territory can trigger a technological innovation on the one hand, and a meaning innovation on the other, in response to contemporary scenarios that require a rethinking of materiality [1].

Specifically in tannery, the amount of waste and by-products along the production chain is very high: we are dealing not only with final leather trimmings, but also with by-products originating in all process steps of leather manufacturing. Today, there are several established procedures aimed at recovering and treating the resources involved in leather production. The protein residues from shavings, together with the flesh residues, are used for fertilisers and bio-stimulants. The upcycling of the finished leather and shavings, through a chemical process, allows proteins to be obtained that can be used in agriculture or in the leather finishing process. The dried chromium baths are treated to reuse 85% of the chromium already used. And the recovered salt is used for road de-icing [13].

The research issue is whether there are ways to activate sustainable processes of innovation, to valorise production residues and to identify design possibilities such as to develop new scenarios in response to the context's needs. In other words, the question is whether material residues, which today are considered waste or are used in predominantly chemical reuse processes, can lead to design opportunities and be upgraded from waste to material resources, with their own dignity and design autonomy.

2 Sense Making Materials

2.1 Design Tracks

The research investigated how the topic is interpreted in other local, national and international contexts, leading to a collection of one hundred case studies that were systematised in order to achieve possible research frameworks.

Some specific design trajectories were identified:

– the development of technologies for environmental sustainability, with actions aimed at encouraging the reduction of environmental impact and the valorisation of manufacturing residues in accordance with circular economy requirements;

– the development of process technologies, with activities aimed at a considerable improvement and optimisation of production processes in terms of resource utilisation;
– the development of product technologies, with initiatives aimed at supporting the development of new products with special performance features and high added value.

Two very significant best practices for the development of the research concern, in the first case, "Structural Skin", the work of Spanish designer Jorge Penadés [15] who used leather scraps together with a natural binder, derived from the same animal bones, for the production of furniture products. The topic of the natural binder made it possible to broaden the considerations on the deeper meaning of the "sustainable reuse" of material residues used to generate new materials, as it is strictly related to the various binders that are used.

The second case is a local best practice from the Veneto context in which leather residues are no longer considered as leather itself: the Favini paper mill produces a number of papers using leather scraps instead of cellulose [16]. The paper mill implemented several similar processes using algae, or wool waste, or waste from the agro-food chain, and each of these examples results in a sensorially augmented paper with different sensory attributes depending on the employed kind of residues. Above all, it makes the user's experience with the papers particularly original.

As a result of this review, the main objectives of this research became clear: it attempts to highlight the relationship between local territorial cultures and the globalised context [8], in order to valorise production residues as a material resource with its own design dignity. It is possible by conveying how the sedimentation of know-how, inherent to a specific territorial, social and economic context, can stimulate innovation and knowledge, while acquiring physical form on the surface of artefacts.

2.2 Thinking-By-Doing

The research project continued with a hands-on approach with the matter, consisting of design experiments with the residues, by manipulations or technological transfers, so that a system of organisation and cataloguing of both the residues and the concepts that were developed could be set up, based on the definition of expressive-sensorial attributes. The integration of production residues within design processes was mediated by their expressive-sensorial qualification: an interpretative filter drawn from the studies inherent to the recent research topics of the so-called "design skins" [17] and the materials experience [18, 19], referring to the issues of the multi-sensoriality, the design of new materials or the innovative use of existing materials, showing how materials can be interpreted not only from a technical-performance point of view, but also by considering their expressive-sensorial attributes [20] in the relationship between the user and the artefact.

In a first stage, three macro-actions were established to define how to operate on and with residues, i.e. to add, to subtract, to mould. Each of them was subsequently defined more specifically, in order to generate specific sensory experiences, or sensory enhancements.

In the second stage, a number of different material concepts were developed, on the one hand using different types of residues, and on the other achieving different perceptual outcomes with the same input material used.

In the third stage, the qualities of all samples, both residues and concepts, were evaluated in a comparison with each other. This means that such a system offers a constant comparison between the samples (see Fig. 1). At the same time, the evaluations, which are qualitative, allow an understanding of how the samples relate to the sensory properties which are explored each time.

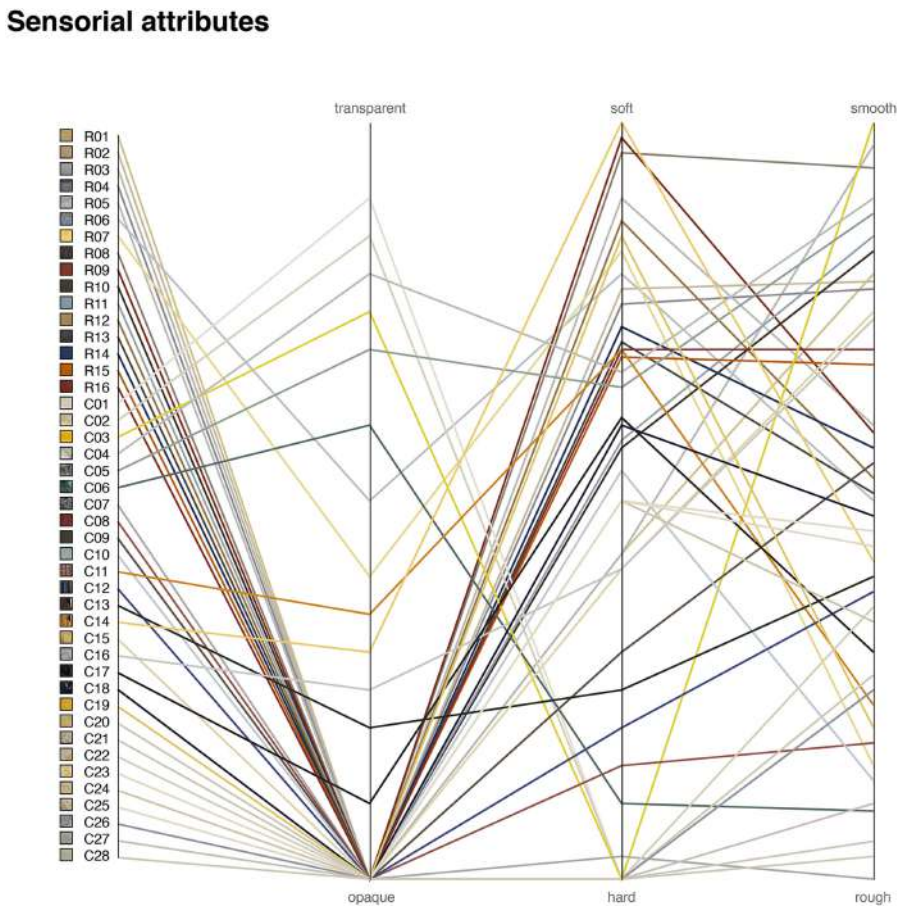

Fig. 1. Cataloguing of by-products and material concepts through the analysis and comparison of some single sensory properties defined by oppositional pairs: transparent-opaque, soft-hard, smooth-rough. Michele De Chirico, Università Iuav di Venezia, data-visualisation support by Jacopo Poletto.

2.3 Multidimensional Maps as a Cataloguing System

The proposed method allowed the author to prefigure a cataloguing modality that takes shape in a multi-level "talking" map [21], which provides us with different information: it is a sensory map, as it conveys the perceptual pathways and mutations of matter; a time map, as it traces the successions of the process phases of which the residues are the tangible outcome, that is, a trace of the metamorphoses of matter; and a matrix map that offers a series of suggestions intended as design possibilities for the development of new materials or new applications, which means a generative matrix that "succeeds in establishing a relationship between the past and the present, by providing […] a cultural experience that concerns both the production process itself and the context of use" [22].

In a first data-visualisation, one can observe the collection of material residues and material concepts, lined up in relation to the properties of transparency, softness and roughness (see Fig. 1).

The map works through opposing pairs transparent-opaque, soft-rigid, smooth-rough, as can be assumed from the scientific literature concerning the materials experience [20, 23, 24]. In other data-visualisations, the relationship between the residues – on which the related process step is indicated – and the resulting concepts is also mapped. The consequence is that the original material concepts are also clearly related to those specific process steps. The example presented here concerns the correlation between the sensory attributes of roughness and softness (see Fig. 2).

As it has just been described, if the relationship between material resources and original material concepts, resulting from specific design actions, can also be deduced from such maps, then it becomes evident how the comparison between resources is fundamental for a designer when not only choosing a material for a project, but also in the early conception of a secondary raw material [20, 25, 26].

2.4 The Place of Possibilities

Such a mapping of design possibilities does not simply reproduce the ordering principle of analytical knowledge, but seeks to record transformations by becoming "a framework that organises movements as changes" [21] and manages to project the designer outwards.

It is a cognitive map in which we find traces of hybridisations and potential design fields, bringing out the material as "matter of invention" [23]. In this way, the material map achieves a deeper meaning through the user's experience, in which the sensory paths become a "spatial-visual assemblage in motion" and "embody a sensuous assemblage" [21] in which the place of experience hosts the materiality of sensory interactions and the design potentialities themselves.

The map is a surface of combinatorial categorisation, it is made up of multiple relational itineraries that can be travelled forwards and backwards, at accelerated speed or in slow motion. One who travels on this map is free to *wander* within its perimeter, but also to leave it. There are no predetermined directions, just as there are no given design solutions, so the many possible routes lead to different destinations that are the result of experiential knowledge.

A space to be traversed in motion – at different sensory and cultural levels – that make the map a "cognitive prosthesis" [21], a spatial sensor for the designer, like a "prosthesis

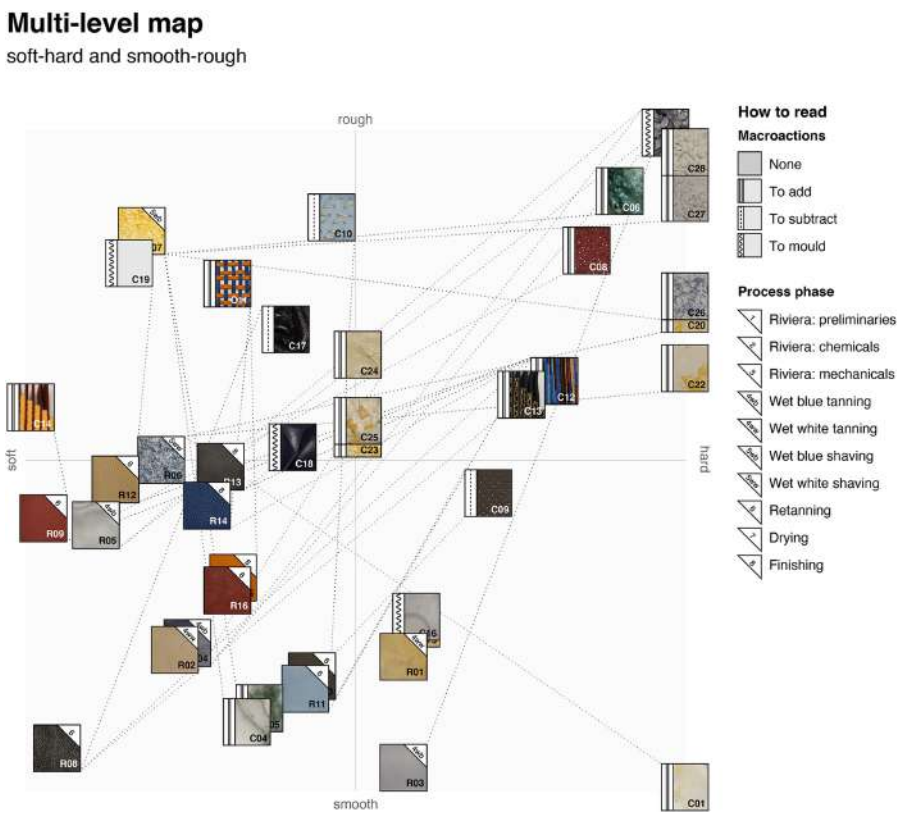

Fig. 2. Multilevel map indicating the correlation between different sensory properties and between a resource and a material concept resulting from specific design actions. Michele De Chirico, Università Iuav di Venezia, data-visualisation support by Jacopo Poletto.

of concreteness" [28] through which it is possible to expand the necessary abstraction of the virtual models of the design tools (the two-dimensional interfaces) by combining them with physical modules in the shape of the materials gradients map. The relational approach in materials research can employ different perceptual modalities, making the system not only comprehensible and shareable, but also more engaging.

As Brunner [29] suggests, the search for an appropriate categorisation system can facilitate the recognition of the peculiar qualities of secondary raw materials to outline criteria for their knowledge, valorisation and use. Therefore, it is a process aimed at understanding their qualities and sustainable design potential.

As a classification model at the basis of a system shared by the supply chain of a specific territorial culture, such a tool represents an interceptor of values such as identity and recognisability of a know-how – in this case, the tannery one – whose residues become the tangible evidence and "matter" of the project. In this way, research activity can develop design scenarios thanks to new opportunities for the valorisation of material resources, according to the circular economy requirements.

3 Conclusions

Design emerges as a connector of material cultures and an opportunity to discover traditional know-hows at the intersection with original ones, in the sense of contextual design, with the meaning of referring to the social, economic and technological contexts and focusing on the role that design can play within specific contexts. This design approach allows us to outline research trajectories starting from what each context and territory offers in terms of identity, history and material culture, through critical considerations aimed at combining technology, practice and meanings with the productive system and the institutions of a territory [30].

By proposing a prototype that can be applied to other supply chains, the aim is to interpret production residues as a resource that embodies a kind of knowledge, as a legacy of the metamorphosis of matter through the processes of a specific know-how, which is to say a vehicle for the identity and recognisability of said know-how.

Such a methodological approach, which has been tested in this pilot case study and is developable to other case studies, aims at.

- analysing and enhancing a know-how, embedded in a specific local, cultural, social and material context, through an *ad hoc* design method related to the use of production residues;
- with the intention of interpreting these leftovers in design terms and of achieving "generative" design possibilities, whose interpretative filter is the user-artefact relationship and the multidimensionality – by which we mean the different levels of interpretation of a material: the geo-historical, functional, expressive, economic and sustainable ones [22, 25] – which can actually describe what we call here "the metamorphosis of matter";
- to revitalise existing systems for categorising materials, by envisioning a specific system dedicated to "second generation materials" obtained by the design with the recovered matter of production processes (as well as the author's current topic of investigation related to his doctoral research at the Università Iuav di Venezia), to activate, or re-activate, networks between companies and supply chains aimed at optimising resources in production chains and to facilitate research trajectories of "design in the metamorphosis of matter".

References

1. Paoletti, I.: Siate materialisti! Einaudi, Torino (2021)
2. Coccia, E.: Métamorphoses. Rivages, Paris (2020)
3. Oxford Bibliographies. Material Culture. https://www.oxfordbibliographies.com/view/document/obo-9780199766567/obo-9780199766567-0085.xml. Accessed 03 Sept 2022
4. Dei, F., Meloni, P.: Antropologia della cultura materiale. Carocci, Roma (2015)
5. Bistagnino, L.: Design sistemico: Progettare la sostenibilità produttiva e ambientale. Slow Food Editore, Bra (2009)
6. Gruppo Dani: Shaping Together a Sustainable Future: Bilancio di sostenibilità (2020). https://www.gruppodani.com/content/uploads/2021/01/Bilancio_sostenibilita_2020.pdf. Accessed 03 Sept 2022

7. Zampiva, F.: L' arte della concia ad Arzignano, nel vicentino, nel Veneto e in Italia. Dalle origini ai giorni nostri. Egida Libreria Editrice, Italia (1997)
8. Russo, D., Tamborrini, P.: Design & Territori. Università e aziende tra sperimentazione e innovazione. New Digital Frontiers, Palermo (2019)
9. Buono, M., Giusto, R.M.: Giacimenti culturali Made in Italy. MD J. **9**, 210–219 (2020)
10. Mecenero, L.M.: Il Distretto Veneto della Pelle tra innovazione e resilienza. Come un distretto industriale è diventato un'area sistema integrata d'innovazione. Franco Angeli, Italia (2021)
11. Grasso, G., Santoprete, G., Del Pezzo, L.: L'industria della concia e del cuoio. Giappichelli, Torino (1990)
12. Gasparini, D.: L'arte della concia nel Veneto: le questioni, le fonti, gli studi. In: Gensini, S. (ed.) Il cuoio e el pelli in Toscana: produzione e mercato nel tardo medioevo e nell'età moderna. Pacini Editore, Firenze (1999)
13. UNIC. Report Sostenibilità UNIC 2020. https://unic.it/storage/Rapporto%20sostenibilità%202020/Report_Sostenibilita_UNIC_2020.pdf. Accessed 03 Sept 2022
14. Bassi, A., Calogero, L., De Chirico, M.: Territory, sustainability and design. DIID disegno industriale Ind. Des. **19**(73), 86–95 (2021)
15. Penadés, J.: Structural Skin. https://oficinapenades.com/projects/structural-skin-furniture/. Accessed 03 Sept 2022
16. Favini: Remake. https://www.favini.com/gs/carte-grafiche/remake/caratteristiche/. Accessed 03 Sept 2022
17. Del Curto, B., Fiorani, E., Passaro, C.: La pelle del design. Lupetti, Milano (2010)
18. Karana, E., Pedgley, O., Rognoli, V.: Materials Experience: Fundamentals of Materials and Design. Butterworth-Heinemann, Oxford (2014)
19. Carullo, R., Del Curto, B., Lucibello, S.: "Perceptions" versus "Conceptions." Mapping materials between memory, responsibility, and technology. In: Bisson, M. (ed.) III International Conference on Environmental Design, pp. 151–158. Palermo University Press, Palermo (2019)
20. Ashby, M., Johnson, K.: Materials and Design, 2nd edn. Butterworth-Heinemann, Oxford (2010)
21. Bruno, G.: Atlante delle emozioni. Johan & Levi, Monza (2015)
22. Belfanti, C.M.: Storia culturale del Made in Italy. Il Mulino, Bologna (2019)
23. Rognoli, V., Levi, M.: Il senso dei materiali per il design. Franco Angeli, Milano (2011)
24. Carullo, R., Pagliarulo, R.: Interior | Design. Action on Surfaces. International Exhibition. Rubbettino, Soveria Mannelli (2018)
25. Karana, E., Hekkert, P., Kandachar, P.: A tool for meaning driven materials selection. Mater. Des. **31**(6), 2932–2941 (2010)
26. Bak-Andersen, M.: When matter leads to form: material driven design for sustainability. Temes De Disseny: Nueva Etapa **34**, 10–33 (2018)
27. Manzini, E.: La materia dell'invenzione. Arcadia, Milano (1986)
28. Dal Bò, M.T.: Tra prefigurazione e configurazione. Modalità e strumenti per l'inizio del progetto. In: Riccini, R. (ed.) Frid: Forum nazionale dei dottorati di ricerca in design, pp. 50–56. Il Poligrafo, Padova (2016)
29. Brunner, T.A.: Aesthetics of Sustainability Material Experiments in Product Design. Triest Verlag, Zürich (2021)
30. Design Academy Eindhoven. Contextual Design. https://www.designacademy.nl/p/study-at-dae/masters/contextual-design. Accessed 03 Sept 2022

Counter-Narratives Against Gender-Based Violence. A Twofold Perspective on Choices in Interactive Dramas

Sofia Peracchi[1](✉) and Ilaria Mariani[2]

[1] Namahn, Brussels, Belgium
spe@namahn.com
[2] Department of Design, Politecnico di Milano, Milano, Italy

Abstract. Regardless of the increasing number of initiatives and activist counter-narratives aimed at fighting the hetero-normative patriarchal beliefs, the current Italian social structure still justifies gender-based violence, while the number of abuses remains chiefly unaltered. Within such a complex framework, this study intends to advance the discussion on how IDNs can contribute to sensitive topics such as Violence Against Women and Girls (VAWG) to trigger social change, showing the relevance of involving its protagonists for better addressing such a complex and urgent issue, increasing the possibilities of encouraging positive shifts in ideals and behaviours. This study reports on the co-design of an IDN that involved both survivors and volunteers from an anti-violence centre, and how their engagement provided fundamental insights on the necessity to describe survivors' struggles sensibly and invite bystanders to reconsider their opinion on gender-based violence victims. Building on procedural rhetoric and narrative immersion, the artefact targets non-victims, putting them in women's shoes to emphasise how violence is never caused by the victim's choices but by those of the perpetrator. Ultimately, the results of the testing on 83 people who assessed the artefact with pre- and post-experience questionnaires are presented and discussed, showing the IDN effectiveness in tackling the topic and creating a meaningful experience.

Keywords: Interactive Digital Narratives · Social Change · Violence against Women and Girls · Co-design

1 The Hegemonic Discourse on Violence Against Women and Girls

Despite the growing importance of activist initiatives [1, 2] and the construction of feminist political counter-narratives aimed at fighting Violence Against Women and Girls (VAWG) [3], the number of cases of gender-based violence in Italy is chiefly unaltered (ISTAT, 2021). The current hetero-normative patriarchal social structure still justifies sexist behaviours related to VAWG, such as victim-blaming [4], gender-based stereotypes, and rape myths [5, 6], which contribute to creating an inhospitable environment for survivors. The challenge is, therefore, identifying effective and impactful ways to address the issue, raise awareness of it, and eventually instil a change in how it is perceived.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 724–734, 2024.
https://doi.org/10.1007/978-3-031-49811-4_69

In this context, it surfaces the role of counter-narratives [7, 8] as narratives that oppose the hegemonic discourse by exposing sexist attitudes and contributing to fighting VAWG [9]. Among their uniqueness, providing a different view on a contemporary and urgent social and cultural issue: that of the survivors. This study values the power of narratives with such a distinctive and intense perspective in shedding light on the corollary of daily behaviours that protects perpetrators and still justifies them [10]. Therefore, to address the challenge of facing the socio-cultural problem of gender-based discrimination supporting VAWG, the study involved Parma's Centro Antiviolenza.

1.1 The Italian Context

This study is situated in a field that urges a multi-level intervention. Communication represents just a part, still relevant, to instil change. According to ISTAT's report on gender-based violence in Italy [11], in 2020, over 15000 women reached anti-violence centres to escape violent relationships. 74.2% of the cases started before the pandemic but were worsened by it. Forcing the cohabitation with the perpetrator, the COVID-19 pandemic led to the deterioration of many abusive relationships while reducing the help requests and reports to the police.

