

Experience and Meaning-making Process in Interactive Arts

The influence of play and aesthetic distance in interactive art encounters

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Resumo

Esta dissertação procura compreender e descrever detalhadamente a relação entre jogo livre e o processo de criação de significado na recepção de obras de arte interactivas. Argumenta-se que o jogo e o carácter lúdico observados durante este tipo de recepção artística predominam em muitas destas experiências interactivas. Nesta perspectiva, propõe-se examinar aprofundadamente a natureza e o tipo de jogo que surgem destas interações mas também compreender como é que a sua emergência afecta a compreensão simbólica da experiência.

Argumenta-se ainda que apesar da ênfase dada à redescoberta do corpo e dos sentidos, à performance corporal e a outros aspectos da ação fomentados por este tipo de experiências, estas também encerram significados que requerem uma interpretação por parte dos participantes. Como tal, esta análise procura verificar se o jogo, a performance corporal e as operações necessárias para ativar a experiência se sobrepõem à dimensão simbólica do encontro ou se por outro lado, ainda existe “espaço” para uma reflexão distanciada sobre a experiência vivida e sentida.

Para realizar este estudo desenvolveu-se um método IPA (Interpretative Phenomenological Analysis) para examinar a recepção de três obras interactivas em condições naturais. Além disso, através da revisão do conceito *psychical distance* desenvolvido por Edward Bullough, analisou-se o conceito de distância estética aplicado às artes interactivas. Esta discussão foi refinada e enriquecida através dos dados provenientes das análises qualitativas.

Palavras-chave

Arte Interactiva; Experiência Estética; Jogo; Fenomenologia; Avaliação Qualitativa; Distância Estética.

Summary

This dissertation aims to understand in detail the relationship between play and the sense-making process in interactive art encounters. It argues that play and the ludic character observed in such encounters are fundamental dimensions, which predominate in many interactive art experiences. From this perspective, we propose to examine in depth the type and nature of play but also to understand how its emergence affects the symbolic understanding of the experience.

Moreover, it argues that despite the emphasis on the bodily, sensorial and performative, interactive artworks still hold a sense that needs to be interpreted by participants. As such, our analysis aims to verify if play, operability and bodily performance override the symbolic dimensions of the encounter or if, instead, there is still a space for detached reflection about our lived and felt experience.

To accomplish this task an interpretative phenomenological method was applied to examine the reception of three different artworks in natural settings. This method was prepared and adapted according to each interactive artwork. Furthermore, by reviving the concept of psychical distance developed by Edward Bullough, we examine the concept of aesthetic distance in interactive arts, refining this discussion with the data provided by our qualitative analysis.

Keywords

Interactive Art; Aesthetic experience; Play; Phenomenology; Qualitative evaluation; Aesthetic Distance.

Foreword

Very different reasons have motivated this research, yet the first subjects of interest have substantially evolved into what this dissertation presents to us. My interest in interactive art theory goes back to the moment when I first started to develop interactive and generative objects using mouse/keyboard interaction and, later on, full body interaction modalities that involved body movement, gesture, face detection or sound detection. Despite my fascination with technology as an expressive medium, at that moment of experimentation many aesthetic questions regarding interactivity arose and continued to emerge during my experience working as a multimedia designer at Ydreams. This Portuguese company working with interactive media installations found an interesting way to grab the attention of consumers, engaging them in action and playful interaction to advertise a product or to share knowledge in the case of educational or museum applications. By that time I was interested in finding new strategies to create more engaging and complex installations, and thus I began to study interactive encounters and the nature of participants' experiences. Interestingly, this study took me back to the field of digital art theory, since a considerable quantity of the propositions developed by interaction design companies have been inspired by digital art creation. Our frequent visits to media art museums revealed very intriguing findings regarding the playful and cheerful mood surrounding interactive art installations. Likewise, soon enough, new questions emerged from this exploration and suddenly I became interested in understanding what was the nature of the playful experiences that so often appear in both interactive art and media applications. Some of the artworks seemed to propose an experience that was simply interested in providing a cheerful, playful moment devoid of any kind of critical thinking, yet the artists and the descriptions of these artworks argued something different. For these and other reasons we decided to bring forward the research that we present in the coming pages.