This data adds to the worrying picture the 2018 ISTAT census on gender stereotypes and rape myths portrays. 58.8% of the population agrees with one or more gender stereotypes. 39.3% believes women can always avoid a sexual relationship if willing to, 23.9% thinks how women dress can provoke sexual assault, and 15.1% considers women inhibited by drugs or alcohol partly blamed for being sexually assaulted. The lack of education and the diffusion of misconceptions among the population creates a context that justifies perpetrators and undermines the victims' experiences. The situation is further aggravated by how mass media allow and often support the spread of victim-blaming narratives, requiring a change in media exploitation. The direction should promote greater empathy for the victims, giving space to counter-narratives that can give a voice to those who remain unheard and alter the perception and preconceptions of VAWG.

1.2 Digital Counter-Narratives Against the Hegemonic Discourse

Over the last decade, several grassroots initiatives started using digital media to present powerful counter-narratives able to challenge the hegemonic discourse, exposing sexist attitudes. Examples are the *MeToo movements* and the creation of online platforms such as *Everyday Sexism* or the app *Hollaback*!

Digital media have proven to be very valuable in allowing survivors to share their stories and organise collective actions to contrast patriarchal attitudes that still occur online and in real life. Across the world, there has been a revival of feminist attention to violence and rape culture [2], targeting occurrences of physical and sexual violence but also harmful practices trivialising rape, such as jokes, cat-calling and sexualized 'banter'[12]. Such initiatives occur especially on social media platforms, replicating traditional gendered power relations [2]. If the context on the one side facilitates attacks by providing distancing and mediation, it also gives women, subcultures, and minorities a

space for counter-voices to emerge. Those who were silenced and struggled for legitimacy can speak up and fight against wrongful social norms, exploiting and contributing to creating new languages, vocabularies, modes of engagement and resistance [9].

1.3 Interactive Digital Narratives: Immersion and Procedurality

Agency and interactivity are two main reasons why artefacts such as IDNs can successfully promote behavioural change [13], raising awareness and educating on specific topics. As argued in the literature [14–18], immersion stimulates enjoyment and persuasion, and interactivity deepens this process. Among the main features of such artefacts is the ability to favour the players' immersion in fictional worlds as secondary worlds. In the liminal space of fictional worlds, players can safely question their own perspectives and reformulate their thoughts and behaviours. IDNs can favour role-taking, a process able to impact attitudes or ideas by encouraging immersion in other roles. Putting players in someone else's shoes, they raise strong bonds with the character. Ultimately, procedural rhetoric mechanics can be applied to influence players' opinions through their computational properties [19].

Within IDNs, interactive drama [20] indicates dramatic stories in which the player takes the protagonist role in first-person. Specific first-person experience entails that the player's suspension of disbelief is never interrupted [20], seeking *dramatic agency*, the possibilities of interaction within rich stories with dramatic storylines. In interactive dramas, the player's interaction is what profoundly shapes the story, which, however, still has to maintain an author-given structure that keeps the overall coherence.

In this framework, this study intends to advance the discussion on how IDNs can contribute to an urgent, sensitive topic such as VAWG, showing the relevance of involving its protagonists for better addressing it.

2 Study Methodology

This study builds on the extensive research conducted between 2021 and 2022 [21]. Knowledge is gained through desk and field research. The literature review investigated an interdisciplinary body of scientific and grey literature regarding the issue of gender-based violence and the topic of interactive media aimed at social change. A case study analysis identified relevant interactive artefacts addressing the VAWG issue in the domains of Games for Social Change and IDNs. A survey completed by almost 200 participants depicted both the Italian population's interest in interactive media and their knowledge of gender-based violence and toxic attitudes.

The field research involved the volunteers of Parma's Anti Violence Centre together with testimonies of survivors who could provide first-hand knowledge on the topic. The Interactive Drama developed was tested and validated involving 83 people, plus the volunteers from the Center. The assessment relies on a pre-experience questionnaire (min 7 days before playing) and a post-experience questionnaire (right after playing). The two questionnaires were built to gather the players' position regarding the topic and how they experienced the IDN, but also to investigate their emotional responses to narratives on VAWG and their knowledge on anti-violence centres. The questionnaires

were specifically structured to detect a change of the player's perspective after playing. Ultimately, the post questionnaire also vetted the IDN effectiveness in conveying the message.

3 Embedding the Survivor Perspective

3.1 Co-designing with Volunteers

Volunteers and survivors were involved throughout the entire design process, from the field research and concept definition to the testing of the prototype. Their participation provided fundamental insights on the necessity to describe survivors' struggles sensibly and invite bystanders to reconsider their opinion on gender-based violence victims, better understanding the discrimination and abusive situations they confront daily.

The co-design took place from Spring 2021 to Winter 2022, mainly remotely, due to Covid-19 restrictions and the protection of victims' privacy. It included 3 volunteers and 3 survivors in interviews about the reality of gender-based violence in the Italian context, issues linked to toxic behaviours, and events and initiatives considered effective in raising awareness on the topic.

The co-design also included the collection of direct testimonies, gathered through interviews and an online survey, in which participants shared personal stories regarding VAWG and experiences of toxic behaviours related to gender-based violence. The data gathered and the co-design approach strongly highlighted how being at the intersection of multiple axes of discrimination further aggravates the victim's condition. Intersectional conditions, such as race, gender, sexual orientation, ability, and other aspects of identity, sustain a logic of oppression rooted in the larger structures that shape society [22]. It corroborates the role of norms supporting gender, cultural, and economic inequalities, hypermasculinity, and a culture-related acceptance of violence in "justifying" sexual violence.

3.2 Shaping the Interactive Drama Narrative

The testimonies gathered during the design process served as a precious base to build the interactive drama narrative. The story describes a day in the life of Dalila, a young Italian-Tunisian woman who is living in a violent relationship with her partner.

As the volunteers explained, women from a foreign family often struggle to find a robust support system that can guide them toward anti-violence centres: these victims reach out to the volunteers only when the situation has become truly dangerous. This lack of a support system given by the intersectional identity of the protagonist was a crucial dynamic to present as one of the reasons why victims fail to see a way out of a violent relationship. Therefore, the story follows Dalila's attempt to find support in her friends and family and unveils how their lack of interest contributes to worsening her situation.

Beyond the content perspective, the interaction with volunteers and survivors also impacted the narrative structure. The interviews disclosed how the main aim of the centres is to create a safe space for women, minimising potential triggers that may lead

them to relive traumatic experiences. For this reason, the narrative presents a structure aimed at protecting the player, enabling a gradual immersion into the reality of abusive relationships. The interactive drama not only presents detailed trigger warnings before the start of the experience, but its structure, divided into two blocks, aims at limiting the player's discomfort. The first part of the story is structured as a foldback narrative (i.e. a narrative with some events that cannot be avoided) that deals with "less traumatic" behaviours. The second section, a branching narrative with four endings, explores the more violent aspects of an abusive relationship. This structure favours a progressive immersion into the reality of gender-based violence, thus encouraging the player to assess their emotional state as the narrative progresses, interrupting the experience if necessary.

Beyond the participation in the initial stages of the study, volunteers were engaged in the testing of the final prototype, since the narrative includes information regarding anti-violence centres in Italy. This validated the information provided to the audience while ensuring that gender violence is depicted in a truthful yet respective way. Remarks and suggestions from this testing were implemented in the prototype before performing the testing with the audience.

In light of this, it is necessary to remark that the overall co-design experience strongly shaped the study and its outcome throughout the entire research and design process, informing both the narrative and technical aspects of the interactive drama.

3.3 Shaping the Interactive Drama Mechanics

Building on the testimonies collected, the artefact focuses on the theme of choice and how this concept can seem limited within a violent relationship. As the volunteers and the survivors stated, many women living in abusive relationships tend to blame themselves for their partners' behaviour, and they feel like they have no choice but to stay with them, even though they did not cause any of the sufferings they have endured. The dynamics and logic behind these beliefs are expressed through the affordances and agency of the medium [23, 24]. In particular, it exploits the element and dynamics of choice, which is central in interactive digital narratives [13, 25] but even more in the discourse related to VAWG.

Therefore, the artefact presents three types of choices, all meaningful:

- Choices made 100% by the player, which can range from low to high impact;
- Choices defined 50% by the player and 50% leading to a pre-defined outcome, granting coherence throughout the story;
- Choices dictated 100% pre-defined by the system and unavoidable. They depict the oppressive nature of abusive relationships and they stress the idea that violence cannot always be avoided, as it is never caused by the victim but always by the perpetrator.

Agency, and in particular limitation of it, becomes a powerful element which enables procedural rhetoric, aimed at conveying the idea that violence is never a victim's choice.

4 *Come Vetro Temperato*

The co-design methodology led to the development of *Come vetro temperato*, an online interactive drama targeted to 18 to 35 years-olds who never experienced gender-based abuse. The IDN aims to encourage social change in relation to gender-based violence, by informing the audience about anti-violence centres and inspiring empathy towards victims of abuse. The co-design informed and oriented the overall narrative and design choices. A high-level consideration regards ensuring wide accessibility and usability, keeping the experience simple and meaningful independently from the digital literacy level of the player. Although modern techniques and mechanics could be employed to create the interactive drama, the *Twine* software was chosen. It is by design a user-friendly open-source software with a rich community thriving on personal stories and discussions on serious topics. Moreover, *Twine* goes beyond being a software, acting as a hub detached from the mainstream and hegemonic discourse, welcoming and promoting projects aimed at social change, counter-narratives, and self-expression.

Advancing the reasoning, also the visual language and the modality of interaction were consciously designed to make the interaction as intuitive and user-friendly as possible. The IDN builds on the concept of the breakable glass which informs the visual part of the narrative, namely the background images of each passage. The title of the narrative was inspired by a quote from Don Quixote, which compares women to glass, resistant yet still breakable and difficult to piece back together once shattered. This concept is reprised in both the visual and textual aspects of the narrative, and it allows a more seamless immersion in the story.

The artefact exploits the mechanics and the affordances of IDNs to favour the role taking process and to inspire empathy in its player. Background illustrations exploit a visual treatment that dynamically evolves with the story. The more the player dives into the game, the more traumatic events Dalila will experience. This is also mirrored by the cracks in the background glass, which slowly becomes more and more broken. The progressive increase of cracks and the glow atmosphere are metaphorical representations of the effect that gender-based violence and the toxic behaviours have on who is subject to them (Fig. 1). The use of images and audio tracks is designed to accompany the experience without disrupting it, while also echoing the main visual and textual metaphor of the narrative.

Ultimately, to fulfil its awareness purpose, the narrative ends with a short landing page which provides information with regards to Italian anti-violence centres and their activities to support survivors and to educate the public about the issue.

The artefact was tested and assessed by 83 people. Data was collected through 6-point likert scales from fully disagree (0) to fully agree (5). In comparison with the results of the pre-experience assessment, the post-experience one revealed very "positive" changes and responses. The players stated they felt engaged with the narrative (3.9) and demonstrated a higher emotional response to the IDN rather than a traditional narrative as testers in the pre-experience questionnaire (4.3 vs 4.1). Figure 2 summarises further results: noteworthy is that the experience increased the levels of identification, empathy, and sympathy; analogously, the increment of anger and discomfort are further signals of the effectiveness of the IDN in generating a meaningful experience. Also significant is that players felt high levels of indecision, powerlessness, and even fear but not shame.

Fig. 1. Progressive increase of cracks in the background illustrations.

Players agreed that the IDN helped them reflect on the topic (3.93) while challenging the cultural values of our society (3.95). They also state their willingness to

share the narrative with others (4.16) (Fig. 2). Furthermore, the narrative successfully inspired interest in the activity of anti-violence centres, which rose from 18% (in the pre-assessment survey) to 76%.

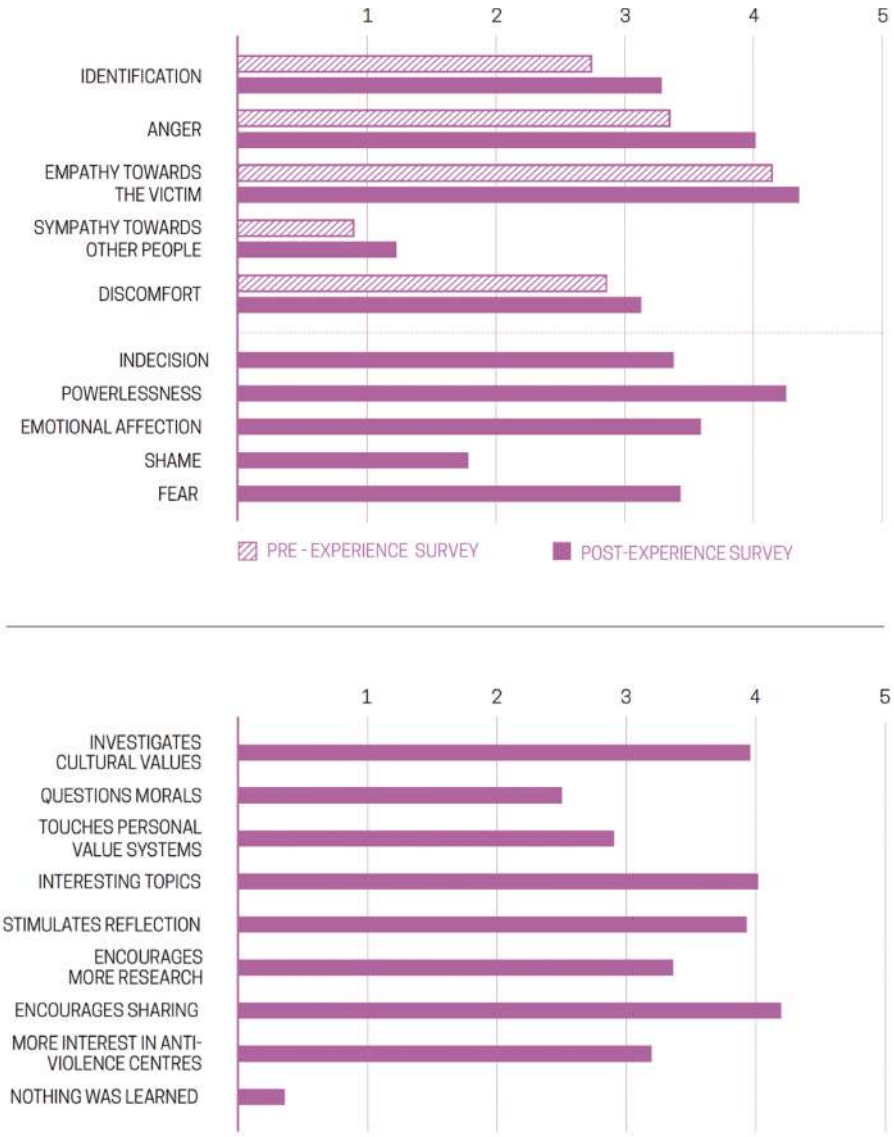

Fig. 2. The upper table describes players' emotional response to a traditional narrative of VAWG (assessed in the pre-experience survey) and to *Come vetro temperato* (post-experience survey). The bottom table shows the impact of the interactive drama on players.

The testing also highlights a possible critical issue regarding the crossed-out options. Since the IDN is open to a broad audience, not skilled players often did not understand the (procedural) rhetorical and metaphorical meaning of unavailable choices as a limitation of agency mirroring those experienced by those who suffer violence. The testing showed how the meaning behind such non-choices could be reinforced by increasing their number or showing the unavailability by making the cracks appear once the user hovers over the choice.

5 Discussion and Conclusion

Come vetro temperato proved that interactive dramas, as engaging narrative-based communication systems [26], can contribute to sparking social change [27]: on the one hand, inspiring empathy and supportive behaviours; on the other, raising awareness on the work of Italian anti-violence centres. In doing that, this contribution advances the discussion on how interactive narratives can contribute to sensitive topics such as VAWG to trigger social change, showing the relevance of involving its protagonists for better addressing such a complex and urgent issue, to encourage positive shifts in ideals and behaviours. Their expertise and testimonies helped design an artefact able to not only favour engagement and self-identification of its audience, but also to increase empathy towards survivors and awareness about anti-violence centres. The exploitation of the interactive medium and its affordances shapes every aspect of the IDN, to communicate the topic through an engaging and meaningful experience of play. The overall positive results of the study encourage the possibility for further research and experimentation, especially with regard to the representation of more **intersectional** perspectives on this issue and the employment of more modern and interactive technologies in the creation of IDN aimed at social change. The co-design, in particular, provided unique first-hand knowledge that had an enormous impact on the design process and its choices, from the narrative to the mechanics, aiming at increasing awareness and empathy towards victims and survivors.

References

1. Mendes, K., Ringrose, J., Keller, J.: #MeToo and the promise and pitfalls of challenging rape culture through digital feminist activism. Eur. J. Women's Stud. **25**, 236–246 (2018). https://doi.org/10.1177/1350506818765318
2. Sills, S., et al.: Rape culture and social media: young critics and a feminist counterpublic. Fem. Media Stud. **16**, 935–951 (2016). https://doi.org/10.1080/14680777.2015.1137962
3. D.i.Re, Veltri, C.: Ri-cambiare. Tra memoria e trasformazione: nuove strategie per rilanciare i Centri antiviolenza. Settenove (2017)
4. Spaccatini, F., Pacilli, M.G.: Victim blaming e violenza di genere: antecedenti, funzioni e conseguenze. La camera blu. Rivista di studi di genere (2019). https://doi.org/10.6092/1827-9198/6669
5. Burt, M.R.: Cultural myths and supports for rape. J. Pers. Soc. Psychol. **38**(2), 217–230 (1980). https://doi.org/10.1037/0022-3514.38.2.217
6. Ryan, K.M.: The relationship between rape myths and sexual scripts: the social construction of rape. Sex Roles **65**, 774–782 (2011). https://doi.org/10.1007/s11199-011-0033-2

7. Milner, H.R., Howard, T.C.: Counter-narrative as method: race, policy and research for teacher education. Race Ethn. Educ. **16**, 536–561 (2013). https://doi.org/10.1080/13613324.2013.817772
8. Miller, R., Liu, K., Ball, A.F.: Critical counter-narrative as transformative methodology for educational equity. Rev. Res. Educ. **44**, 269–300 (2020). https://doi.org/10.3102/0091732X20908501
9. Mendes, K., Ringrose, J.: Digital feminist activism: #metoo and the everyday experiences of challenging rape culture. In: #MeToo and the Politics of Social Change, pp. 37–51 (2019)
10. Flood, M., Pease, B.: Factors influencing attitudes to violence against women. Trauma Violence Abuse **10**, 125–142 (2009). https://doi.org/10.1177/1524838009334131
11. ISTAT: Effetti della Pandemia sulla Violenza di Genere (2021). https://www.istat.it/it/files//2021/11/EFFETTI_PANDEMIA_-VIOLENZA_D_GENERE.pdf
12. Keller, J., Mendes, K., Ringrose, J.: Speaking 'unspeakable things': documenting digital feminist responses to rape culture. J. Gend. Stud. **27**, 22–36 (2018). https://doi.org/10.1080/09589236.2016.1211511
13. Steinemann, S.T., Iten, G.H., Opwis, K., Forde, S.F., Frasseck, L., Mekler, E.D.: Interactive narratives affecting social change: a closer look at the relationship between interactivity and prosocial behavior. J. Media Psychol. **29**, 54–66 (2017). https://doi.org/10.1027/1864-1105/a000211
14. Frasca, G.: Rethinking agency and immersion: video games as a means of consciousness-raising. Digit. Creat. **12**, 167–174 (2001). https://doi.org/10.1076/digc.12.3.167.3225
15. Green, M.C., Jenkins, K.M.: Interactive narratives: processes and outcomes in user-directed stories: interactive narratives. J. Commun. **64**, 479–500 (2014). https://doi.org/10.1111/jcom.12093
16. Frasca, G.: Rethinking agency and immersion: video games as a means of consciousness-raising. Digit. Creat. **12**, 167–174 (2001). https://doi.org/1462-6268/01/1203-0167$16.00
17. Mariani, I.: Online players: engagement, immersion, and absorption across secondary worlds. In: Lee, N. (ed.) Encyclopedia of Computer Graphics and Games, pp. 1–6. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-08234-9_235-1
18. Nilsson, N.C., Nordahl, R., Serafin, S.: Immersion Revisited: a review of existing definitions of immersion and their relation to different theories of presence. Hum. Technol. **12**, 108–134 (2016). https://doi.org/10.17011/ht/urn.201611174652
19. Bogost, I.: Persuasive gaming in context. Presented at the (2021). https://doi.org/10.1515/9789048543939-003
20. Laurel, B.: Toward the design of a computer-based interactive fantasy system (1986). https://etd.ohiolink.edu/apexprod/rws_olink/r/1501/10?clear=10&p10_accession_num=osu1487265143146814
21. Peracchi, S.: Interactive narratives against gender-based violence. A co-design approach to leverage stories, inspire empathy, and raise awareness (2022)
22. McCall, L.: The complexity of intersectionality. Signs J. Women Cult. Soc. **30**, 1771–1800 (2005). https://doi.org/10.1086/426800
23. Hammond, S., Pain, H., Smith, T.J.: Player agency in interactive narrative: audience, actor & author. Presented at the AISB 2007: Artificial and Ambient Intelligence, Newcastle, UK (2007)
24. Tanenbaum, T.J., Tanenbaum, K., Wakkary, R.: Design fictions. In: Proceedings of the Sixth International Conference on Tangible, Embedded and Embodied Interaction, Kingston Ontario Canada, pp. 347–350. ACM (2012). https://doi.org/10.1145/2148131.2148214
25. Dubbelman, T., Roth, C., Koenitz, H.: Interactive Digital Narratives (IDN) for change. In: Rouse, R., Koenitz, H., Haahr, M. (eds.) ICIDS 2018. LNCS, vol. 11318, pp. 591–602. Springer, Cham (2018). https://doi.org/10.1007/978-3-030-04028-4_69

26. Mateas, M.: Interactive drama, art and artificial intelligence (2002)
27. Mariani, I.: Meaningful negative experiences within games for social change. Designing and analysing Games as Persuasive Communication Systems (2016). http://hdl.handle.net/10589/117855

Sustainable Mobility as a Sport

Domenico Schillaci(✉), Salvatore Di Dio(✉), and Mauro Filippi(✉)

Università degli Studi di Palermo, Viale delle Scienze, 90128 Palermo, Italy
{domenico.schillaci01,salvatore.didio,mauro.filippi}@unipa.it

Abstract. In recent years many studies focused on steering behavioural change to face the climate crisis. A significant part of these opted to deal with mobility habits, i.e. prompting citizens towards more conscious and sustainable choices. One widely used approach involved game techniques to hack the habit loop by exploiting the similarities that keep players hooked. In this context, narrative can be key in engaging people's emotions. It can facilitate the integration of game elements and emphasise the tension that arouses emotional reactions and fuels the desire to play. Several examples of games with distinct narratives exist in the context of individual mobility.

After conducting several field research, it emerged that mere game mechanics of 'prizes for sustainable travel' would not have been able to generate lasting behavioural change besides severe scalability limitations.

The proposed research originated from previous work and focused on creating an entirely novel narrative able to change the experience of moving around the city by leveraging those values that encourage people to rethink their daily choices. These reflections lead to MUV, a digital game that turns sustainable urban mobility into a sport and citizens into athletes competing in various disciplines such as walking, cycling or public transport. According to their performance, they can level up from amateur to professional, gaining fame and honours. This approach demonstrated significant engagement and impact results, particularly concerning CO2 savings. Therefore, the 'mobility as a sport' narrative proved crucial to involve citizens actively, make them feel part of a cohesive movement and nudge them to build greener and healthier habits.

Keywords: Sustainable Mobility · Game Design · Behavioural Change

1 Behavioural Change as an Antidote to Climate Change

1.1 Facing a Human-Caused Climate Crisis

In recent years there has been widespread debate about the ongoing climate crisis on our planet and the corrective actions that need to be taken as a matter of extreme urgency to prevent irreversible global climate change. The situation, which already appears critical,

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 735–743, 2024.
https://doi.org/10.1007/978-3-031-49811-4_70

could worsen in the coming years if heating above 1.5 °C, the limit agreed upon in the Paris climate deal[1], fails to be avoided.

The scientific community agrees in identifying an undeniable guilty for this announced environmental disaster: humans.

According to the IPCC Climate Change Report 2022, the climate crisis is unequivocally caused by human activities, and it is essentially due to population growth and individuals' resource consumption behaviour. The only way to slow this process is to reduce emissions immediately and on a large scale within the next two decades. Solely through these drastic cuts can global warming be mitigated and even more catastrophic impacts averted [1].

On the other hand, the world population is constantly growing and is expected to reach eight billion by the end of 2022 and exceed ten billion by 2100 [2]. Therefore, profound and lasting behavioural changes are urgently necessary both at the individual consumer/citizen and the broader community level.

In short, quoting the Intergovernmental Panel on Climate Change: «we need behavioural change, not climate change».

1.2 Individual Behavioural Change and Mobility Habits

The focus, therefore, is whether changing the behaviour of individuals can mitigate the climate crisis and to what extent [3].

Research from Rare's Center for Behavior & the Environment quantified individual behaviour change's contribution to curbing Greenhouse Gas (GHG) emissions and concluded that it could be decisive. By analysing 30 behavioural solutions, it has been estimated that greater adoption of these could help reduce about one-third of the projected global emissions by 2050. About 20% of these reductions are related to the transport sector, which is one of the most polluting [4].

The impact of transportation and individual mobility is indeed huge. The transport sector accounts for 24.6% (almost a quarter) of all the GHG emissions in the EU, with projections showing increased growth by 2050. A large portion (46%) of these is attributable to individual mobility [5].

From this perspective, fostering changing citizens' mobility habits appear to be a challenge worth dealing with. It starts with understanding why and how people move around in cities and then how to encourage more conscious, sustainable and active daily mobility choices [6].

1.3 Building a Mobility Habit

The most relevant research in urban mobility and human behaviour confirms that, as predictable as it may seem, people move mainly for two reasons [7]. To go to work,

[1] *The Paris Agreement* is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016. Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement.

i.e. to earn money (or to go to school or university to create the conditions for a future job); and to go shopping/entertain, i.e. to spend the money they have earned. These are recurring trips and account for most mobility flows within cities.

These routines naturally generate habits, which often develop automatically, almost unconsciously. Most habits are built similarly and follow a precise mechanism called the 'habit loop'. It is a process that is managed by our brain and occurs in three phases: the recognition of the trigger, which acts as a cue to suggest that it is time to activate the habit (1), the mechanical execution of a particular action or sequence of actions (2), namely the habit, and the moment of obtaining the reward (3), which helps the brain to recognise the cycle that has just ended and to remember it, to be able to repeat it in the future. As time goes by, this pattern of repetition becomes automatic [8].

Thus, one who leaves for the office in the morning clutching their car keys in their fist is already looking forward to the moment of happiness they will feel when they finally find a parking space. Whether this means being stuck in traffic for a long time in a state of constant stress is of little importance.

2 The Role of Game Design in Hacking People's Habit Loop

2.1 Game Loop vs Habit Loop

Since the habit loop regulates most of the automatic responses to external stimuli and the establishment of recurring behaviours, to remedy bad habits, it is necessary to act on this loop by finding effective ways to short-circuit it. One approach that has shown significant results in this regard involves using games to change given behaviours. This is because games possess a similar structure to habits and are consequently treated by the human brain in a broadly similar way [9].

They likewise are based on a cycle, which is called 'game loop', and which consists of three elements: action (1), reward (2) and expansion (3). Indeed, any self-respecting game requires the player to perform an action (such as killing enemies) which, once completed, leads to a given type of reward (such as obtaining gold coins). The reward then allows one to 'expand', i.e. improve one's skills and thus progress in the game (through coins, it is possible to upgrade one's weapon and therefore kill even more enemies). Nestled between the reward and the expansion is the so-called 'anticipation', a significant event that consists of the brain's dopamine release to the player. This chemical reaction causes a feeling of euphoria and satisfaction and is the basis of the motivation that keeps the player engaged and makes games addictive [10].

2.2 Gamification, Serious Games and Transformational Game Design

Having pointed out how it is possible to change a habit or even create a new one by leveraging game techniques and dynamics, it is then worth explaining how these can be integrated into the different spheres of human life, including mobility (Fig. 1).

The most direct approach is known as gamification. It consists of incorporating typical game elements and principles into non-game contexts to interest, entertain, involve and motivate. This strategic attempt is made by designing game-like experiences and

Fig. 1. Screenshots of the MUV mobile app showing the game dynamics.

has proven to be an effective method for engaging people, as it stimulates proactive behaviour and, hence, participation. Gamification is often applied as an educational and behavioural modification tool and is also widely used in marketing to enhance services and support users' overall value creation [11].

A different concept is the one underlying the so-called serious games, meaning those games that do not have entertainment as their sole, or at least primary, purpose [12]. Serious games are actual games and therefore possess the four distinctive traits that characterise them, i. e. objective, rules, feedback system and voluntary participation.

The implementation of serious games for educational or behavioural change goals appears, in general, less immediate than gamification. Still, depending on the context and target audience, it may be more effective and, in some cases, even more straightforward.

A further method that can be effectively applied is transformative game design. It aims to change players in a specific way that transfers outside and persists beyond the game [13]. The nature of the game and the game experience depend on the transformation one wants to produce and the barriers one must overcome to achieve it. Transformative games can be considered a sub-category of serious games, whose peculiarity lies in need to measure the effectiveness of the transformation induced.

This evaluation aspect is crucial for all initiatives aimed at changing behaviour since, without proper assessment, it becomes complicated to establish whether the targeted goal has been achieved and to what extent.

3 Examples of Game Narratives Regarding Individual Mobility

In recent years, successful examples of game narratives dedicated to individual mobility in pursuit of environmental sustainability and encouraging an active lifestyle have multiplied. Two different but equally effective examples have been selected to provide a more comprehensive overview of the topic (Fig. 2).

The first is 'Zombies, Run!', one of the earliest and still most original immersive attempts, published for iOS and Android platforms in 2012. It is a running game where

Fig. 2. Some MUV live events and initiatives.

players act as the character 'Runner 5' who tries to save themselves from a zombie apocalypse and must face a series of missions during which they run, collect items to help the city survive and listen to various audio narratives to uncover mysteries. The app can record the distance, time, pace and calories burned in each mission through the smartphone's GPS or accelerometer. The game consists of 9 seasons with over 300 missions, each lasting between 30 min and an hour. Zombies, Run! has been played by over 700 thousand players and has attracted widespread praise for its compelling storyline that has not only proven to incentivise players to go running but has changed their attitude towards exercise [14].

One of the most talked-about projects of recent times is undoubtedly STEPN, a lifestyle app that claims to reward users when they walk, jog or run. To earn money, users need to equip themselves with a pair of virtual sneakers, which can be found in the in-app marketplace. The shoes are made available in the form of NFTs (Non-Fungible Tokens), unique virtual items; to purchase them, one must link their cryptocurrency wallet and complete a transaction. The user's activity is measured outdoors via GPS, and earnings are provided in the game currency, which can either be used in-game or cashed out for profit. STEPN is based on a move & earn mechanism to nudge people towards a healthier lifestyle and intends to donate its profits to the fight against climate change by issuing carbon credits [15].

4 The MUV Narrative: Turning Sustainable Mobility into a Team Sport

Against the myriad of initiatives intended to gamify individual mobility, the MUV project, to distinguish itself from its competitors and offer a new point of view on the theme, has framed its service around a precise narrative, that of sport.

4.1 Why Choose Sport as a Motivational Driver for People

The choice of leveraging sport as a guise to stimulate people to improve their mobility habits turned out to be particularly suitable due to its distinctive features.

Sport is based on genuine and heartfelt values and holds together intrinsic (training is suitable for both body and mind) and powerful extrinsic motivations (self-esteem, desire to compete, team-building) [16]. Team sports, in particular, represent a positive metaphor for our society as they teach people to get together and share goals, victories and defeats.

Moreover, even though practising professionally or simply cheering means feeling frustrated at times, what makes sports so beloved is that after every disappointment, there can suddenly come an incredible burst of joy. This continuous flow between stress and joy is the secret of every game.

The practice of sports is one of the most popular activities globally; let it suffice to mention that while there are millions of professional athletes worldwide, extending the calculation to those who play a sport at any level brings the figure to billions of players.

4.2 A Heavily Practised Sport that Nobody Talks About

There is, however, another type of activity that involves about 4.4 billion people every day and that, if considered a sport, would be the most widely practised by far. It is characterised by the absence of clear rules, competition or motivation to do it, but despite this, countless people play it every day, regardless of where they are or what they do.

This sort of sport is about moving around cities and is practised by 56% of the world's population, those who live in urban areas today [17].

The MUV project arose starting from this reflection, intending to change the experience of travelling within the city. The goal was to transform moments such as cycling to work or taking a crowded bus to go shopping into epic sports moments such as scoring the winning point in the championship final or breaking a world record.

4.3 What is MUV? Concept, History and Core Features

MUV, which stands for Mobility Urban Values, is a sustainable mobility entertainment platform [18]. It was initially developed as a research and innovation action under the Horizon 2020 programme, which was conducted from 2017 to 2020. Thanks to its promising results, it became a startup and B Corp in mid-2020.

MUV is the culmination of research work on sustainable mobility and human behaviour that started in 2013 with a project named trafficO2. It was a simple digital game that offered users a fair deal: rewards in exchange for sustainable travel. Through the app, players could track their trips, collect points and exchange them for prizes provided by the network of local businesses [19]. It turned out to be an interesting experiment but did not prove effective over time and scalable as it was too prize-focused, not entertaining enough, and, above all, lacked a narrative.

For this reason, the focus of the further research was primarily on the aspects of the gaming experience, striving to find a compelling narrative capable of engaging players in the medium and long term, and stood out clearly from any other gamification project

applied to mobility. Thus the idea of a digital game able to turn sustainable urban mobility into a sport and citizens into athletes competing with each other in open challenges and tournaments emerged [20].

MUV's game mechanics are pretty simple: players can track their sustainable trips and earn points through the mobile app. Points depend on the length of the trip and the chosen means of transport, and at the end of each travel, a brief report shows the impact of one's mobility choice.

The collected points are then exploited in various game dynamics inspired by sports, such as training sessions, individual challenges and team tournaments. Athletes' performance depends on the sustainability of their travel and, besides producing a tangible impact, allows them to succeed in competitions or contribute to their team winning. MUV leverages competitive and collaborative game dynamics, launching open challenges where the most virtuous users are rewarded or tournaments between communities, such as schools or universities, or within companies and organisations, where the most motivated and steady team wins.

Another essential factor that contributes to reinforcing this sports-centred narrative and thus making it credible is all the events and initiatives that are not linked to the gaming experience via the app but rather happen live. These include, for example, award ceremonies and interviews with players as if they were sports stars, which are integral to the experience MUV offers.

Beyond the gaming experience it aims to deliver and the annexed sports narrative, the service distinguishes itself by two other aspects: the use of data and the measurement of the impact produced.

The mobility data collected is not sold to third parties but is used to support companies, universities or schools in developing mobility management plans (such as home-to-work or home-to-school travel plans) and public administrations in enhancing their sustainable mobility policies. Moreover, after being anonymised and aggregated, this data is made general to the community as open datasets.

Finally, impact measurement is guaranteed by a certified methodology to calculate the CO2 reduction generated by each player that has been entirely built in-house. In this regard, MUV has proven effective and significantly impacted CO2 savings as active users have reduced their emissions by up to 32% during their involvement in various competitions [21]. Kilograms of CO2 saved are calculated[2] weekly and are constantly provided as feedback to the player (as well as other types of impact such as calories burned) as they represent a powerful motivational driver towards more conscious choices.

5 Conclusions

In its evolution from a mobile app for gamifying urban travel to an authentic sports game platform for sustainable mobility, MUV has proven that it can engage a broad audience and positively influence everyday mobility choices over time. Of course, this achievement is not solely attributable to the digital game but to all live collateral initiatives which are intrinsically part of the MUV experience and make it more complete and

[2] The CO2 reduction algorithm, developed and implemented by MUV, was validated in April 2020 according to ISO 14064–2.

authentic. Not to mention the acknowledgement of being able to generate a positive impact simply by playing.

Concluding, it can be emphasised that the narrative of mobility as a sport has three fundamental advantages: engage people in a way that is immediate, easy to understand and to identify with (1); make them feel part of a "MUVement" by setting up a playground for team-based competitive and collaborative events (2) and, finally, offer a multifaceted experience that adapts to different types of players and walks them through personal growth that nudges them into building greener and healthier habits (3).

The research will continue, and its possible future developments are related to the analysis of the collected data. The main aims are to identify the most effective game dynamics, constantly enrich the MUV narrative, thus ensuring that it remains compelling and original over time and find new ways to involve as wide a range of people as possible to maximise the impact produced.

References

1. IPCC: Climate Change 2022: Impacts, Adaptation and Vulnerability (2022). Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, 3056 pp. (2022)
2. UN News - World population to reach 8 billion this year as growth rate slows. https://news.un.org/en/story/2022/07/1122272. Accessed 26 Sept 2022
3. Lehnera, M., Monta, O., Heiskanenb, E.: Nudging – a promising tool for sustainable consumption behaviour? J. Clean. Prod. **134**(Part A), 166–177 (2016)
4. Williamson, K., Satre-Meloy, A., Velasco, K., Green, K.: Climate Change Needs Behavior Change: Making the Case For Behavioral Solutions to Reduce Global Warming. Rare, Arlington. (2018). http://rare.org/center
5. Our World in Data - Cars, planes, trains: where do CO2 emissions from transport come from? https://ourworldindata.org/co2-emissions-from-transport. Accessed 26 Sept 2022
6. Schwanena, T., Banistera, D., Anableb, J.: Rethinking habits and their role in behaviour change: the case of low-carbon mobility. J. Transp. Geogr. **24**, 522–532 (2012)
7. Rinzivillo, S., Gabrielli, L., Nanni, M., Pappalardo, L., Pedreschi, D., Giannotti, F.: The purpose of motion: learning activities from individual mobility networks. In: 2014 International Conference on Data Science and Advanced Analytics (DSAA), pp. 312–318 (2014)
8. Duhigg, C.: The Power of Habit. Random House Books (2013)
9. Gizzi, V., Di Dio, S., Schillaci, D.: Junkbox, a waste management educational game for preschool kids. ID&A Interact. Des. Archit. (40), 46–56 (2019)
10. Yang, R.: Medium - You're doing gamification wrong: dual loops explained. https://uxdesign.cc/youre-doing-gamification-wrong-dual-loops-explained-38a762c56ef4. Accessed 26 Sept 2022
11. Huotari, K., Hamari, J.: A definition for gamification: anchoring gamification in the service marketing literature. Electron. Mark. **27**, 21–31 (2017)
12. Susi, T., Johannesson, M., Backlund, P.: Serious Games: An Overview (2007)
13. Morrill, B., Culyba, S.: Transformational games. In: Lee, N. (ed.) Encyclopedia of Computer Graphics and Games, pp. 1–5. Springer, Cham (2019). https://doi.org/10.1007/978-3-319-08234-9_185-1

14. Witkowski, E.: Running with zombies: capturing new worlds through movement and visibility practices with zombies, run! Games Cult. **13**(2), 153–173 (2018)
15. STEPN Whitepaper. https://whitepaper.stepn.com/. Accessed 26 Sept 2022
16. Vallerand, R.J.: Intrinsic and extrinsic motivation in sport and physical activity: a review and a look at the future. In: Tenenbaum, G., Eklund, R.C. (eds.) Handbook of Sport Psychology, pp. 59–83. Wiley, New York (2007)
17. The World Bank - Urban Development overview. https://www.worldbank.org/en/topic/urbandevelopment/overview. Accessed 26 Sept 2022
18. MUV. https://www.muvgame.com/. Accessed 26 Sept 2022
19. Di Dio, S., La Gennusa, M., Peri, G., Rizzo, G., Vinci, I.: Involving people in the building up of smart and sustainable cities: how to influence commuters' behaviors through a mobile app game. Sustain. Cities soci. **42**, 325–336 (2018)
20. Di Dio, S., Lissandrello, E., Schillaci, D., Caroleo, B., Vesco, A., D'Hespeel, I.: MUV: a game to encourage sustainable mobility habits. In: Gentile, M., Allegra, M., Söbke, H. (eds) GALA 2018. LNCS, vol. 11385, pp. 60–70. Springer, Cham (2019). https://doi.org/10.1007/978-3-030-11548-7_6
21. Di Dio, S., Filippi, M., Massa, F., Schillaci, D.: Gamification or game design? A case study in the field of sustainable commuting. In: Human Interaction & Emerging Technologies (IHIET 2022): Artificial Intelligence & Future Applications, pp. 261–269. AHFE, New York City (2022)

NARRATIVES. Critical Approach, Languages, Explorations

Provocation Through Narratives: New Speculative Design Tools for Human-Non-Human Collaborations

Francesca Casnati(✉), Alessandro Ianniello, and Alessia Romani

Politecnico di Milano, Design Department, Via Durando, 20158 Milano, Italy
francesca.casnati@polimi.it

Abstract. In a complex and changing world, design is called to act to nurture and provoke critical reflections regarding wicked, complex, and interconnected issues, becoming a sensemaking agent that, exploiting its speculative methods, uses narratives as an inquiry tool, as a co-design tool, and as a provocative tool. Through the presentation and analysis of a *provotype* designed by the authors, the research aims to define new speculative tools for human-non-human collaborations and highlight how design narratives may be involved within more-than-human discourses.

Keywords: Speculative Design · Design Fiction · Research through Design · Design Narratives

1 Introduction

A *provotype* (from "provocation" and "prototype") is a tangible or intangible design artifact whose main goal is to foster, encourage, and provoke discussions and reflections among different users and stakeholders [1]. These provocative artifacts usually regard social and environmental sustainability, innovations, and technologies, leaving designed gaps to be filled with audience perspective [2].

While prototypes are used to solve problems, *provotypes* are effective in reaching and exploring possible futures, and break their boundaries, mediating concepts and ideas, and intervening in people's expectations and points of view through the exploitation of future scenarios, opportunities, and threats [3]. *Provotyping* is an interesting approach to be applied to design disciplines such as speculative design [4, 5] and design fiction [6, 7], whose aim is also to show and narrate possible futures and to stimulate personal and collective reflections about wicked and complex issues and problems that may affect our tomorrow. Through this contribution, we aim to nurture reflections on the narrative vocation of design by presenting a case study, "The First Multispecies Symposium". This *provotype* aims to foster imagination and debate around possible futures and inter-species collaborations through different levels of narratives, which can be explored by the audience.

The case study specifically allows to highlight firstly the narrative dimension as a scenario: the fiction that characterizes the *provotype* is based on the ability of the

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 747–755, 2024.
https://doi.org/10.1007/978-3-031-49811-4_71

designers/researchers to imagine remote futures and possible scenarios in a provocative way to foster reflections. From a long-term perspective, it fosters to explore new ways to trigger innovation and experimenting, therefore, the dimension of the narrative as a tool [8, 9]. The researchers/designers worked on the construction of a fictional future to provoke first the user but also the designers themselves, to think outside the box, to serve as a starting point for reflections on the definition of concrete and innovative solutions, framing new methodologies to face complex issues [10–12].

What does more-than-human mean? How should we encourage all ecological actors to exercise their agency in a post-human world [13, 14]? And more specifically, how can design contribute to stimulating narrations and debates to tackle complex issues and to fostering a major shift in thoughts?

In this work, speculative design and design fiction provided the basics to design a *provotype* that can stimulate critical and participative reflections on the concepts of more-than-human and interspecies collaboration [15–18]. In detail, a future fictional event was designed as a starting point for new provocative thoughts, "The first Multispecies Symposium" [19]. Critical reflections and questions about alternative futures may be encouraged thanks to these provocative artifacts. Hence, this research approach could significantly influence the framing of new narrative scenarios, tools, and processes to tackle complex issues. Furthermore, the research highlights the need for a radical shift in design to include non-human actors within its practices to achieve multispecies and collaborative futures, as well as more democratic networks.