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Introduction

This thesis focus its problem on a fundamental shift that has occurred in art reception – the transition from spectator to operator. The following text files the reflection path and the qualitative analyses that were completed during our research in order to understand in more depth the sense-making process during interactive art encounters.

We hold that interactive artworks instill a duty to interact and to operate that is unknown in traditional aesthetic experience, thus opening a new paradigm that needs some critical examination. Indeed, since the 1980s, machine-based interactive art practices have held the attention of many scholars and theoreticians, who have greatly contributed to our understanding of interactive art experience. Yet most of these accounts focus on the new features and structural aspects of such propositions, very often overlooking the symbolic aspects carried both by interface and by bodily performance.

My artistic background dedicated to developing interactive installations and open-ended environments, as well as the extensive observations that precede this research, aroused my interest in understanding the influence of *play* and *free-play* in interactive art encounters. Play appears as an important, almost omnipresent dimension that frequently unfolds from such encounters.

We were particularly intrigued by the ways digital artists convey playful and at the same time thought-provoking experiences. Regarding our personal experiences most of our encounters with interactive art installations were essentially rooted in bodily and sensorial activity, foregrounding a cheerful and playful mood. Yet the artworks' statements were very often demanding for a critical reading of such experiences. In other words, there are other layers that one is supposed to grasp beyond the experience of bodily play.

In this sense, our question at the very beginning was: how does play influence the sense-making process in interactive art encounters? Do physical manipulation¹ and bodily play override the symbolic aspects conveyed by the artwork/experience? Apart from these questions, we expect to understand what kind of play emerges during such encounters.

Play has been extensively studied within different fields of knowledge and from very different perspectives: sociological, anthropological, psychological and philosophical. Yet the study of play in interactive art aesthetics has received little account outside game studies. Nevertheless, we will import knowledge from other fields to support and to expand understanding of the experience of play during interactive art encounters.

Furthermore, another relevant aspect that will be analyzed during this text refers to the learning curve ascribed to each proposition. As we will see, different interaction modalities feature different degrees of difficulty. Screen-based artworks using mouse and keyboard are usually much easier and more intuitive to operate than installations that propose unusual interfaces. Since most of us are acquainted with the interaction mode of traditional interfaces using mouse and keyboard, our attention is normally re-directed to the “contents” of the work, and much less to the interface and its mechanisms. Yet this appears to be different when applied to other exotic interaction modes that demand a certain time commitment and engagement on the part of participants. As such, other questions arise: can participants be free from the “practical ends” of the experience when interfaces are complex? In other words, is it possible to experience the work beyond the interaction grammar, to reflect and to concentrate on the symbolic aspects of the experience? Or, is there still some room for critical distance during or after the encounter? These questions will be properly contextualized and other sub-questions will emerge during the next chapters.

¹ The adjective “physical” is used along this text to refer to the spectator or participant’s body. Physical activation, manipulation, playfulness or operation are therefore related to a certain activity that involves the participant’s body and particular actions.

Nevertheless, we should note that one of the problems in analyzing the experience with interactive artworks seems to derive from the massive diversity of propositions and interaction modalities available. We cannot simply summarize the experience of interactive art in a single description. Certainly, one can identify several common dimensions when describing interactive art experiences, yet, as with traditional artworks, each proposition conveys a unique experience. With this in mind, we do not seek to find a broad definition or generic understanding of interactive art experience but, instead, we aim to analyze some artworks presenting a certain potential to trigger playful experiences so we can grasp the influence of play in the sense-making process.