2 Methodologies

The main fields of design exploited within the research have been speculative design [4, 5] and design fiction [6, 7]. Those two positions themselves at the intersection between two more general areas of design, namely discursive design, whose aim is to nurture dialogues between stakeholders upon themes of interest, and design futures, a field stemmed from future studies, which explores possible and desirable futures to define plausible and sustainable paths to achieve them.

By making use of some of their transdisciplinary tools and following a three-step process (scanning and framing, mapping, *provotyping*) [19], it has been possible (i) to define the spatial-temporal context for the *provotype*, (ii) to depict a reference scenario where to position the *provotype*, (iii) to build a narrative through storytelling, and (iv) to design the *provotype*.

The exploited tools helped highlight current trends, position weak signals and drivers of change, and analyze the topics of interest from a multitemporal perspective. They were also useful to pose questions, tackle and modify concepts about futures, and change, amplify and critique current ideas about futures. Furthermore, these tools facilitated to identify uncertainties and investigate the drivers of change; embrace the complexity and plurality of futures, and defining the focus of the project. Finally, they contributed to preparing, sketching, and conceptualizing the *provotype* to support the creation of outputs that make it visible and tangible.

The designed scenario, named "The Rights of Nature Revolution", describes a situation derived from many legal, social, and political transformations and results in a

balanced collaboration between human and non-human agents. In this context, more-than-human co-design could become a tool for cooperation, and the technology a means for fluid multispecies communication [19]. The three-step process, together with the main outputs and results are resumed in Fig. 1.

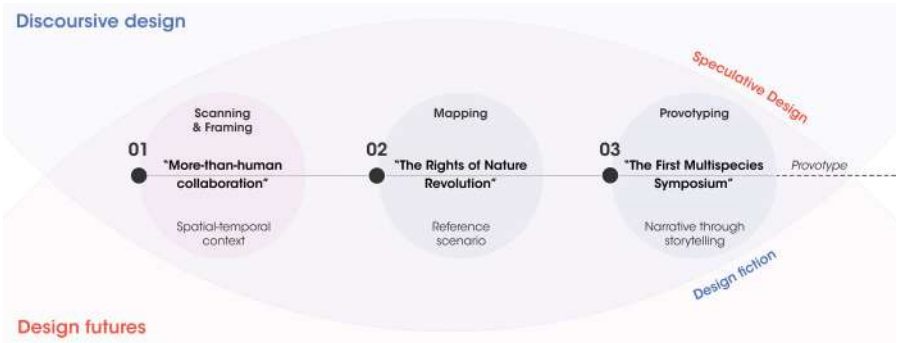

Fig. 1. The three-step process of this work with the corresponding outputs and results: (i) scanning & framing; (ii) mapping; and (iii) *provotyping*.

3 Results and Discussion

3.1 The First Multispecies Symposium

In general, *provotypes* are meant to frame new questions rather than to provide well-defined answers, allowing a certain degree of uncertainty [1]. For this reason, *provotypes* may help provoke people, especially designers, to shift their perspective. The main aim was to encourage the audience, both designers and non-designers, to change their point of view from an anthropocentric to a more-than-human-centric vision, feeding the debate and collaboration amongst the different agencies.

"The First Multispecies Symposium" is a fictional event that, as a *provotype*, helps stimulate the imagination of a post-human non-hierarchical world by using it as a tool to share reflections about sustainable and participative futures [19]. The event takes place in 2100, at the beginning of a new era of interspecies collaboration. According to "The Rights of Nature Revolution", cooperation amongst human and non-human stakeholders has begun, and technology encourages fluid communication between the different agencies. The fictional event represents the last step of this scenario, which has been developed in the form of a narrative *provotype*.

Figure 2 resumes the steps of the narrative *provotype*, "The First Multispecies Symposium", and shows its position within the reference scenario, "The Rights of Nature Revolution" [19]. Focusing on the *provotype*, three different steps have been developed to facilitate the audience's reflections. The "Symposium Debate" (A) consists of brief narrative storytelling. The remote opening debate on a digital platform is simulated, where a heterogeneous set of species representatives participates, i.e., bees, corals, trees, bacteria, and fungi. AI has the role of facilitating communication by translating into not only

different languages but also time and space conceptions. This step aims to introduce the topic to the audience and start to understand the different interspecies perspectives. The "Open Interspecies Debate" (B) starts to involve the audience in the roleplay by giving them the roles of the different species representatives during the different sessions of the symposium. This step aims to reflect on the possible collaboration between different species, trying to avoid an anthropocentric perspective. Finally, the "Post Symposium Debate" (C) involves the audience in the decision-making process. The human representative should decide what to say during the next edition of the symposium, considering the feedback from the other species representatives. This step aims to reflect on the humans' role and contribution in a more-than-human world. This *provotype* helps in focusing on the topics of interspecies justice and more-than-human world, fostering the perspective-shifting towards post-human scenarios.

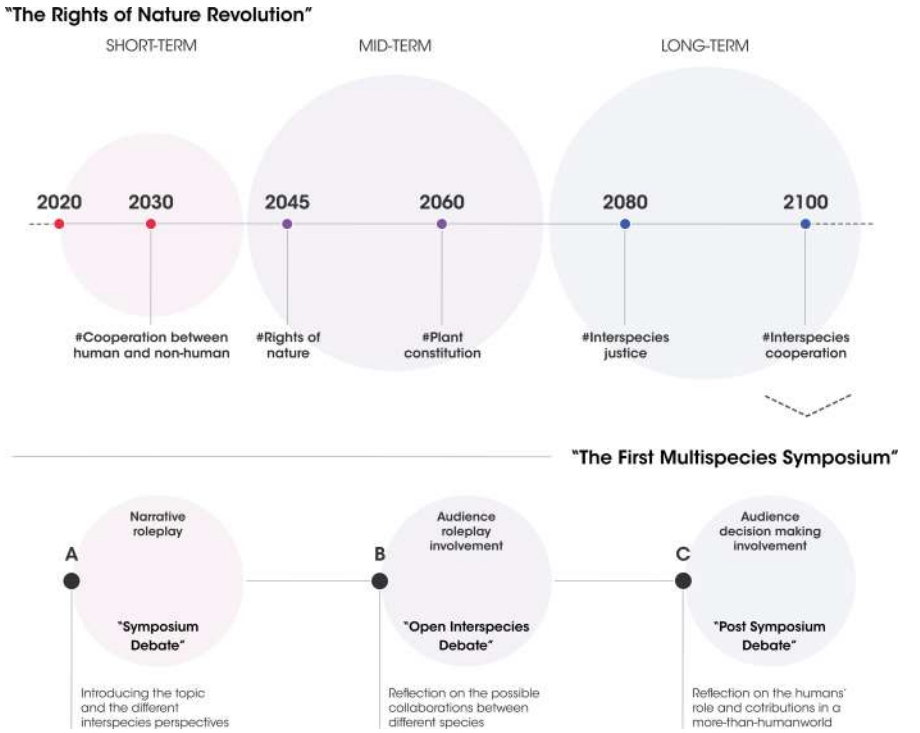

Fig. 2. Timeline of "The Rights of Nature Revolution" scenario (top) and steps of "The First Multi-species Symposium" *provotype* (bottom) with the activities and aims [19].

3.2 The Role of Narratives

Within a speculative and radical design process, the narratives may have multiple shapes and functions, depending on the aims of the project and which phase of the project is going to be addressed. In detail, three different roles of narratives have been defined

through the *provotype,* especially dealing with more-than-human agencies (Fig. 3): (i) inquiry tool; (ii) codesign tool; and (iii) provocative tool.

Fig. 3. The different roles of narratives within the speculative radical design, their possible uses, and involved processes of meaning creation: (i) as inquiry tool; (ii) as codesign tool; and (iii) as a provocative tool.

Narratives as an Inquiry Tool. The design process which led to the final *provotype* - The First Multispecies Symposium - emphasized in several steps the role of narratives as an explorative tool [20], enabling plausible futures to be hypothesized and new research questions to be framed, focusing on complex topics from different perspectives.

In the meta-design phase, pre-designed tools were used to develop the scenario named "The Rights of Nature Revolution". The construction of the scenario starts with facts that are actually happening in the present and is articulated through a fictional narrative that proceeds through imaginary and provocative but plausible facts. Furthermore, through meta-design narratives, it is possible to utterly foster the creation of social and technical infrastructures in which new forms of collaborative design can take place [21]. It can be stated that the meta-design phase helps the development of the next phase by generating the right environment for cooperation [21].

In this case, the definition of the narrative space - which represents, in turn, the starting point and premises for the *provotype* project, generating other narratives - implied the continuous questioning and formulation of new hypotheses and research questions with respect to the role of design and technology within the scenario, opening up new reflections to the researchers themselves, dismantling the boundaries that limit the capacity of thinking from a different perspective [20], less human-centric. In this perspective, storytelling can be considered a key mechanism to evoke creative and imaginative plotlines/narratives of radically transformed futures [22]. The process of verbal or visual translation itself [23] may produce side effects that change the researchers' behavior and research questions.

The macro-narrative constituted by the scenario thus gave rise to the research questions underlying the *provotype* project. "Posthumanist theorizing may prompt narrative inquiry into nonhuman agents", Wolgemut and Agosto state in Narrative Research [24]. Through the narrative dimension is, therefore, possible to detect new gaps by framing alternative presents or even future perspectives by detecting possible issues and questions related to the future.

Narratives as a Co-design Tool. Co-designing with the more-than-humans means (i) admitting their agency as a real-life project stakeholder, (ii) dialoguing with the natural

science world to comprehend the "perspectives" of the more-than-humans, (iii) empathetically including these perspectives into the project, and (iv) creating shared meaning. In this direction, narratives turn out to be a potential tool by which to foster new processes of multi- and inter-species collaboration.

A narrative space, which is composed of the story, the story-word, and the characters who inhabit and enrich it with their own values, thoughts, and actions, and especially a transmedia narrative space [25], is an imaginary world in which the audiences enter autonomously, spending a certain amount of time in the speculation and exploration of itself. Stories have, indeed, the power to activate changes and nurture the creation of a collective and shared imagination [25].

Narrative space and narrative are, as a result, continuously mediated in a process of co-creation of meaning involving all stakeholders. Thus, many storylines can coexist, inhabited by different characters and agents [26], both humans and non-humans. They configure and shape the relationship between individuals and the collective, between ingroups and outgroups, becoming tools to understand, negotiate, and make sense of situations we encounter [26]: if every narrative can be told from many perspectives (including more-than-human perspectives), and have popular and multispecies protagonists, which face different challenges, new practices of grassroots and more-than-human initiatives may emerge, tackling mainstream ways of living [26] and leading to the failure of the big narratives [27].

Therefore, designers, non-designers (normal people and science experts), and more-than-human agents can play a fundamental and meaningful role when co-designing for tackling recurrent routines and finding new meanings [26]. In particular, designers can provide tools to envision new scenarios, and mediate the relationships between the different stakeholders [27], while non-designers contribute both in mediating and reframing the sense and the meanings of the project with their own visions and beliefs and in providing tools to understand the more-than-human perspectives, thereby truly including those actors in the project.

Narratives as a Provocative Tool. Interacting and living in a post-human world also means striving for a radical paradigm shift from the current anthropocentric point of view of the world we live in [13]. For this reason, narratives may help in spreading reflections to a broader audience, aiming to disseminate the different more-than-human perspectives, trying to overcome existing biases [29]. At the same time, narrative spaces can also assume a provocative role for the audience, especially in the form of *provotypes*, because of the active reflection and speculation inherently required during the whole narrative experience. As a matter of fact, the audience is involved within the narrative space through the provocation, which is mediated by the narrative itself. This provocative process of meaning creation may be seen as a path experienced by the audience, resulting in a proper experience from their point of view. Therefore, reflections are the outcome of this provocative experiential process fostered by narrations. They can be seen as tools to tackle practical issues from more-than-human perspectives and give a post-human interpretation to common and mainstream daily scenarios [8, 10].

Provocations and reflections derived from the narrative experience can also lead the audience to further investigate these complex topics [26]. Therefore, narratives help

to raise awareness related to more-than-human perspectives, triggering further actions within the audience's own context. In this way, new interpretations of the different human and non-human agencies may emerge thanks to those provocations and reflections, becoming the critical lenses of the context we live in. As a result, provocative narratives may spark more in-depth reframing actions, fostering the paradigm shift toward post-human collaborative scenarios.

4 Conclusions

This contribution aimed to highlight three different roles of narratives that have been defined through the design of a *provotype*: (i) inquiry tool; (ii) codesign tool; and (iii) provocative tool, three functions that continuously contaminate each other without being mutually exclusive. The use of narratives, in this case, emphasizes the actual nature of the *provotype* as a tool to frame new questions rather than to provide well-defined answers, allowing a certain degree of uncertainty [1].

Provotypes may help in provoking people through different forms of narratives, fostering a shift in perspective from an anthropocentric to a more-than-human-centric vision, feeding the debate and collaboration amongst the different agencies.

As anticipated, the role of narratives was essential at all stages of the project, from the definition of the scenario to the *provotype* itself. At the end of this experience, by undertaking a retrospective reinterpretation that allowed us to systematize the research process, some issues emerged that design could tackle to help other fields facing the crisis we are living in. As the project fits into an area that inevitably overlaps with future studies, the question arises as to how and in what contexts design can take charge of actions useful to stimulate a radical change of perspective, contaminating decision-making and policy-making processes with tools that can help dismantle a human-centric (androcentric and west-centric) vision and all that it brings with it.

Acknowledgments. This research received no external funding. All co-authors equally contributed to the research and the drafting of the publication. All co-authors read and approved the final manuscript.

References

1. Boer, L., Donovan, J.: Provotypes for participatory innovation. In: Proceedings of the Designing Interactive Systems Conference, pp. 388–397. Association for Computing Machinery, New York (2012)
2. Mogensen, P.H.: Towards a provotyping approach in systems development. DAIMI Rep. Ser. **21**, 412 (1992). https://doi.org/10.7146/dpb.v21i412.6725
3. Halse, J., Boffi, L.: Design interventions as a form of inquiry. In: Smith, R.C., Vangkilde, K.T., Kjaersgaard, M.G., Otto, T., Halse, J., Binder, T. (eds.) Design Anthropological Futures, pp. 89–103 (2016)
4. Dunne, A., Raby, F.: Speculative Everything: Design, Fiction, and Social Dreaming. MIT Press, Cambridge, Massachusetts, London (2014)

5. Galloway, A., Caudwell, C.: Speculative design as research method. From answers to questions and "staying with the trouble." In: Coombs, G., mcNamara, A., Sade, G. (eds.) UnDesign: Critical Practices at the Intersection of Art and Design, pp. 85–97. Routledge (2018)
6. Blythe, M.: Research through design fiction: narrative in real and imaginary abstracts. In: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, pp. 703–712. Association for Computing Machinery, New York (2014)
7. Blythe, M.: Research fiction: storytelling, plot and design. In: Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems, pp. 5400–5411. Association for Computing Machinery, New York (2017)
8. Kozubaev, S., Elsden, C., Howell, N., et al.: Expanding modes of reflection in design futuring. In: Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems, pp. 1–15. Association for Computing Machinery, New York (2020)
9. Raptis, D., Jensen, R.H., Kjeldskov, J., Skov, M.B.: Aesthetic, functional and conceptual provocation in research through design. In: Proceedings of the 2017 Conference on Designing Interactive Systems, Edinburgh United Kingdom, pp. 29–41. ACM (2017)
10. Bina, O., Mateus, S., Pereira, L., Caffa, A.: The future imagined: exploring fiction as a means of reflecting on today's grand societal challenges and tomorrow's options. Futures **86**, 166–184 (2017). https://doi.org/10.1016/j.futures.2016.05.009
11. Light, A.: Collaborative speculation: anticipation, inclusion and designing counterfactual futures for appropriation. Futures **134**, 102855 (2021). https://doi.org/10.1016/j.futures.2021.102855
12. Gerber, A.: Participatory speculation: futures of public safety. In: Proceedings of the 15th Participatory Design Conference: Short Papers, Situated Actions, Workshops and Tutorial - Volume 2, pp. 1–4. Association for Computing Machinery, New York (2018)
13. de la Cadena, M., Blaser, M.: A World of Many Worlds. Duke University Press Books (2018)
14. Escobar, A.: Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds. Duke University Press, Durham (2018)
15. Boer, L.: Participatory provocation? In: Proceedings of the 1st Participatory Innovation Conference, pp. 21–26 (2011)
16. Bruun, A., Jensen, R.H., Kjeldskov, J., et al.: Exploring the non-use of mobile devices in families through provocative design. In: Proceedings of the 2020 ACM Designing Interactive Systems Conference, pp. 813–826. Association for Computing Machinery, New York (2020)
17. Elsden, C., Chatting, D., Durrant, A.C., et al.: On speculative enactments. In: Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems, pp. 5386–5399. Association for Computing Machinery, New York (2017)
18. Rozendaal, M.C., Heidingsfelder, M.L., Kupper, F.: Exploring embodied speculation in participatory design and innovation. In: Proceedings of the 14th Participatory Design Conference: Short Papers, Interactive Exhibitions, Workshops - Volume 2, pp. 100–102. Association for Computing Machinery, New York (2016)
19. Romani, A., Casnati, F., Ianniello, A.: Codesign with more-than-humans: toward a meta co-design tool for human-non-human collaborations. Eur. J. Futures Res. **10**, 17 (2022). https://doi.org/10.1186/s40309-022-00205-7
20. Hendry, P.M.: Narrative as inquiry. J. Educ. Res. **103**, 72–80 (2009). https://doi.org/10.1080/00220670903323354
21. Giaccardi, E., Fischer, G.: Creativity and evolution: a metadesign perspective. Digit. Creat. **19**, 19–32 (2008). https://doi.org/10.1080/14626260701847456
22. Dowsett, R.M., Green, M.S., Harty, C.F.: Speculation beyond technology: building scenarios through storytelling. Build. Cities **3**, 534–553 (2022). https://doi.org/10.5334/bc.213
23. Heylighen, A., Martin, W.M.: Accidental resource. A fable of design research through storytelling. In: Studying Designers '05. Key Centre of Design Computing and Cognition, University of Sydney, pp. 343–349 (2005)

24. Wolgemuth, J.R., Agosto, V.: Narrative research. In: The Blackwell Encyclopedia of Sociology, pp. 1–3. Wiley, New York (2019)
25. Ciancia, M.: Storytelling & worldmaking: the world-building activity as a design practice. In: Bertolotti, E., Daam, H., Piredda, F., Tassinari ,V. (eds.) Pearl Diver: The Designer as Storytellers, pp. 72–76 (2016)
26. Piredda, F., Ciancia, M.: Challenging hegemonic narratives: power of story-based design strategies in activating sustainable social change. In: Transmedia Change: Pedagogy and Practice for Socially-Concerned Transmedia Stories, pp. 76–91. Routledge (2022)
27. Graef, J., da Silva, R., Lemay-Hebert, N.: Narrative, political violence, and social change. Stud. Conflict Terror. **43**, 431–443 (2020). https://doi.org/10.1080/1057610X.2018.1452701
28. Tassinari, V., Piredda, F., Bertolotti, E.: Storytelling in design for social innovation and politics: a reading through the lenses of Hannah Arendt. Des. J. **20**, S3486–S3495 (2017). https://doi.org/10.1080/14606925.2017.1352852
29. Heyer, J., Raveendranath, N.K., Reda, K.: Pushing the (visual) narrative: the effects of prior knowledge elicitation in provocative topics. In: Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems, pp. 1–14. Association for Computing Machinery, New York (2020)

Designer as Drama Manager: Understanding the Roles of Narrative Within Design Processes for Change

Mariana Ciancia(✉), Francesca Piredda(✉), and Maresa Bertolo(✉)

Department of Design, Politecnico di Milano, Milan, Italy
{mariana.ciancia,francesca.piredda,maresa.bertolo}@polimi.it

Abstract. This paper aims to propose and stimulate a critical debate on the multidisciplinary aspects of communication design, focusing on the contribution, mutual learning, and synergy of audiovisual storytelling, transmedia design, and game design. We assume the narratives as the common ground for developing design processes and practices for addressing complex socio-economic challenges.

In particular, we focus on the role of design within inclusive and co-design processes proposing the narratives as a framework and the co-created stories as both contemporary cultural expressions and design practices. In light of case studies and examples from our research and educational experiences at the School of Design and Department of Design (Politecnico di Milano), we propose to look at the designer as the drama manager of the design processes, capable of facing the challenges of tomorrow. In doing so, we discuss the gap between authorship and agency that occurs whenever design operates in social innovation contexts, collaborating with non-designers – artists, experts in other disciplines, or people and communities at the margins of society.

Keywords: narrative · narrative change · audiovisual storytelling · transmedia design · game design

1 Narrative Perspective on Design: An Introduction

Our world is facing a historic challenge. The meaning of "well-being" changed from an idea of development primarily based on mass production and consumption to one of micro and diffuse innovative solutions for sustainable developments for human beings and environments. This assumption makes us change the perspective through which

This contribution is the result of collective work. For academic purposes, we note Mariana Ciancia, Francesca Piredda, and Maresa Bertolo are joint authors of the concluding paragraph.
Mariana Ciancia is the author of the following paragraphs: 1. Narrative Perspective on Design: an Introduction; and 2.1 Authorship: @growingstories_Milan;
Francesca Piredda is the author of the paragraph: 2.2 Agency: campUS Social TV
Maresa Bertolo is the author of the paragraphs: 2. The Role of Narrative within Design Processes; and 2.3 Authorship/Agency Hybrid: MyBrother.

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 756–764, 2024.
https://doi.org/10.1007/978-3-031-49811-4_72

we look at the design and co-design processes and propose a way to improve the connection between experiential knowledge and academic expertise. From the perspective of researchers in communication design, we assume narrative practice as the common ground for developing design processes aiming to address complex socio-economic challenges.

Understanding the roles of narrative within design processes for change is the main focus of our research group, Imagis Lab. It is a collaborative and interdisciplinary design research lab located at the Department of Design, Politecnico di Milano; it is focused on building brands, stories, and experiences. Research and education are strongly integrated into hands-on and in-field activities that build creative content, communication strategies, play and interactive narrative experience for branding and social innovation, with attention to stimulating and fostering personal and social change. Our approach merges design tools and skills in audio-visual language, participatory communication, design strategies, branding as identity development, games, and transmedia practice. Moreover, our work starts from the idea that narrative can empower design activity and overcome the dependency on hegemonic discursive practices.

Since the start of humanity, the narrative has acted as the primary means of interacting with others, giving future generations a legacy, building a culture, and providing the method by which we make sense of our collective experiences. Different fields of investigation – including literature, art, psychology, cognitive sciences, pedagogy, marketing, and communication – have examined the narrative as a complex and articulated subject. Indeed, scholars and innovative thinkers have studied and inquired about the subjects of narrative and storytelling throughout the decades, underscoring how stories have the potential to communicate, engage people effectively, and impact in real and practical ways both real-life and socially concerned topics.

What emerged is the notion that narrative can contribute to the construction of reality [1], give form to imaginary worlds [2, 3], represent immaterial ideas, and share common visions [4–6].

Within these extensive references, the reflections of two scholars were vital to define the narrative vocation of design and our research and design approach. The first is Fischer's [7] concept of the "narrative paradigm", according to which people can be recognized as storytellers, and all forms of human communication can be assessed from the narrative perspective. Then, at the end of the 20th century, the concept of narrativity was adopted by Marie Laure Ryan [8], as other scholars had done [9, 10], to refer to the ability of media text to be perceived as a narrative construction in the audience's mind. Both Fisher [7] and Ryan [8, 11, 12] examined narrative in terms of practices that might impact society, emphasising the significance of narration and the manners whereby stories can inspire change.

In light of such premises, we assume narratives are the common ground for developing design processes and practices addressing complex socio-economic challenges and promoting narrative change. From the communication design perspective, this means addressing two issues: 1) the role of narrative within design processes; 2) the power of narrative change, that is the process of building and promoting story-based content and the construction of collective imagination, challenging hegemonic narratives, and driving social change.

2 The Role of Narrative Within Design Processes

The involvement of users in the collective process of story and experience creation should be based on a design process capable of understanding the experiences narratives can induce. Two concepts of crucial relevance act as focal points for effectively describing, analysing, and designing such involvement: Authorship and Agency. Well-known in interactive storytelling and game design fields, the Authorship-Agency pair can benefit and support the design discipline in general as well.

Within the narrative field, *Authorship* refers to compositions in which a knowledgeable author creates the story, acting as a warrant for its quality in terms of content, plot, structure, and all its formal narrative elements. Users – be they readers, listeners, or viewers – live an experience in which quality is directly dependent on the author's talent. The involvement can be considerable, and users can sense a feeling of belonging, imagining themselves in the story, but – despite their possible yearning – they have no power to change the unfolding story, interact with it, or affect its development.

Contrarily, when users are invited and engaged in shaping the story and creatively acting during the experience, they practise their *Agency*. The quality of the resulting story may decrease since amateur authors would create it, often due to activities mainly absorbing their attention.

According to this overview, we can state that while Authorship safeguards the quality of a story, Agency fosters engagement in the experience; the two are seemingly opposite poles, but they can cooperate and intermix.

In a time when co-design processes are capable of improving people's and communities' involvement in creating innovative solutions, design and co-design could, and should, consider the Authorship-Agency pair in their practice. In order to facilitate spreading awareness of these concepts among designers, we propose a selection of case studies from our research and educational experiences, aiming to depict Authorship and Agency from a design perspective.

2.1 Authorship: @growingstories_Milan

On the authorship side are naturally placed the experiences of reading, listening, or watching stories in which the quality varies depending on several factors, among which the author's expertise and talent are critical.

Examples of this category are the projects developed during the course *Complex Artefacts and System Design Studio* for the School of Design, Politecnico di Milano [13]. In this course students are pushed to experiment with their authorship in the design, development, and testing of interactive narrative artefacts. The course has been active since the 2015/2016 academic year (AY), and the AY 2017/2018 edition saw a collaboration between *Asnada* – an association that provides training in the Italian language for refugees, migrants, and minors in Milan – and Italian and international students from the School of Design, Politecnico di Milano. During the course, the personal stories of migrants participating in Asnada's activities became rough creative material to tell the dreams, hopes, and fears of those who left a familiar place to move to Italy. Specifically, we challenged our students to create interactive narrative artefacts, starting from the miniatures made in 2012 during "179 Places: Geographies of Migration and Roots", a

workshop-exhibition held in Milan and curated by Asnada and the architect Giacomo Borella (Studio Albori).

These materials denoted by important emotional significance were first translated into storyworlds starting from their values, then developed by the design students as interactive narrative artefacts rooted in Milan. Among these projects, we would like to describe *@growingstories_Milan*, a distributed narrative consisting of an Instagram profile containing the main narrative line, then connected to several situated activities, aiming at leading the targeted audience to specific places in the city of Milan. The students (Chiara Barzaghi, Susanna Berra, Felipe Castro, Barbara Gualandris, Jiarui Huang, Yi Wang, and Selen Yesilada) were organised in a multidisciplinary and international team to work on one of the stories developed during the workshop-exhibition mentioned above.

The short story selected was set in Takwu, a village in northern Nigeria, from which they derived values that were the starting point for designing a new storyworld: community, identity, home, shelter, and nature. They identified values that are universal and shared by other social groups. In this specific case, they focused on people who temporarily or permanently have to move to a foreign country and recreate a community of reference in a foreign place. With this aim, @growingstories_Milan was born, a project that consists of a single Instagram profile that presents a story through 17 chapters, each following the classical three-act structure and expressed in different narrative forms (spanning visual to audio-visual content). Specifically, seven visual novels, three textual carousels, three videos, four comics, and an HTML5 website with extra content were designed and developed, allowing the user to deepen the story and enter additional narrative lines. Moreover, leveraging the specific features of the Instagram profile, five geotags were hidden across the chapters, pushing people to go outside and discover five real places in the city of Milan.

2.2 Agency: campUS Social TV

When users are allowed freedom regarding the events in the story, expressing their agency, experiences are characterised by high levels of creative pleasure and a feeling of meaningfulness directly derived from making choices and taking action.

One such agency-centric project is *campUS Social TV*. It is one of the three core pillars of the *campUS* project, co-funded by the Polisocial Award 2016, the social engagement and responsibility programme promoted by Politecnico di Milano and awarded the ADI Compasso d'Oro in 2017.

campUS Social TV was developed in collaboration with Abelia CAG, a youth centre in a northern suburb of Milan. The project brought together social groups of youth on the margins of society, such as ones not in employment, education, or training (NEET) and teens at risk of dropping out of school. The first output of the Social TV activities was the videoclip "Classe 98," a rap song written and recorded by two young men with the help of educators at *Abelia Music Records*. Starting from the rap song they wrote and recorded, we researchers, educators from Abelia, and a group of young people focused on highlighting meaningful words and images, designed the storyboard, identified locations, shot video around the city, and edited the video [14]. Designers acted as mediators, on the one hand providing creative tools and technical skills and on the other eliciting

self-narration and trust. The young people took agency in making creative choices regarding storytelling and expressive languages. Asking them questions, taking time to talk together and gaining their trust, we had the chance to listen to their thoughts, discover their imagery of reference, and make some of their desires come true. For example, we discovered they did not know some locations in the city centre, so we decided to move there for video shoots. They were particularly engaged and interested in visiting the city, looking around with new eyes and feeling they were the main protagonists of the scene. After the shoots, sequences and frames from the videos were used as the background images for creating self-portraits, as the result of adding further expressive layers to the pictures and providing the design of the videoclip with an original, even if vernacular, treatment and style.

We presented the video during a public event, and the young musicians performed their song live after the screening. It was also distributed on Facebook and, even if it did not garner many views or shares, became a key part of the participants' satisfaction. Their agency was the best result we achieved, so we can say that such a narrative-based co-design process was valuable to be shared and replicated.

2.3 Authorship/Agency Hybrid: MyBrother

Authorship and Agency are not two distinct, mutually-exclusive approaches: It is possible to let them meet and intertwine in a mingling that yields interesting results for designers.

Examples of cases where Authorship and Agency meet are frequent among games. Game design has constantly been evolving during the last decades, raising the awareness that it should value the player's perspective or experience. Players have a significant role in games: They make the play experience happen when they interact with the game. Scholars agree that Agency is an essential part of the play experience [15–18]. Players need to feel they can make choices and that their actions result in meaningful effects throughout the experience. Looking at this process from the communication design point of view, games are carefully and skilfully designed artefacts: they have Authorship. At the same time, the experience they can create is active, and their users make choices and express Agency.

When narrative and game meet, a new Authorship-Agency combination emerges. Stories can be present in games in different ways. They can be told during the game, or, as recent design research and cases show, they can be written and treated to mingle with the game deeply. Stories can be split into sub-stories, told by game characters, or found written in game material. Players can infer them by watching the environment and interacting with elements so that stories become "pre-generated narrative content that exists prior to a user's interaction with the artefact and that is fixed and predetermined" [18] and, as such, is Authorship-centric. In this kind of games, Agency emerges in finding, recognising, and giving those elements meaning. Moreover, the description of gameplay actions is a story in itself. It is characterised by Authorship, in the form of the game story – if any –, the game system, and its mechanics, which can be seen as a semiotics matrix [19] and is characterised by Agency in the form of the whole of players' actions.

The case we propose is a game where Authorship and Agency combine themselves not only on the design-and-experience level but also under a narrative aspect. *My Brother*

is a collaborative boardgame designed by Irene Nappi in 2015 in her Master's Degree thesis – supervision of M. Bertolo and I. Mariani – and then published by Demoelà.

The design of the game started from a novel [20] depicting the life of a boy suffering from schizophrenia and his family. The project aims to inform players about the main traits of this illness and about good practices and actions to take in case of someone having a schizophrenic attack. The original story (narrative Authorship) has been treated, simplified, and decomposed (design Authorship) to build a series of game events and sets-of-actions from which each player can choose. During gameplay, events happen, and players decide how to face them (play Agency). The overall experience differs from play to play, so each session results in a new story (narrative Agency) co-created by players according to the narrative world and its rules.

3 Conclusions: Designer as Drama Manager

Since we began, our research and teaching activities have focused on the role of design within inclusive and co-design processes proposing the narratives as a framework and the co-creation of stories as both contemporary cultural expressions and design practices. In doing so, a leading challenge emerged: How is it possible to funnel the potentialities of narrative in driving the change in a context in which people are not only reading but also writing, re-writing, and sharing their own stories, undermining the classical notions of authority and authorship?

Analysing the in-field research activities and the design projects developed over the years by our group and our design students, common traits and differences emerged. From the point of view of the use of narrative, all of the projects (analogue, digital, or hybrid) have prototyped narrative as a driving force to build identity and engagement processes, emotional connection and feeling of unity of purpose, and to drive social change. On the contrary, the main divergence emerged in analysing the user's relationship with the narrative artefacts, characterised by a shift between the Agency and Authorship of storytelling practice.

As a result, we conceptualised communication design as the strategic asset where narrative can be used to manage the aesthetic power of social practices. Specifically, we envisioned a world in which the aesthetic power and the building of shared imagery of a sustainable future stem from people's narrative experiences, authored by designers (characterised by Authorship) and co-designed with non-designers (characterised by Agency) able to unlock the dispersion of new meanings and contemporary cultural expression.

To reflect on the role of narrative within design processes, we then propose a diagram entitled the *Transformative Narratives Matrix* on which we placed coordinates related to Authorship and Agency and their relationship to designers and non-designers to identify clusters related to narrative experiences (see Fig. 1):

As a result, we obtained four quadrants that identify different clusters of narrative content:

- **Story-led**: This quadrant includes projects in which the designer is the primary author of stories. Examples are the traditional non-interactive works and the ones in which the designers strictly manage the mechanics of interaction to ensure the consistency

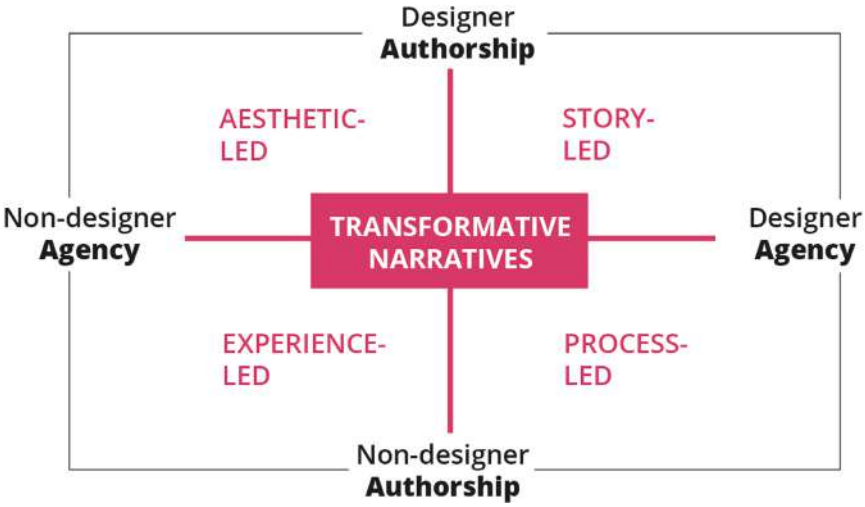

Fig. 1. The Transformative Narratives Matrix

of the story throughout the experience. The choices are limited and predetermined by the author, as in *Black Mirror: Bandersnatch* (David Slade 2018);

- **Aesthetic-led**: This quadrant includes narratives in which the designer's authorship and the participant's agency are concurrent. The result is a narrative experience in which the story's unfolding can be compromised by the arbitrariness of the user's choices, but which the rules established by the author nevertheless limit. Examples are the open, virtual worlds in video games in which the gaming experience is tied to the possibility of experiencing the narrative adventure in ways and at times chosen by the user but still constrained by the game's code;
- **Experience-led**: This quadrant includes narrative experiences characterised by high participant agency and low designer authorship. One example is live-action role-playing games (LARPs), immersive experiences that let players interact with the developed storyworld, acting and dressing up as characters while adhering to pre-established rules;
- **Process-led**: In these narrative systems, the designers develop storytelling processes and tools as in-field participatory activities that allow people to build a narrative world while telling their own personal or fictional stories or while experiencing and playing the story. One example is digital storytelling projects in which the narrative output designed and implemented by users is not as crucial as the lived experience.

During the analysis, some recurrences in the design of the narrative experiences emerged:

1. The tension between Authorship and Agency is present in all the narrative-based projects we worked on, but at different moments and on both story and design levels;
2. The experimentation of Process-led storytelling processes in the project characterised by Agency gives way to language experimentation (Aesthetic-led) in the design of narrative content based on a high level of authorial production;

3. In designing narrative content beyond the community of reference in which the participatory process was activated, authorship increases, and agency decreases.

In light of such reflections, we can affirm that in storytelling systems, the designer's role as a vision-keeping storyteller and the role of participants are tightly intertwined [21]. The designer can be the author but also the creator of frameworks, structures, and narrative processes, opening the story to a choral, communal experience, wherein the audience is provided with appropriate enactments/drama and empowered to unfold the story or create their narrative [21].

Given that, we can recognize the vital role played by narratives within design processes. Thus, we propose the communication designer as the *Drama Manager*, able to balance the use of Authorship and Agency within projects to promote a narrative change.

References

1. Bruner, J.: The narrative construction of reality. Crit. Inq. **18**, 1–21 (1991). https://doi.org/10.1086/448619
2. Bell, A., Ryan, M.-L.: Possible Worlds Theory and Contemporary Narratology. Univ of Nebraska Pr. Lincoln , London (2019)
3. Wolf, M.J.P.: Building Imaginary Worlds: The Theory and History of Subcreation. Routledge (2012)
4. Couldry, N.: Digital storytelling, media research and democracy: conceptual choices and alternative futures. In: Lundby, K. (ed.) Digital Storytelling, Mediatized Stories: Self-representations in New Media, pp. 41–60. Peter Lang (2008)
5. Harari, Y.N.: Sapiens. Da animali a dèi. Breve storia dell'umanità. Bompiani, Milano (2017)
6. Lambert, J., Hessler, B.: Digital Storytelling: Capturing Lives, Creating Community. Routledge (2018)
7. Fisher, W.R.: Human Communication as Narration: Toward a Philosophy of Reason, Value, and Action. University of South Carolina Press, Columbia, SC (1989)
8. Ryan, M.-L.: The modes of narrativity and their visual metaphors. Style **26**, 368–387 (1992)
9. Sternberg, M.: Expositional Modes and Temporal Ordering in Fiction. Johns Hopkins University Press (1978)
10. Sturgess, P.J.M.: Narrativity: Theory and Practice. Clarendon Press, Oxford England, New York (1992)
11. Ryan, M.-L.: Semantics, pragmatics, and narrativity: a response to David Rudrum. Narrative **14**, 188–196 (2006)
12. Ryan, M.-L.: Toward a definition of narrative. In: Herman, D. (ed.) The Cambridge Companion to Narrative, pp. 22–35. Cambridge University Press, Cambridge (2007)
13. Mariani, I., Ciancia, M.: Building interactive narratives: characters, stories and in-betweens. experimentations and critique. In: EDULEARN19 Proceedings, Palma, Mallorca, Spain, pp. 6844–6853. IATED (2019). https://doi.org/10.21125/edulearn.2019.1643
14. Bertolotti, E.: Practicing languages: designing tools and techniques for self-representation and self-reflection. In: Fassi, D., Landoni, P., Piredda, F., Salvadeo, P. (eds.) Universities as Drivers of Social Innovation. Research for Development, pp. 209–219. Springer, Cham (2020). https://doi.org/10.1007/978-3-030-31117-9_14
15. Aarseth, E.J.: Cybertext: Perspectives on Ergodic Literature. Johns Hopkins Univ Pr., Baltimore, Md (1997)
16. Arnaudo, M.: Storytelling in the Modern Board Game: Narrative Trends from the Late 1960s to Today. McFarland & Company, Jefferson, North Carolina (2018)

17. Crawford, C.: Chris Crawford on Interactive Storytelling. New Riders Pub, Berkeley, Calif. (2012)
18. Zimmerman, E., Salen, K.: Rules of Play: Game Design Fundamentals. The MIT Press, Cambridge (2003)
19. Ferri, G.: Gioco e narrazione. In: Bertolo, M., Mariani, I. (eds.) Game Design. Gioco e giocare tra teoria e progetto, pp. 113–126. Pearson, Torino (2004)
20. Hyland, B.: The Girl With the Crazy Brother. Xlibris Corp., Philadelphia, Pa (2002)
21. Tuomola, M.: "Lumi": a monologue for dialogue: miniature portrait of storytelling in social design. In: Bertolotti, E., Daam, H., Piredda, F., Tassinari, V. (eds.) The Pearl Diver. The Designer as Storyteller, pp. 22–27. DESIS Network, Dipartimento di Design, Politecnico di Milano (2016)

Interaction and Verisimilitude. How Narration Can Foster the Design Process

Andrea Di Salvo(✉)

DAD Department of Architecture and Design, Politecnico di Torino, Turin, Italy
andrea.disalvo@polito.it

Abstract. The role of narrative in the construction of an interaction design project is relevant since the very beginning of the discipline, when scholars in the 1990s pointed out how the whole dialogue between human and computer was developed like a theater work. Actually, the use of narrative was, and still is, focused on the unfolding of the user experience with a product/service, following the story arc and using analysis and prediction tools like journey maps. If this approach corresponds to the state of the art for many scholars and practitioners, there is a large debate on in the process that involves storytelling techniques, especially during the concept generation and the branching of the interactions between people and artifacts' system. In particular, design fiction and speculative design give a strong relevance to the creation not only of a story line but, above all, of the world building, where people and artifacts interacts inside a sketched out future scenario, letting the audience free to speculate, for example, on impacts on the society, ethical issues, acceptance levels.

In this situation the narrative approach can be included into the interaction design process during all the phases, in order to foster designers to generate future-able artifacts strictly connected to Personas depicted as they were characters, placed in verisimilitude-based worlds.

The paper will describe the results of this methodological experimentation focusing on the differences occurred to two different projects: basic research, research for a company.

Keywords: Interaction Design · Narration · Design Fiction · Process

1 Introduction

Narration is often used in communication design for products/services/events or more. It is a consolidated practice, which often takes the name of storytelling, although narration and storytelling are not perfectly coincident [1, 2]. The process is effective, however, it is necessary to add one or more story lines to the functional one, for example, to reach more emotional [3], visceral and reflective [4] aspects. Even if Norman refers to the aspects of the product itself, and consequently to the interaction. In addition to communication, for many years products and artifacts have been conceived as: tangible narrations [5], speech-objects [6], words [7], narrative objects [8], storytelling [9] or activators of conversations [4]. In this rich panorama the visions on the relation between

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 765–772, 2024.
https://doi.org/10.1007/978-3-031-49811-4_73

design and narration often do not converge. The just mentioned articles, however, have a subtle common line because they describe design as a discipline that deals with designed objects that will be enriched by the dialogue with those who will buy, use and keep them [10]. The narration, in this case, seems to extend the temporal dimension of the project thanks to the users. In the last decade, moreover, the practice of adopting an approach based on design fiction [11, 12], or speculative design [13], made inroads to explore the fields of Human Computer Interaction (HCI) and of future-able interactive artifacts. The goal of these approaches is to create a broader debate, involving large sections of the population to critically reflect on the possible future implications of the adoption, or massive use, of pervasive technologies, with the aim of stimulating reflections. Design thus becomes a trigger to activate critical thinking regarding the political and social impacts of technologies [14–16] and, among many other examples, for exploring the relationship between humans and interactive artifacts within the future cities of things [17]. Narrative objects, communication through narration and design fiction therefore seem to suggest a considerable closeness, if not an overlapping, between narration and design, but trying to use a peculiar technique of design fiction, what would happen if the entire construction process of an interaction design (IxD) project was it focused on narration? The paper describes the results of a methodological experimentation that grows since 2018.

2 Related Works

The connection between the interaction project and the narration is a concept that has illustrious precedents [18] and following experimentations [19]. In fact, involving media and arts helps to interpret the relations between human beings and technology within a scenic space in which enactments could happen [20]. Theater's stage allows to create "imaginary worlds that have a special relationship to reality" [18], simulating experiences using forms of narration. Moreover, in the cinematic arts and in design fiction [19], the crux is the scenic representation in which interaction, object and character get in touch within: a described and represented context and a defined story line. It is no coincidence that an increasing number of scientific articles refer to crucial films as cultural references, ranging from Minority Report to Black Mirror. Other examples of contact points are: in poetry and novel, in which fiction acts "as a method to complicate the commonplace narratives of data as intangible and objective" [21]; in games [22]; in new technological applications like VR [23]; but especially in the creation of videos and films [24, 25], designed as the prototype of a design fiction in which show or hide [26] artifacts and interactions. All these examples come from the intersection from HCI, IxD and design fiction, however some of the major exponents of design fiction operate a reflection on the importance, or denial, of narration. On the one hand, Blythe highlights the need to create a narrative structure that works as a layer superimposed on reality, "extrapolating the facts, and extending them into a plausible fiction" to activate the third level: provocation [27]. The author even goes so far as to identify some of the characteristic plots used in the HCI, in the design fiction, in scientific abstract and researches, by referring to the main plots [28]. On the other hand, Coulton and Lindley strongly deny these aspects, declaring that design fiction must remain a world building activity [29] in which fantasy

prototypes can be inserted into plausible worlds influenced by both aspects, utopian or dystopian [30]. Coulton insists on this concept, sourcing on Barthes's thought, by declaring the importance of "the creation of rhetoric within a world rather than through a story, [it] allows those interacting with the world to explore the rhetoric of that world rather than being forced down a prescribed path" [31]. The two distinctive components of narration and world building prove to be crucial in both design fiction and IxD precisely because of the diegetic prototypes and the interactive projects to realize, no matter the format they have. The staging and therefore the representation of the interaction cannot be separated from an underlying narrative structure, or at least from its logic and rules. The video editing itself follows or denies precise narrative logics.

3 Narrative in the Process

Although the narration, or its elements and structure, can spread into the single process steps such as Personas [32], Journey Maps [33], Scenarios [34], and guidelines appear to adopt style [35] and modes [36] to characterize a project output, the indications on the process to follow are divergent. If on the one hand IxD relies on the design fiction approach for the narrative aspects, this does not happen on the contrary. This happens because design fiction is still relatively young and without widely shared methods. In fact, the term *narrative* frequently appears in the literature related to HCI and IxD, but it had a significant increase in use especially after the introduction of design fiction and speculative design. Consequently, the author conducted an analysis of 110 sourced papers and articles published over the past 10 years on ACM Library, using the keywords *narrative*, *narration*, *design fiction*, and *interaction design* as queries. The analysis shows:

- the narrative aspects emerge from the choice of design outputs. In fact, there are many projects and researches that include the creation of videos and short films; but there are also theatrical and literary experiments proposing short stories, pamphlets or materials in which writing/narration is the founding component;
- the narration in the process is usually associated with the creation of Personas, referring precisely to Cooper's [32] and its "fictional details". In some cases, to better integrate Personas into the videos, characters deriving from film are adopted, in order to make them more plausible on a cinematographic level;
- writers and storytellers are sometimes involved in the process. The fact that they become part of the research and work team is fundamental for an undisciplined [37] approach, however their work seems to be at least isolated from the rest of the team during writing.

There are few publications (about 10) that focus on the narrative process highlighting:

- the steps of design fiction (collect faint signals, select an archetype, present stimulus materials, extrapolate from signals, identify the "what if", know your tropes, design workshop, make the thing!, disseminate) [37];
- at a high level, the interrelations between different categories of design fiction research [38];

- a method toolbox for Design Fiction (creation and construction of possible future worlds; materializing those possible future worlds; plurality of different perspectives and approaches; representing, visualizing, documenting the experimentation processes; experimentation as being generated through an experimental system) [39];
- a pipeline for design fiction film-making through workshops (introduction; envisioning utopian and dystopian Futures; ideation and collaborative design fictions; report out) [40];
- creating a theater work of critical design fiction (sensitizing with technology, sensitizing with topic, ideation, critical analysis, design and prototyping, theater but because here it was a choice, reflection and evaluation) [41].

In all of this it is not clear how a narrative structure underlies all the crucial steps of IxD.

4 Towards the Narrative Approach

The process of IxD on which this research is based touches seven fundamental points: scenario, case studies, Personas, concept, journey map, design of the interface system and tests. In these years of experimentation, each of these phases has been increasingly shifted towards a narrative vision. In this case, scenario is radically different from the HCI scenarios, in which a Persona tries to achieve a goal within a scenario, the term in this case resembles context. The narrative scenario tries to create a critical mass of heterogeneous material, also drawing on cinema, TV series, visual and performing arts, photography and everything that is able to create divergent connections, in which the interaction strongly emerges, not necessarily mediated by digital devices. It is a crucial moment to get out of the tight dynamics of problem solving, to get closer to a more visionary and future-able approach. In the analysis phase of the case studies, the narrative scenario is analyzed in depth to better understand how, for example in cinema or art, the interaction is shown and interpreted through props, gestures, interfaces designed in the smallest details. Narrative scenario and case studies do not deny the usual practice of related works and benchmarking, on the contrary they integrate them, but are concerned with extending them with ever wider circles around the core of the research, to find not only divergent insights from neighboring worlds, but also to sift through the reactions people feel when faced with new artifacts. In fact, many disciplines, such as service robotics, already refer to fiction to evaluate the possible acceptance rate of a new technology. Other characteristic and now historicized examples obviously refer to 2001: A space odyssey, Matrix, HER and many others analyzed in detail in the work of Shedroff [42]. Then, Personas reach the dimension of the character-Persona. The construction of a character, understood as a process, has many points of contact with a qualitative user research. In fact, the writing process stimulates writers to observe and catalog the same physiological, sociological and psychological aspects [43] that an interaction designer has to analyze and collect in patterns. If for a writer the output coincides with a character for a novel or fiction, in the IxD the Personas can succeed in denying stereotypes to represent strongly characterized archetypes, exploiting the narration and visualization of the collected data. The concept phase is configured as an output in the drafting of a real story-concept. A short sentence of 25–30 words in the form of question able to

build the core of the interaction-narration. In this case, the adoption of what if typical of design fiction is perfectly coincident. However, the concept generation phase itself makes use of techniques that can stimulate the creation of narratives. For many years, in fact, the increasingly in-depth role of creative techniques [44] has emerged, grouped in conceptual techniques and creative elicitation exercises. These try to structure a defined process for established modalities such as brainstorming, they include design fiction in both categories; but above all, they insert techniques derived from other fields, such as theater, when describing bodystorming, or role-playing in the wild cards case. The what if thus constructed is configured in an open, narrative way, capable of triggering multiple project and research outputs. Journey maps are in themselves already narrative oriented, precisely because they graphically represent a succession of cause-effect events in which emotions, devices, pain points, opportunities, and much more are highlighted. Authors such as Lichaw [33] clearly show how the journey follows the development arc of a narration in its characteristic 3 acts which include: exposition; inciting incident/problem; rising action; crisis; climax/resolution. If we add to this scheme that the Personas are characters and that the concept is an open story-concept, it is clearly understandable how to fully use the techniques of narration in this design phase. The phase of the interface system design is still influenced by the narration because it should strive to maintain the intertwining textures generated so far. Each Persona-character will have a personal journey and the different interaction textures will have common touchpoints. In this text the test phase refers to the research carried out with the actors of the project to get feedbacks on the value of the followed approach.

5 Results

This section will show how the narrative approach was used especially in the concept generation and interface system construction parts, taking two specific cases as an example: basic research, research for a company. As far as basic research is concerned, the experimentation was carried out in collaboration with a group of theatrical actors with whom workshops were held to co-design stand-alone voice interaction and later on-board vocal assistant for an autonomous driving car. Researchers and actors tried to define the behavior of the interface as if it were a theatrical character, with the aim of writing a plot of human-interface behaviors in which a possible emotion detected on the user, or in correspondence with a specific use case, had to correspond not only to an encoding relating to the language (for example, the choice of words and the length of the sentence), but also to the interpretation of the line. The result was then inserted into a demonstration video, in which a panel of users was shown how the interface reacted both with a synthetic voice and an actor's voice. The actors immediately called this concept "playing the machina" precisely because, while interpreting a sort of advanced artificial intelligence, one of the goals was to make it clear that the vocal interface was still different from a human voice, albeit similar and expressive. Such an approach allowed the research team to create a sort of drama in which the Personas-characters interacted with character interfaces within predefined use cases. From the point of view of the narration, the construction of the identity of the characters' interfaces was therefore very impactful, both from the point of view of the behaviors to be adopted and the writing of the

lines. With regard to the research in collaboration with a company, the project focused on proposing new interaction concepts for an informative-educational exhibition on the topic of sustainability. In this case, of particular interest was the part of the concept generation where the Dixit game cards were used, in particular its Journey expansion. It is a deck of 84 cards illustrated with mostly dreamlike characters and contexts, the game is based on the free mental association between illustration and thought. Other possible design-oriented examples should be cited like the Intùiti creative cards [45] or the cards set developed by Near Future Lab [46]. However, the choice of the Dixit Journey cards had a specific purpose: to free the mind of the working group from the technicalities and the huge quantity of technologies founded in the analysis of the case studies, in order to focus on the interaction-narrative combination. Each component of the team could choose a maximum of 5 cards that fostered his/her concept and then write at least 3 story-concepts. The obtained story-concepts highlighted: the scenic environment to be recreated (a micro world-building), the peculiar interaction to be designed (the action of digging, separating, connecting, etc.) and the fundamental plot in a nutshell (often coinciding with the search, but also with many specific traits such as the battle with an enemy). The use of cards with a strong narrative and evocative potential has, in fact, greatly enhanced the phase of concept by imposing a narrative vision on the narrative even before reaching the journey maps.

6 Conclusions

At the conclusion of the two projects described above, the research team conducted a qualitative survey with the involved stakeholders to understand if there were any notable differences compared to the usual approach. On the one hand, the research team praised the possibility of wandering more during the concept phase, imagining new interactions in an almost cinematic way, without too many constraints related to retracing technological scenarios and current trends; on the other hand, it underlined the risk of slipping out of the margins of design fiction, transforming everything into science-fiction. For its part, the company found the continuous use of narration very engaging, although during the presentations they had doubts about the actual feasibility of the entire process in that form. The process from now on needs to be deepened in some of its techniques, especially in the last part that remains to be experimented: design hands on and prototyping.

References

1. Genette, G.: Figure III. Discorso del racconto. Einaudi, Torino (2006)
2. Baricco, A.: The Game. Einaudi, Torino (2018)
3. Lindstrom, M.: Neuromarketing attività cerebrale e comportamenti d'acquisto. Apogeo Editore, Milano (2009)
4. Norman, D.A.: Emotional design. Perché amiamo (o odiamo) gli oggetti della vita quotidiana. Apogeo Editore, Milano (2004)
5. Penati, A.: Il design vive di oggetti-discorso: Design e narrazioni. Mimesis, Milano (2013)
6. Fiorani, E.: Il mondo degli oggetti. Lupetti, Milano (2001)

7. Barthes, R.: Miti d'oggi. Einaudi, Torino (1974)
8. Rosetti, M.: Oggetti narranti: Fonti rinnovabili della realtà. Lupetti, Milano (2013)
9. Lupton, E.: Design is Storytelling. Cooper Hewitt Smithsonian Design Museum, New York (2017)
10. Di Salvo, A.: La costruzione dell'interazione. Il ruolo della narrazione nel processo dell'interaction design. Franco Angeli, Milano (2020)
11. Bosch, T.: Sci-Fi Writer Bruce Sterling Explains the Intriguing New Concept of Design Fiction. https://urly.it/3rp0f. Accessed 30 Sept 2022
12. Sterling, B.: Cover story design fiction. Interactions **16**(3) (2009)
13. Dunne, A., Raby, F.: Speculative Everything: Design, Fiction, and Social Dreaming. MIT Press, Cambridge (2013)
14. Lindley, J., Coulton, P.: Back to the future - 10 years of design fiction. In: Proceedings of the 2015 British HCI Conference (2015)
15. Blythe, M., Encinas, E., Kaye, J., Avery, M.L., Mc-Cabe, R., Andersen, K.: Imaginary design workbooks - constructive criticism and practical provocation. In: Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (2018)
16. Lindley, J., Coulton, P., Sturdee, M.: Implications for adoption. In: Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (2017)
17. Lupetti, M.L., Smit, I., Cila, N.: Near future cities of things - addressing dilemmas through design fiction. In: Proceedings of the 10th Nordic Conference on Human-Computer Interaction (2018)
18. Laurel, B.: Computers as Theatre. Addison-Wesley, Boston (2013)
19. Elsden, C., et al.: On speculative enactments. In: Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (2017)
20. Newell, A.F., Carmichael, A., Morgan, M., Dickinson, A.: The use of theatre in requirements gathering and usability studies. In: Interacting with Computers (2006)
21. Desjardins, A., Biggs, H.R.: Data epics: embarking on literary journeys of home internet of things data. In: Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (2021)
22. To, A., Carey, H., Shrivastava, R., Hammer, J., Kaufman, G.: Interactive fiction provotypes for coping with interpersonal racism. In: CHI Conference on Human Factors in Computing Systems (2022)
23. McVeigh-Schultz, J., Kreminski, M., Prasad, K., Hoberman, P., Fisher, S.S.: Immersive design fiction: using VR to prototype speculative interfaces and interaction rituals within a virtual storyworld. In: Proceedings of the 2018 Designing Interactive Systems Conference (2018)
24. Pasman, G.: Design fiction as a service design approach. In: Service Design Geographies. Proceedings of the ServDes. 2016 Conference, no. 125, pp. 511–515. Linköping University Electronic Press (2016)
25. Stals, S., Smyth, M., Mival, O.: UrbanixD: from ethnography to speculative design fictions for the hybrid city. In: Proceedings of the Halfway to the Future Symposium 2019 (2019)
26. Briggs, P., et al.: Invisible design: exploring insights and ideas through ambiguous film scenarios. In: Proceedings of the Designing Interactive Systems Conference (2012)
27. Blythe, M.: Research fiction: storytelling, plot and design. In: Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (2017)
28. Booker, C.: The Seven Basic Plots: Why We Tell Stories. A&C Black, London (2004)
29. Coulton, P., Lindley, J.G., Sturdee, M., Stead, M.: Design fiction as world building. In: Proceedings of the 3rd Research through Design Conference (2017)
30. Knutz, E., Markussen, T., Christensen P.R.: The role of fiction in experiments within design, art & architecture - towards a new typology of design fiction. Artifact J. Des. Pract. **III**(2), 8.1–8.13 (2014). Intellect, Bristol

31. Coulton, P., Burnett, D., Gradinar, A.I.: Games as speculative design: allowing players to consider alternate presents and plausible futures. In: Lloyd, P., Bohemia, E. (eds.) Proceedings of Design Research Society Conference 2016. The Design Research Society, London (2016)
32. Cooper, A.: The inmates are running the asylum. In: Software-Ergonomie 1999 (1999)
33. Lichaw, D.: The User's Journey: Storymapping Products That People Love. Rosenfeld Media, Brooklyn (2016)
34. Rosson, M.B., Carroll, J.M.: Scenario-based design. Hum. Comput. Interact. (2009)
35. Tanenbaum, T.J., Tanenbaum, K., Wakkary, R.: Steampunk as design fiction. In: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (2012)
36. Helms, K., Fernaeus, Y.: Humor in design fiction to suspend disbelief and belief. In: Proceedings of the 10th Nordic Conference on Human-Computer Interaction (2018)
37. Bleecker, J., Foster, N., Girardin, F., Nova, N.: The Manual of Design Fiction, Near Future Laboratory, Venice (2022)
38. Lindley, J.: A pragmatics framework for design fiction. In: Proceedings of The Value of Design Research Conference (2015)
39. Grand, S., Wiedmer, M.: Design fiction: a method toolbox for design research in a complex world. In: Proceedings of Design and Complexity - DRS International Conference (2010)
40. Gilardi, M., Holroyd, P., Brownbridge, C., Watten, P.L., Obrist, M.: Design fiction film-making: a pipeline for communicating experiences. In: Proceedings of the 2016 CHI Conference (2016)
41. Ventä-Olkkonen, et al.: Nowhere to now-here: empowering children to reimagine bully prevention at schools using critical design fiction. In: Proceedings of DIS 2021 (2021)
42. Shedroff, N., Noessel, C.: Make it So: Interaction Design Lessons From Science Fiction. Rosenfeld Media, New York (2012)
43. Seger, L.: Creating Unforgettable Characters. Henry Holt and C, New York (1990)
44. Stein, S. (ed.): Creative Techniques Handbook 2015 - Digital Futures. OCAD University, Toronto (2016)
45. Intùiti. https://www.intuiti.it/. Accessed 30 Sept 2022
46. The Work Kit of Design Fiction. http://urly.it/3rp07

Conversation Design for Raising Awareness on the Responsible Use of the Internet

Co-design of a Chatbot Game with Secondary School Students

Mauro Filippi[1](✉), Salvatore Di Dio[1], Domenico Schillaci[1], Stefano Malorni[2], Angelo Scuderi[3], and Sabrina Guzzo[3]

[1] University of Palermo, 90133 Palermo, PA, Italy
mauro.filippi@unipa.it
[2] PUSH, 90133 Palermo, PA, Italy
[3] LCD Onlus, 90133 Palermo, PA, Italy

Abstract. The rapid process of digital transformation and servitization experienced on a global scale in recent decades, further accelerated by the pandemic crisis, has radically altered the life experience of societies, with technological innovations leading to the emergence of new ethical and legal challenges. The issue of digital literacy and the acquisition of basic skills for responsible use of the internet has become one of the most urgent prerogatives in international government programs to address psychosocial phenomena such as those related to online grooming, cyberbullying, cybersuicide, cyber racing, or online scamming. The proposed work introduces the use of participatory game design as an empowerment tool for young students. The case study of the NetWalking project, developed by an interdisciplinary team of practitioners and researchers in several secondary schools in the city of Palermo (Italy), describes the experimentation of co-design activities of an edugame with a conversational interface (chatbot), which exploits the logic of nonlinear storytelling to actively engage students in playful learning activities, contributing to the development of hard skills (STEM) and soft skills (self-assessment, teamwork and information management).

Keywords: Conversation Design · Chatbot Game · Nonlinear Storytelling · Digital Literacy

1 Introduction

1.1 Education and the Internet Psycho-Social Phenomena

Digital technologies today structure a new way of being in the world, where old social phenomena manifest themselves in a new guise. A radical paradigm shift is taking place that is difficult to comprehend [1]. The contemporary subject depends on the digital medium just as it did over a century ago with electricity [2]. In the constant neotenic process of the individual, "*it is we who adapt to technology and not the other way around*" [3]. The relationship with the digital is structuring a new subject that tends toward the

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 773–782, 2024.
https://doi.org/10.1007/978-3-031-49811-4_74

post-human[1] [4]. The pervasiveness of the relationship with the digital medium acts not only on the structural level of the subject but also on the relationship with the (Symbolic) *Other* and with the "*Real*".[2] The dissolving of the boundaries between Real and Virtual ferries the subject into an unprecedented relationship with the existing. In this framework, contemporary adolescence becomes an embodied metaphor for the new relationship with the existing. It cannot be read as a pathological and deviant expression of a new way of being in the world but as an effect of contemporary civilization.

The relationship of adolescents with the digital medium seems to be located more in the dimension of being rather than that of use. The adolescent "exists" on the web, not uses it. We witness a process of generalized digitization of daily life [5], which exposes the subject to the possibility of failing to construct a psyche endowed with intimacy and to preserve its singularity. One wonders whether with the advancement of technology, humans are endangering their existence [6] or whether digital information and communication technologies can be likened to new *pharmakons* (poison and antidote) [5] whose toxic effects can be reversed under technological conditions of possibility.

Starting from the concept of "*onlife*" [3], which describes the attitude of contemporary hyperconnected societies not to distinguish between online and offline life, the research proposed here investigates the potential of service design and game design in the development of technological solutions and game experiences that can strengthen the competence and awareness of young people in the use of new media, starting with generations X and Z, who are more exposed to web-related risks. Indeed, there is evidence that a game can confer psychological resilience against online risks, such as misinformation and fake news [7], or induce behavioral change in health [8]. Thus, edugames can provide young learners with cognitive training on a general set of techniques, skills, and competencies that can be spent in different domains.

1.2 Learning by Designing: Game Design and Pedagogy

In addition to the value that the game provides in a direct way to its players in the use phase, this research aims to show the value that can also potentially be generated by the co-design and co-creation phases of the game itself with students through a pedagogical method that uses technology and encourages active learning through design techniques [9]. Game design can be used as an effective form of learning [10] to foster additional motivation and increase students' research knowledge and awareness of digital tools. In the case presented in this study, the game also incorporates the principles of decision-based pedagogy (DBL), which assume that knowledge is contextualized, conditional, and schematized to facilitate memorization and retrieval [11]. Indeed, using a nonlinear narrative in the game based on decision trees stimulates a procedural mode of learning by fostering problem-solving aptitude and the development of critical and lateral thinking [12]. In addition, the learning-by-challenge mechanism, as opposed to traditional expository learning, also promotes a higher level of social interaction

[1] *Post-human* is a neologism that focuses on the emergence of certain general trends in the construction of new coordinates for defining human subjectivity.

[2] Here we are referring to the *Real* in the Lacanian sense, which constitutes along with the *Symbolic* and the *Imaginary* one of the three psychic registers theorized since the 1950s.

among students and the strengthening of conflict management skills [13]. Game-based learning and above all "Digital game making enacted through "*production pedagogy*"[3] *can leverage dynamic learning opportunities, […] offering critical alternatives to aridly disengaging forms of digital literacies instruction in schools*" [14]. In a world where students are increasingly digitally connected to mobile devices, educators require new models of engagement and approaches to teaching and learning. Gaming, configuring itself as an immersive experience in which to test one's skills, is one of them.

With particular reference to digital games, learning based on playful experiences results in greater engagement in learning, a better understanding of course content, increased ability to concentrate, improvements in problem-solving, and higher academic achievement [15]. In fact, this mode of learning mirrors what is already structured in young people from an early age in nonformal settings.

Educational content can be conveyed by different types of games: Serious Games - designed for purposes other than entertainment -; Educational Games (or *Edugames*) - designed to support educational activities in formal education -; and Games for Learning - with educational purposes but used in informal education and vocational training contexts - [16]. The game developed during the research is positioned between an Edugame and a Game for Learning because, although some phases and activities were carried out in the school environment, it remains available for use by a general audience, even outside the formal educational context. Serious Games, Edugames, and Games for Learning can make use of analog and digital media, but today Mobile Gaming is certainly the most popular mode[4]. Finding its assumptions in text adventures[5], Chatbot Games take the form of a particular subcategory of gaming that primarily exploits text and multimedia content (images, audio, short videos). There are two macro-types of chatbots: those that integrate NLP[6] and rule-based ones. In the former, Artificial Intelligence (AI) understands the context and automatically processes user interactions, while in the latter (used in this study), the system responds to input exclusively through a set of predefined rules.

1.3 Literature and References

The scientific literature on serious games for promoting digital skills is extensive and growing [17]. It shows a wide spectrum of possible connections between learning and game mechanics, depending on the specific goals to be achieved: acquisition of knowledge, aptitude, competence, or experience [18]. In the field of education, there are several examples of chatbot games, such as those developed for the Circuit of Museum Houses

[3] *"Production pedagogies are premised on the view that people learn best, and most deeply, through designing "networked" cultural artifacts that have use value, and that matter to their makers"* (Thumlert et al., 2018).

[4] 54% of gamers use smartphones while 35% of them use game consoles. Source: Statista, 2022.

[5] A text adventure can be considered both a literary work and a video game. It is necessary to use text to maneuver the characters who interact with their environments.

[6] Natural Language Processing (NLP) refers to the branch of computer science, and specifically that of artificial intelligence, interested in providing computers with the ability to understand text and spoken words the same way as humans do. Source: IBM.

in Milan[7] or the Anne Frank Museum in Amsterdam[8]. In the case of the experience conducted in Palermo, the main reference was the game "*Bad News*",[9], which, by introducing the theory of inoculation[10] within the play environment, demonstrated how the game can help critically improve players' digital skills in recognizing and analyzing fake news [7]. Within NetWalking, the mechanics of the metagame, competition, and simulation were used to stimulate players' motivational levers with quizzes, quests, and puzzles useful in recognizing key internet dangers such as phishing, grooming, and cyberbullying.

2 Case Study

2.1 NetWalking Game: Context and Concept

The NetWalking project[11], developed by an interdisciplinary team consisting of psychologists, pedagogists (Lega Contro la Droga Onlus), and designers (PUSH), was implemented within 6 schools[12] and 4 neighborhoods of the City[13]. The intervention involved experimenting in schools with game co-design activities, which were subsequently presented and tested not only in schools but also in the neighborhoods. The objective of NetWalking was to enhance in the target group some of the key competencies for lifelong learning expressed by the European Council: technological, digital, and learning-to-learn competencies[14]. 48 teachers and 390 students (223 F; 167 M) between the ages of 11 and 21, divided into 15 classes, were directly involved.

[7] Developed by the Invisible Studio agency.

[8] Used as an integrative support for the museum storytelling: https://www.annefrank.org/en/about-us/news-and-press/news/2017/3/21/anne-frank-house-launches-bot-messenger/

[9] Developed by the Dutch media agency DROG together with researchers from the Cambridge Social Decision-Making Lab.

[10] Social-psychological theory introduced in 1961 by American psychologist W.J. McGuire, which uses the analogy of medical inoculation to show that through preexposure to weakened versions of a stronger future threat, personal attitudes or beliefs can be protected from intentional acts of persuasion or malevolent influences, in exactly the same way that a vaccine protects a body from certain diseases.

[11] Funded by the Prime Minister's Office of the Italian government, Department for Anti-Drug Policies - started in March 2018 and ended in September 2020.

[12] I.C. Florio San Lorenzo; Istituto Magistrale Statale "Regina Margherita"; Istituto Professionale di Stato per i Servizi di Enogastronomia e l'Ospitalità Alberghiera "Pietro Piazza"; Istituto Superiore Statale "Francesco Ferrara"; Ente di Formazione Professionale FAE – Form Azione Europea.

[13] Oreto - Central Station; Kalsa - Foro Umberto I; Tribunale - Politeama; Mondello - Valdesi. The activities, structured with a non-formal methodology, aimed at engaging adolescents as a function of raising awareness of the project theme and subsequently to test the Edu-game.

[14] *"Council Recommendation on key competences for lifelong learning"*, The European Union Council (2018).

2.2 Design Methodology

2.2.1 Surveys: User-Research

The research phase was conducted both in schools and in the local area through preliminary interviews and the administration of questionnaires (526), aimed at detecting the state of the art about adolescents' use of the Web and the main polarizations of interest related to the web services and social networks. The questionnaires were also used to determine the target group's level of knowledge and awareness of the main risks and dangers associated with the Internet.

Adolescents were asked to answer questions about their online habits (connection time, sites visited, apps used, moods during use, interference with other areas of their daily lives) and offline habits (hobbies, reading, studying, sports, etc.). The average time spent online (5/7 h per day, often at night), the type of device predominantly used (smartphones and game consoles), and the main types of apps used (social networks, chat, and dating apps) were recorded. Also particularly interesting is the percentage of adolescents who have never read a book (22% F; 47% M) and the way they inform themselves about news events (almost all exclusively through headlines appearing on social media often without opening the links, reading the content and/or ascertaining the veracity of the sources). The qualitative analysis confirmed a low level of soft skills among the students involved in the study.

2.2.2 Focus Groups: Interests and Topics

Following the administration of the questionnaires, focus groups were conducted in plenary mode and in individual classrooms to identify topics of greatest interest to the students to be used as cues for the design of the stories and game dynamics. The focus groups were structured in such a way as to put the participants' words at the center and enhance the singular experience. This allowed the teens to interweave their own narratives with those of the *Other* and to construct an unprecedented shared narrative of contemporary adolescence. The stance taken by the presenters, in addition to being geared toward accommodating all the issues that emerged, served the function of incentivizing deepening, so that commonplaces and clichés were deconstructed by the participants themselves. The focus groups highlighted the number of pitfalls and risks to which teens are exposed during their surfing hours (revenge porn; body shaming; sexting; sextortion; grooming; account and data theft; dissemination of private content; cyberbullying) and how many requests for help circulate predominantly within the peer group, given that the adult figure is not always a reference point for young people to turn to.

2.2.3 Co-design Workshops: Non-linear Storytelling and Decision Based Learning

Through the open-source software *Twine*, students collaboratively created diagrams, structures, and dialogues of nonlinear stories online. They created and embedded multimedia content (text, images, audio, video, gifs) in the stories to develop interactive game experiences (Fig. 1). The choice of nonlinear story mechanics is due to its close connection with the pedagogical methodology of decision-based learning. This methodology integrates theoretical and notional knowledge with a procedural and conditional one, a

type of functional and practical knowledge applied to concrete problem solving through decision trees [11]. Designing a story with several possible end scenarios stimulates the students to sift through all the possibilities of solving a problem and to create their own hierarchy of values through which to define some scenarios as "right" and others as "wrong," thus establishing an ethical and critical stance in the face of complex issues such as, for example, the relationship between young people and digital media.

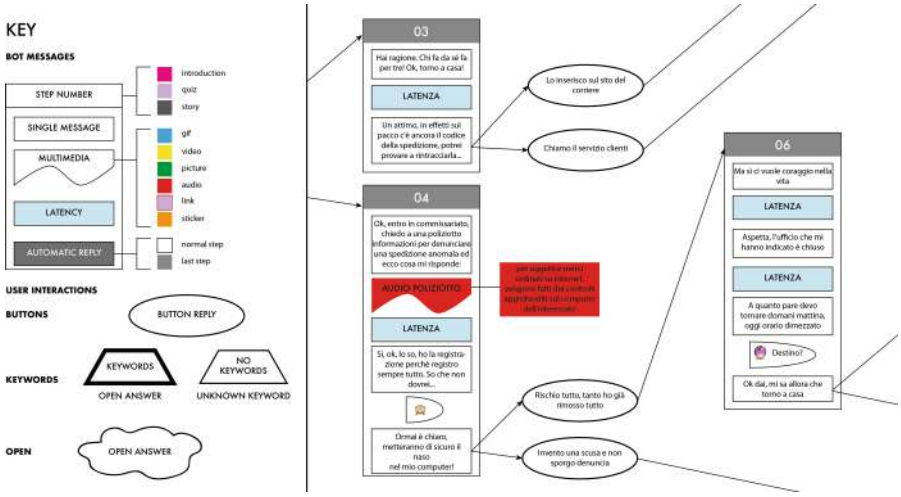

Fig. 1. Conversation diagram: legend and detail of some forks with examples of choices and interactions (original messages in Italian language).

2.2.4 Prototyping: From Diagrams to Chat

The creation of animated prototypes, tested together with students and teachers, enabled collaborative reasoning about the construction of the decision trees that form the backbone of the different story plot alternatives. The game was structured in three parts: introduction, quiz, and nonlinear story.

The introduction is intended to make initial contact with *Walker*, the protagonist, who speaks in the first person to the player. During the introduction, the concept of chatbots is clarified and the limits of character interactions are established. The whole game revolves around the idea of a challenge, (*#walkerchallenge*), which is thrown at the player so that the true identity of the protagonist is discovered. The introduction confronts the player with the so-called "magic circle": the imaginary threshold one crosses when preparing to participate in a game, which gives the dimension of what is fiction and what is not[15]. It was chosen to leave the boundaries of the *magic circle* very labile to purposely accentuate the game-reality ambiguity.

[15] The concept of the "magic circle" is described by Dutch historian and linguist Johan Huizinga in "*Homo Ludens*" as a temporary world in which the rules of play rather than those of real life apply.

Fig. 2. Typical screens of the conversation: introduction and quiz (translation in notes). (1st screen: *"Hi* [name_user]*, you also ended up in my challenge?* [Toy Story meme about challenges] *It is actually the first to land on telegram! Who told you about me?";* 2nd screen: *"This is not the usual stuff you find on YouTube. I programmed this bot you are talking to, to propose you some choices, and only some of them will lead you to actually talk to me. By the way* [Backhand Index Pointing Up emoji], *let's start with the basics. You know what a chatbot is, right?* [1st answer: Thumbs Up] [2nd answer: Thumbs Down]; 3rd screen: *"This story is honestly crazier than mine… A clique of scammers created all these fake profiles to lure single women who were extorted for thousands of euros* [Face Screaming in Fear emoji]. *Do you know in what year a person was first sent to court for the crime of phishing?* [1st answer: *"1991"*]; [2nd answer: *"1999"*]; [3rd answer: "*2004"*]; 4th screen: *"That's right* [Beaming Face with Smiling Eyes emoji]. *Just think that the convict was a 17-year-old boy! This is how is used to do:* [audio message explaining how the Californian teenager defrauded thousands of Americans]. *According to you, a phishing attack succeeds more easily"* [1st option: *"by entering data"*]; [2nd option: *"opening an attachment"*]; [3rd option: *"by clicking on a link"*].)

The quiz was designed as a way to test the player's knowledge of the web and the social media world. In between questions, concepts identified in the focus groups are clarified and explored in depth, treated with a colloquial register.

The transposition of the story into conversational language was developed in four main stages: the writing of the subject, the expansion of the narrative through plots and plot twists, the enrichment of the conversation with descriptive and detailed language, and finally the synthesis and transposition into conversational language.

The story has a nonlinear structure similar to game-books[16]: the players are given the opportunity to move within the narrative and they're stimulated to find the one ending that corresponds to what really happened to the protagonist. Alternative endings are only potential possibilities that serve to lead the player astray by generating doubt and stimulating critical reasoning.

2.2.5 Developing and Testing: Design Iteration and Scalability

NetWalking was developed on the *Telegram* platform to make the gaming experience very realistic and personal, allowing the user to immerse themselves in the game more easily and without the need to download any additional special app. The conversation is initiated simply by searching for the user "#walkerchallenge" in the search bar of the

[16] The gamebook is a work of fiction that instead of being read linearly, from beginning to end, offers the reader the opportunity to actively participate in the story by deciding between a number of possible alternatives through the use of numbered paragraphs or pages.

instant messaging service. This makes it easier to establish a direct dialogue between the game's protagonist and the player in order to build trust and obtain the user's active involvement in the succession of the following challenges. In addition, the introduction decrees the user's choice to continue or quit right away. It makes the players familiar with the rules and defines the objectives, without tiring or boring them. Time restraints at this stage help keep the player's attention.

Cyclical comparisons between the professionals involved (designers, software developers, psychologists, and educationalists) and the students allowed for the development and testing of various prototypes until the final version of the game was reached. Testing was necessary to identify both areas where the story formed loops, i.e., combinations of choices that put the player in the position of repeatedly viewing the same story fragments. Simulating the time for the bot to type messages makes the interaction between the character and the player more realistic and prevents too many messages from being sent in bulk. The game experience replicates an ordinary chat conversation with a real person (Fig. 2). There are only two limitations for the player: the inability to ask direct questions to the protagonist and to keep the conversation open for more than 24 h.

Maintaining a modular design approach, to cope with the scalability and replicability of the prototyped solution, a toolkit was created aimed at teachers and freely downloadable on the official website of the project[17], which allows to prototype additional scenarios and expand the stories proposed within the game. The toolkit has the dual purpose of disseminating the project and exposing, through a methodological approach, the steps one must go through to design an educational game experience based on conversational design. The document has been divided into two parts: one in which the purpose of the project is recounted and the game is described in depth, and a second part in which the stages of designing a nonlinear story and a chatbot game are exposed.

3 Conclusions

The results of the experimentation, verified at the closure meetings held with the classes involved, showed how decisive the effects of the mix of open discussions, co-design activities, and the actual game experience were in the formation of critical thinking with respect to the use of new technologies and the Web. The experience of active participation in the intervention, over the two years of implementation, has shown a relevant impact compared to traditional interventions based on the logic of *inform to prevent*. The application of this methodology, as revealed by the feedback gathered at the group follow-up meetings, facilitated the development of the students' ability to dwell critically on issues affecting contemporary adolescence and their problem-solving skills.

Analysis of the qualitative data collected during the activities shows that the students who participated in the experimentation were able to expand their awareness of risks on the Web and their competence in recognizing those modes that are dangerous or dysfunctional. Through the application of Game Design and multimedia content creation mechanisms, the young participants also enhanced their media and digital literacy by becoming potential peer educators within similar interventions.

[17] www.net-walking.it

The research shows that the application of Game Design principles can generate a positive impact both in the use phase of the output, the edugame, and in the design phase (co-creation, prototyping, testing, and iteration). Finally, the study demonstrates the pedagogical value of co-designing non-linear stories, in a logic of decision-based learning, as well as the level of empowerment in all dimensions of digital competence: technological, cognitive, and ethical.

4 Recommendations for Future Research

NetWalking did not require the use of AI, however, given the growing interest in the topic and the constant democratization of technologies, which allows for experimentation that is increasingly simple, intuitive, and accessible, a feasibility study is already underway to incorporate some AI features that can make the overall experience more engaging, immersive, and personalized. This would also give students the opportunity to learn the basics of NLP, as well as greater awareness of the AI potential, and its ethical dimensions.

The NetWalking application was developed by a team of professional developers on the Telegram platform. However, an updated mapping of open source tools available online showed that it might be possible in the future to have students develop the final product as well, through the use of software with simplified programming interfaces, which do not require the use and knowledge of specific programming languages. This would make the design and development process more straightforward and complete for students, without interruptions and handoffs during implementation. Finally, further development of the game will also involve the themes covered in the stories. The next developments may include the selection of diversified themes, also related to school learning subjects, to verify the adaptability of the system. The co-design model also lends itself to hybrid teaching environments and international exchange among young people from different backgrounds, as the language aspect would open up additional game and learning mechanics.

References

1. Han, B.C.: Nello Sciame. Visioni del digitale, Nottetempo (2015)
2. McLuhan M.: Understanding Media: The extension of man, Penguin (1964)
3. Floridi, L.: The Onlife Manifesto: Being Human in a Hyperconnected Era. Springer, Cham (2015). https://doi.org/10.1007/978-3-319-04093-6
4. Pepperell, R.: The Post-human condition, Intellect Book, Exeter (1995)
5. Stiegler, B.: Il chiaroscuro della rete, Youcanprint (2014)
6. Anders, G.: Il mondo dopo l'uomo, Tecnica e violenza, Mimesis (2008)
7. Roozenbeek, J., van der Linden, S.: The fake news game: actively inoculating against the risk of misinformation. J. Risk Res. **22**(5) (2018)
8. Thompson, D., et al.: Serious video games for health: how behavioral science guided the development of a serious video game. Simul. Gaming **41**(4) (2010)
9. Mammadova, I.: Teaching With Technology, Learning by Design, Bulletin of Science and Practice, vol. 6, no. 12 (2020)
10. Minović, M., Milovanović, M., Kovačević, I., Minović, J., Starčević, D.B.: Game design as a learning tool for the course of computer networks. Int. J. Eng. Educ. **27**(3) (2020)

11. Plummer, K., Swan, R., Lush, N.: Introduction to decision-based learning. In: Proceedings: International Technology, Education and Development Conference (2017)
12. Srikongchan, W., Kaewkuekool, S., Mejaleurn, S.: Backward instructional design based learning activities to developing students' creative thinking with lateral thinking technique. Int. J. Instruct. **14**(2) (2021)
13. Susilawati, W., Maryono, I., Widiastuti, T., Abdullah, R.: Improvement of mathematical lateral thinking skills and student character through challenge-based learning. In: International Conference on Islamic Education (ICIE) (2018)
14. Thumlert, K., de Castell, S., Jenson, J.: Learning through game design: a production pedagogy. In: 12th European Conference on Game-Based Learning (ECGBL) (2018)
15. Gao, F., Li, L., Sun, Y.A.: Systematic review of mobile game-based learning in STEM education. Educ. Tech. Res. Dev. **68**, 1791–1827 (2020)
16. Becker, K.: What's the difference between gamification, serious games, educational games, and game-based learning? Acad. Lett. **209** (2021)
17. Urban, A.: Serious games for information literacy: a scoping review and design recommendations. Libr. Hi Tech (2019)
18. Arnab, S., et al.: Pedagogy-driven design of serious games: an overall view on learning and game mechanics mapping, and cognition-based models. Br. J. Educ. Technol. (2014)

From a Word-Formation to a Concept-Formation: Mnemosphere as a Connective Tool in Interdisciplinary Design

Clorinda Sissi Galasso(✉) and Marta Elisa Cecchi

Design Department, Politecnico di Milano, Milan, Italy
{clorindasissi.galasso,martaelisa.cecchi}@polimi.it

Abstract. We are experiencing profound changes on a global scale and a different way of connecting with places, memory, and atmospheres. Adaptation is a necessary process.

In this context, the need to update languages is real and urgent [1]. There is a growing demand for new terminologies to disseminate ongoing changes and communicate them to professionals and the public. Neology is one of the main ways a language, and therefore a culture renews itself through a different narrative approach.

Design becomes the chosen field of experimentation and activation of new practices and theories that aim to bridge the gap between what we experience in the present reality and what, intangible, can only be captured by combining words.

It is within this framework or reference that the present paper illustrates the *Mnemosphere* project, interpreted through the lens of a new wor(l)d formation research. The project is based on the interdisciplinary design of a terminological combination.

Mnemosphere appears as a compound word that is still searching for a shared definition and a detailed characterisation but represents a potential theoretical and practical strategy that can be applied and developed in many ways.

This contribution focuses on the transition from a word-formation to a concept-formation recognising *Mnemosphere* neologism input as an active research tool to stimulate reflections, foster experiences, trigger design practices, and research actions in different contexts. After describing the theoretical framework, the paper will outline the main research activities to blur semantic boundaries within the new word actively.

Keywords: Neologism · Design Activator · Interdisciplinary Research · Memory · Emotion · Atmosphere

1 New Wor(l)d *Emergence*

Dealing with a new word has always been a delicate and complex process from a terminological standpoint. The lexical novelty still struggles to come up with a consensus definition that unites all the relevant fields of study. The term "new word" is used in

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 783–793, 2024.
https://doi.org/10.1007/978-3-031-49811-4_75

linguistics to refer to any newly created word, while the term "neologism" is reserved for unique terms that add to the language's lexicon [2]. Neology is one of the primary methods through which a language, and by extension, a culture, renews itself through a distinct narrative perspective. When neologisms are used, it is typically because new physical or conceptual phenomena are emerging or spreading, new scenarios are being developed, or old historical facts are being brought back to life by acquiring new semantic meanings.

Additionally, new terminology makes it possible to establish *connective identities* across many issues and fields, turning them into tools for promoting public participation. Neologisms might be "brand-new" terms that have never been thought of or spoken before, or they can be terminological compounds that derive meaning from the relationships between other words. According to Szymanek [3], there are two sorts of lexical formations, one of which is formed "*ex nihilo*" without any morphological alteration, while the other is a "derivational neologism," which is created from established and well-known lexical patterns and combinations. The formation of a neologism proceeds through a series of phases, resembling typical design processes, which can be simplified into three main categories: *invention*, *consolidation*, and *establishment* [4].

The first phase sees the word initially voiced and then written by a speaker. In this way, it materialises and begins to have semantic value. The new term typically does not appear following a particular design procedure. However, it sometimes happens for less planned reasons, such as to synthesise or to lessen grammatical complexity, when there are not enough words to convey a specific idea, or when it is necessary to mix concepts from other domains. The emergence of an *ad-hoc* formation, i.e. a previously non-existent combination of existing morphemes, is driven by various circumstances [Ibid., 73]. The second phase, known as 'consolidation', begins when a new formation gets ingrained in the language and spreads. This stage is when the *ad hoc* formation becomes a proper neologism that may potentially endure. The third phase seems to be the hardest to accomplish for the term. Institutions must acknowledge the innovative lexical item as an object that transcends the meaning of its terminological constituents by opening up a new horizon of meaning. A neologism must also be separated from nonce word-formations [5, 364] to elaborate even further. The former is consistent, and institutionalisation ensures their continued use in language; the latter are "one-off coinages" [6, vii] destined to join the common lexicon when first issued but quickly went out of fashion.

Despite the noticeable conceptual differences, the answer to a change appears to be the prevalent substrate for all neological variables. In most situations, the necessity for adaptability is what inspires neologism, i.e. the ability of language to adapt to change and provide lexical support for ongoing, physical, conceptual, and world changes. A new method of engaging with locations, memories, and the atmospheres created by their interaction is emerging due to the significant changes occurring worldwide. We are transitioning from an anthropocentric conceptual model to a *topophilic* attachment to space that is created and aims to engage in an emotional and empathetic discourse with the environment [7]. According to this paradigm, there is an actual and pressing need to upgrade languages.

The derivational neologisms, composed of pre-existing morphological material [8] and acceptable for mixing significantly different topics, appear to be the most appropriate terms. These words transform into instruments that may activate new design approaches and shift cultural frontiers by connecting concepts and disparate knowledge domains. In this regard, the *Mnemosphere project*, which is being presented here, will look into the fertile ground of a new word formation, which is obviously not yet defined in a univocal manner but which nonetheless develops into a connecting and polyphonic instrument on similar topics like the memory of places, the whole range of emotions, and the atmosphere of spaces.

The project investigates what it means to design for a neologism and what parameters, guidelines, and research actions may be triggered to define a *new unknown* through online and offline events.

2 New Word *Formation*

As soon as one tries to define a composite term in a clear-cut way, the instant understanding of the word seems to evaporate. When attempting to identify 'the distinctive air one breathes in a unique location', also known as the atmosphere, or 'the memories tied to a place that arises and blends into its fabric', also known as the places' memory, this process usually manifests. Without other conjuring pictures, it is challenging to understand how these affective and spatial elements create a personal emotional connection with the perceiver. However, the Mnemosphere project's goal is to start from this assumption to spark processes, activities, and research reflections to create a radical new concept in the design culture. Furthermore, it is tempting to claim that it is a pure neologism. This term has been used sporadically in literature[1], although a definition has never been formalised in any disciplinary field. Even in the design culture, it appears as a new word that offers itself to numerous experimentations. Mnemosphere project lives in this context and uses the new lexical item as a title and its definition as a principal objective. The research project Mnemosphere, currently under development, was prompted by the *MiniFARB Call for Ideas*, which has been supported by the Politecnico di Milano's Department of Design and involved PhD students and research fellows to provide funding and resources for *transversal* research projects. Because of the MiniFARB's emphasis on interdisciplinarity, the project is distinguished by a composite research team driven by the shared objective of producing different interpretations of the topics being addressed. Mnemosphere bases its approach on a synergic collaboration among distinct fields of knowledge (Fig. 1).

As stated before, the term "mnemosphere" is created by joining the words "MN+EMO+SPHERE," which in turn allude to the three themes that were examined: memory (MN), emotions (EMO), and atmosphere (SPHERE). The purpose is not to consider the extent of each thematic component but the actual relationship between them. In fact, the term "mnemosphere" was developed as a terminological reaction to the need

[1] See: Goody, J. (1977). *The domestication of the savage mind*. Cambridge University, where the author refers to mnemosphere and memory based communication. See: Debray, R. (2000). *Transmitting Culture*. Columbia University Press, where the author refers to mnemosphere as the social period prior to the invention of writing.

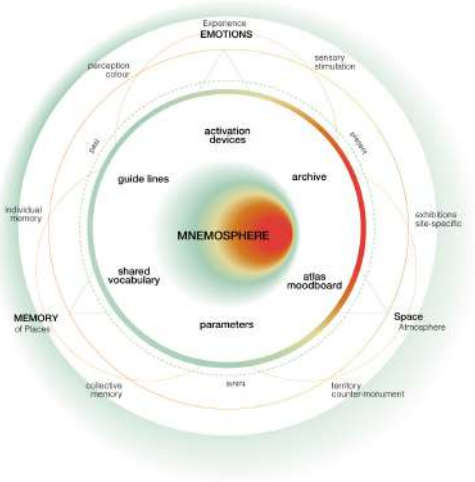

Fig. 1. Mnemosphere research conceptual map

for a single term, a conceptual entity, able to describe the effect of the interplay of the mnestic, atmospheric, and emotional domains.

In this setting, it is essential to emphasise that the themes addressed need to be investigated from a wide range of perspectives to be deemed a mnemospheric union. The concept of memory is viewed concerning the places where historical stratification of communal and individual narratives occurs. These locations are seen as intricate symbols of territorial interpretation [9], necessary for mnestic interaction, and an essential component of the surrounding environment. On the other hand, the atmosphere theme is closely related to the designed space. This research part adopts neo-phenomenological thinking [10], which has been spreading internationally in the humanistic and scientific academic community in recent years, as its primary theoretical reference for the aesthetic concept of "atmosphere" [11, 12]. Since people interact daily in engaging narrative and emotional experiences with the designed space (and thus not only natural) through different types of *displays*, the atmosphere of the space is explicitly studied in the field of exhibition-installation design.

Regarding the theme of emotions, the general designation refers to the sentimental aspect of experience and is defined by subjective as well as physiological and behavioural components. In this context, colour is one of the critical components in the design of the mnestic-spatial experience that may strongly influence people's perceptions and emotions, which in turn might influence their behaviour [13, 14, 3233]. Therefore, the research project suggests a method for studying emotions that emerges through the connection between colour, memory and space.

3 New Word *Stabilisation*

Mnemosphere was introduced in June 2020, while research and educational initiatives were being completely reevaluated in light of the COVID worldwide emergency. With a gradual redefining of the optimal tools and methodologies, the project moved all scheduled tasks from offline to online. This research was not affected by the obligations for a general rearrangement of methods; instead, it has presented a valuable chance to engage a larger audience and accesses broader cultural and geographical contexts. Research on the derived neologism has been discussed within the Design field. The Mnemosphere project has examined the connections between several themes that, via inherent overlap and mutual effect, enable the development of a collection of tools intended to enhance the territory through engagement using emotions and the designed space.

The experiment aimed to study the research subjects from both a theoretical and practical point of view, determining how the different areas contribute in a unique and cross-disciplinary way to the topic and examining neologism through fieldwork activities.

As a result, the study project was organised into the three methodological phases detailed below.

3.1 Exploration

In the first stage, each discipline field's current state of the art was examined to develop a unified theoretical framework. The innate intangibility of the numerous themes explored and the diversity of perspectives represented in the research served as its starting point.

The initial activity was directed at the semantic delimitation of the proposed concepts concerning the themes involved. Using an internal questionnaire with open and closed-ended responses, it was determined to adopt a shared vocabulary with a specific glossary of references as the main result. The *Mnemosphere lexicon*, an essential tool for this hermeneutic research, was collectively created by the interpretive synthesis of the replies and extrapolation of the keywords chosen by each team member.

The graphic identity of the research was also established during this point, highlighting the importance of being sensitive when visually integrating different topic sections and bringing back the universality of a single concept container. The logo was created from the sphere, which serves as the unifying element and alludes to the three-dimensionality of space. The circle serves as a dynamic representation of abstract concepts. Consequently, it was decided to employ nuances rather than rough shapes to accentuate the theoretical relationship between the concepts visually.

Due to the pandemic, it has become crucial to expanding the research to online communication platforms that would reduce geographic barriers and encourage a sense of closeness and engagement. This need led to the decision to create a social approach to publicly communicate the early results obtained, but more importantly, to reach a significant diversified audience. By configuring the graphical interface as a composite visual table of the mnemosphere lexical *nebula*, the connective vocation of the Instagram platform (*@mnemosphere.project*) serves as an evocative device and design tool to convey the research in its ongoing evolution. The theoretical undertones meant to

be transmitted to users are made more evident by a mood board type of approach and layout, encouraging both intimate and shared interaction.

3.2 Analysis

The research's intermediate phase attempted to gather information through several planned online activities highlighting the images' visual aspects.

The lexical and literary apparatus had a crucial role in organising the subjects' complexity. However, they did not appear to accomplish enough to define adequately, express, and convey the perceptive aspect of the "mnemosphere". In order to represent the neological value built into the images created by a visual-formal composition, *content visualisations* also seemed to be essential. For these reasons, an *Open Call for Images* was published online to translate a method generally used in the visual arts sphere to the design domain, thereby encouraging *creative cross-fertilisation*, i.e. hybridisation, among different disciplines, fields and creative ways of expression.

A brief survey and a participant's choice of up to three images were required for the open call. General inquiries concerning the participants' identity were asked in the first section, as well as open and closed questions concerning the new concept of the Mnemosphere on what kind of imagery came to mind associated with this term. In contrast, the second section was solely devoted to image uploading. Each participant was invited to upload a maximum of three files with a title and a description, with no limitations on format, communication style, or figurative language. Photographs, illustrations, paintings, collages, drawings, and sketches were among the many different types of media employed by the participants, which collectively brought heterogeneity and expressive variation to the Mnemosphere theme.

3.3 Synthesis

The last stage involved synthesising all the data to establish parameters and repeated factors among the images and descriptions.

More than 200 contributors worldwide participated in the Open Call, which lasted from the middle of January to the end of March 2021. They uploaded more than 400 diverse images that captured the subjective essence of mnemospheric perception. The research project's official platform, the website (https://www.mnemosphere.polimi.it/), has been updated with all of the gathered contributions (authors, pictures, titles, and descriptions) as a digital database and public online exhibition[2].

The research group made a set of Identity Cards as a preliminary step in examining all the contributions. These tools provided a more thorough, synthetic, and visually understandable summary of the data present in each contribution, enabling the pictures to be arranged for analytical examination.

Each card provided:

- several interpretations for textual information (containing concepts and descriptions),

[2] This online resource was designed to share with all participants the results obtained but also as a repository of images and knowledge for further research by other researchers and scholars in other fields.

- visual information (consisting of percentages of colours and themes involved)
- sensory information (relating to the senses involved in the narrative of each image).

In order to categorise and organise all of the submitted submissions, internal online and offline workshops were organised using various methodologies based on the disciplinary standpoint addressed. The workshop activities proved valuable methods to extract transversal key concepts that could be translated into parameters for designing mnestic spaces and atmospheres.

The first workshop concentrated on image processing from an atmospheric-spatial perspective. All the images were divided into seven categories that permitted the discovery of shared morphological features, representational modalities, unique framings, and repeating subjects. The strategy was solely visual and less dependent on language descriptions of the images.

The categories include:

- "Atmosphere as Air" in which wide spaces, sky, and horizons appear;
- "Atmosphere as Bubble", where circularity and the nest emerge;
- "Atmosphere as Fog" where undefined areas, in motion and out of focus, arise;
- "Atmosphere as Diaphragm" where components linking interior and external, such as entrances, hallways, doors, and windows, show up;
- "Atmosphere as Net", in which complex, interconnected spaces and conceptual and practical connective elements emerge;
- "Atmosphere as Colorful", where images with colour, tone, and abstract symbolism as the main characters spring up;
- "Atmosphere as Void," where singularities, empty spaces, and places full of nothingness and melancholy appear.

The second workshop was arranged from a mnestic standpoint, but it took a different approach, emphasising the interpretation of texts and descriptions rather than the analysis of the visual material. In this context, the images were divided into four conceptual categories:

- "individual memory", where faces of people, details of bodies and private spaces frequently emerge;
- "collective memory", where the forms of externalisation of memory predominate, especially monuments and memorials;
- "physical environment" where natural environments like landscapes and urban and domestic environments arise;
- "abstract dimension" is characterised by symbols, vibrant pictures and free signs, forms, and colours.

Following the creation of the visual compositions, now referred to as "atlases", it was feasible to examine the colour components of each central theme and create an investigation of the emotion theme from a chromatic point of view. The analysis was supported by 25-colour charts created for each visual atlas allowed for detecting harmonic and opposing relationships and the conceptual link within semantic clusters. These charts allowed for identifying similarities and divergences in the thematic atlases. In this way, it was feasible to state that the hues of the natural world and the materials of certain places

had an impact on the memories associated with them on an individual and a collective level, and as a result, the emotional "temperature" experienced by the perceiver/open call participant. Gradually integrating the location into the user's emotional experience changes the colours, brightness, and saturation of the realistic depiction of the location and environment.

3.4 Results

The visual research of Aby Warburg, one of the most renowned contemporary art historians, serves as the inspiration for the historical backdrop for analysing the open-call pictures. Pioneer of the interdisciplinary study of culture across history, Warburg emphasised the need for scholars to quit enforcing disciplinary boundaries to understand better how *cultural memory* works [15]. His panel system, embodied in his most significant work, *Atlas of Mnemosyne* (1924-28), inspired the methodological approach of the Mnemosphere atlases. The images in the panels were assembled and arranged in groups or sequences, which made it possible to perceive an underlying harmony at first glance; visual components were not placed in a hierarchical relationship to each other, and their positioning was not fixed, but fluid and could therefore continually change according to the investigation evolution [16].

These assemblages made it possible to link different works of art produced by artists in different periods and geographical contexts, which converged in large iconographic tables having a solid aesthetic and artistic installation *aura* effect. Atlas images are the prime subject of study because they provide a transversal and striking way of narrating world cultures, histories and aesthetics. In *Mnemosyne Atlas*, the juxtaposition of images, which weave different elements around a central theme, creates different fields of energy that trigger an open and dynamic interpretative process in the perceiver.

The mnemospheric exploration, sparked by the participatory open call and the workshops and subsequently took shape through the digital atlases, seeks to provide several visual *hypertexts* [17]. In order to gain new meanings that might capture the mood and recollections of the places, the images lose some of their original meaning. The loss of sense of some images is not a negative and uncontrolled aspect but an engine of development for a shared and participating definition of the Mnemosphere. The *Mnemosphere Atlas* (Fig. 2), which takes its cue from Warburg, is a dynamic tool for a neological study that may materialise the mnemonic imagination and provide unique interpretive processes in design.

4 New Wor(l)d *Embodiment*

The project's objective was to present the new word Mnemosphere as a research activator in the design culture by explaining its primary operations. Thanks to its participatory visualisation through Open Call, it has become a neologism open to many knowledge domains: it can spark reflections in several disciplinary areas, including art, photography, and architecture. Mnemosphere now emerges as a term transitioning from word-formation to an effective concept-formation, even though a strong establishment and institutionalisation process has not yet been fully accomplished. The term reveals

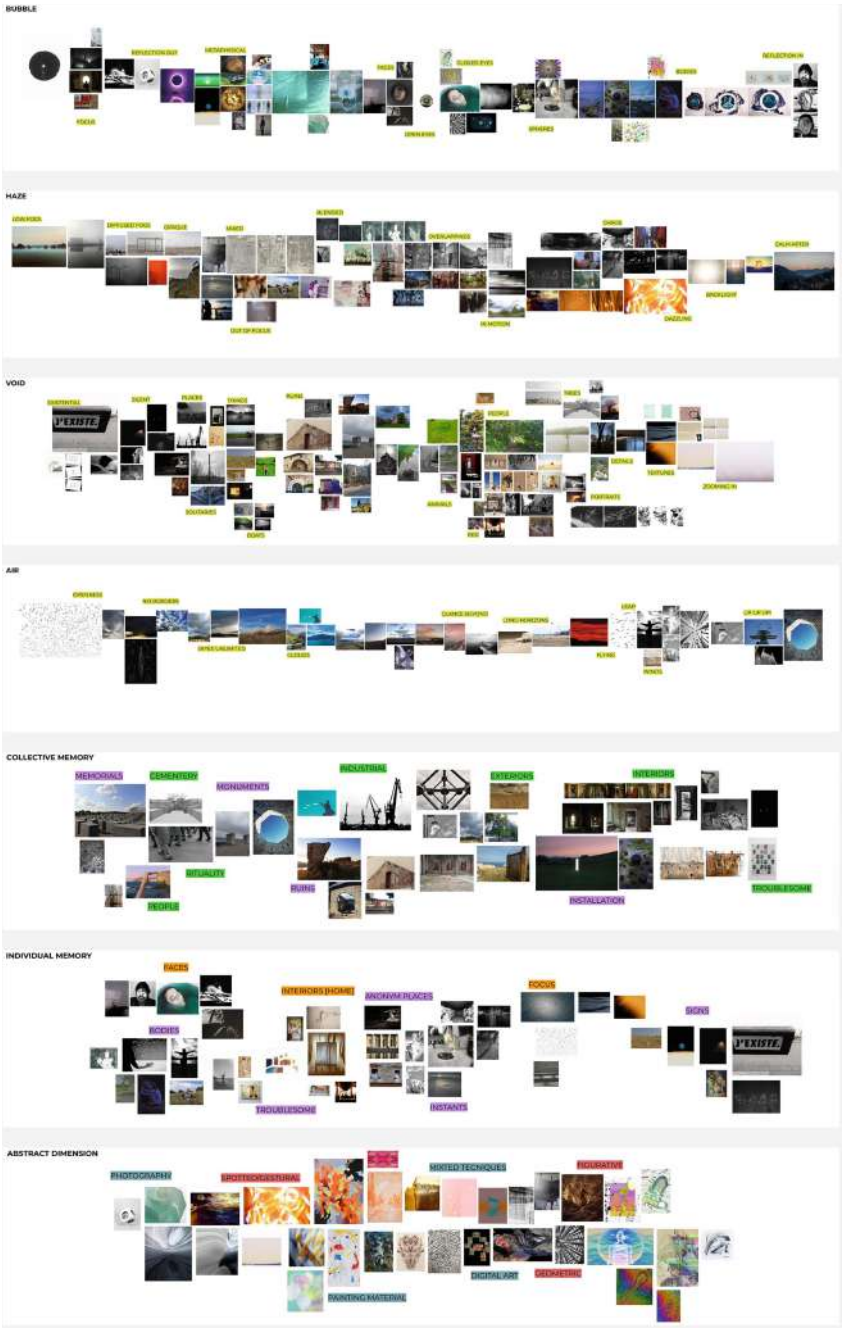

Fig. 2. Extract from the Mnemosphere atlas panels

itself as an autonomous entity, transcending its conceptual components to display their composite junction, and the meaning appears to be considerably less *hazy*.

Mnemosphere neologism comes across as a notion that lives and communicates its complexity through aggregation, capable of generating deep involvement.

It is nevertheless clear that further experiments and applications are required, notably in the form of exhibition spaces and installations that may explore the multicomponent character of the mnemospheric dimension, considering the terminological and design development that has been realised through the atlases.

In this sense, the research intends to proceed by extending to more different offline activities, including active and proactive participation.

Plans include:

- To hold a series of Mnemosphere seminars with academics and professionals to broaden the project's impact.
- To participate as curator of a group show in Lisbon with *GAAT Museum - Garagem, Arte, Arquitectura, Tecnologia*, to transform the concept of Mnemosphere into the exhibition of original artistic experiments united by a shared vision.
- To publish the Mnemosphere research and atlas with all the guidelines and findings, thus making the neologism in the design culture more effective.

Above all, the aspiration is that this experience will not remain enclosed in a terminological definition made up of images, words, and concepts but may be the starting point for further reflections, practices and studies.

In conclusion, this contribution sought to propose an alternative and new approach to knowledge, starting with a neologism coined by interdisciplinary research that has enabled diverse creative research processes, thus contributing to design culture and expanding its theoretical and design boundaries.

References

1. Cabré Castellví, M.T., Estopà Bagot, R., Vargas Sierra, C.: Neology in specialized communication. Terminology. Int. J. Theor. Appl. Issues Spec. Commun. **18**(1), 1–8 (2012)
2. Mattiello, E.: Analogy in Word-Formation: A Study of English Neologisms and Occasionalism. De Gruyter, Berlin (2017)
3. Szymanek, B.: The latest trends In English word-formation. In: Štekauer, P., Lieber, R. (eds.) Handbook of Word-Formation. Studies in Natural Language and Linguistic Theory, vol. 64., pp. 429–448. Springer, Dordrecht (2005). https://doi.org/10.1007/1-4020-3596-9_17
4. Schmid, H.: English Morphology and Word-Formation: An Introduction. Erich Schmidt Verlag, Berlin (2011)
5. Štekauer, P., Lieber, R.: Handbook of Word-Formation. Springer, Berlin (2005). https://doi.org/10.1007/1-4020-3596-9
6. Green, J.: Neologisms. New Words Since 1960. Bloomsbury Publishing, London (1991)
7. Tuan, Y.-F.: Topophilia: A Study of Environmental Perception, Attitudes, and Values. Geographical Review - Columbia University Press, New York (1974)
8. Schmid, H.: New words in the mind: concept-formation and entrenchment of neologisms. Anglia - Zeitschrift für englische Philologie **126**(1), 1–36 (2008)
9. Assmann, J.: La memoria culturale: scrittura, ricordo e identità politica nelle grandi civiltà antiche, Einaudi, Turin (1997)

10. Schmitz, H.: New Phenomenology. A Brief Introduction. (T. Griffero (ed.); 2016th ed., 6, Issue Atmospheric Spaces). Mimesis International, Milan (1980)
11. Böhme, G.: The Aesthetics of Atmospheres (J.-P. Thibaud (ed.); 1st edn.). Routledge, London (2016)
12. Griffero, T.: Atmosferologia. Estetica degli spazi emozionali, 1st edn. Mimesis, Milan (2017)
13. Kotler, P.: Atmospherics as a marketing tool. J. Retail., 48–64 (1973)
14. Yildirima, K., Akalin-Baskayab, A., Hidayetogluc, M.L.: Effects of indoor color on mood and cognitive performance. Build. Environ. **42**(9), 233–3240 (2007)
15. Erll, A., Nünning, A.: Cultural Memory Studies. De Gruyter, Berlin (2008)
16. Forster, K., Mazzucco, K., Centanni, M.: Introduzione ad Aby Warburg e all'Atlante della Memoria. Bruno Mondadori, Milan (2002)
17. Landow, G.P.: Hypertext: The Convergence of Contemporary Critical Theory and Technology. Johns Hopkins University Press, Baltimore (1992)

Author Index

F. Zanella et al. (Eds.): Design! OPEN 2022, SSDI 37, pp. 795–796, 2024.
https://doi.org/10.1007/978-3-031-49811-4