To accomplish this task we will be using a qualitative methodology relying on interpretative phenomenological analysis, which will be specifically adapted to evaluate aesthetic experiences. This methodology includes unobtrusive observations in museums and galleries, but also the implementation of qualitative interviews featuring some participants previously observed. This method will allow us to produce new information from both observations and interviews. Yet, before preparing this methodology, we need to acquaint ourselves with other aspects regarding the experience with interactive arts, phenomenological and semiotic approaches to analyzing interactive art, the nature of play and, among other important subjects, the notion of psychological distance.

To resume, during the nine following chapters, we attempt to answer the following questions:

- 1) What kinds of play emerge during these interactive art encounters?
- 2) How does play influence the sense-making process in these encounters?
- 3) Are physical manipulations and bodily play overriding the symbolic aspects of the experience?

In chapter I we briefly trace the origins of contemporary machine-based interactive arts. We begin by providing an operational definition of interactive art and after that we identify an important group of works that precede technological interactive artworks, which have clearly influenced contemporary digital artists. Futurist and Dadaist performances, participative kinetic sculptures and other participatory artworks from the 1950s, and some video installations constitute the basis for interactive digital art. Moreover, the analysis of some *proto-interactive* artistic propositions created at the beginning of the 20th century allows us to understand the sociological aspects that triggered such manifestations as well as the motivations of artists such as Marcel Duchamp. The last section of the chapter analyzes some of the formal and structural aspects introduced by computers in the field of art.

Chapter II argues that the ocularcentrist analyses criticized by new media and digital media art theorists seem to have provoked the emergence of a certain “bodycentrism” in the field of interactive art analysis. Embodiment, phenomenological discourses, and technical and formal analysis occupy a central place in this analysis, while interpretation and semiotic analysis seem to have been forgotten and disregarded. Yet, in a paradigm of presence and action in which spectators have been given the power to affect and co-produce the work, the phenomenological body still carries and conveys meaning that demands interpretation. In light of this, chapters II, III, IV and V attempt to connect two fields that are normally separated – phenomenology and semiotics. The aim is to prepare a functional basis for analyzing and understanding the experiences of interactive artworks in a more comprehensive way.

As we will see in the course of Part I, a richer study requires a phenomenological-semiotical approach but also the observation and qualitative analysis of a particular experience. The study of the interactive apparatus alone is not enough, and it is a complex

task to conduct due to the endless possibilities that such apparatus potentially contains. As such, this phenomenological-semiotical approach will be combined with the qualitative evaluation method.

Part II is split into two chapters: the first is dedicated to studying the experience of play in interactive art encounters and the second introduces the notion of aesthetic/psychical distance and the different distancing factors. We argue that interactive art experiences share many dimensions with game play experiences, although they present some fundamental differences that dramatically change the type of experience provided by such propositions. To this end, we attempt to describe the nature of play by synthesizing the information stemming from our observations with the literature on play available from different fields. The authors used as the main references in this study are Johan Huizinga, Roger Caillois, Salen and Zimmerman, Serge Tisseron and D. W. Winnicott.

The second chapter argues that the physical distance between spectator and artwork has been radically reduced in interactive art experiences. The spectator is not only inside the picture but also at its origins – the spectator generates the picture. Regarding such conditions for aesthetic experience, we examine Edward Bullough's notion of psychical distance, asking if this distance can still emerge in such experiences. This question takes us to the next chapter.

In chapter VIII we analyze three different interactive installations using qualitative methods: *The Legible City* by Jeffrey Shaw, *Interactive Plants Growing* by Christa Sommerer and Lauren Mignonneau and *Please Empty Your Pockets* by Rafael Lozano Hemmer. Before starting the analysis we describe the advantages of using qualitative methods and more particularly the use of interpretative phenomenological analysis to answer our

questions. Then, we describe in detail our method and the manner in which we will proceed. Once again, this was carefully prepared and adapted according to each artwork. Afterwards, we present the interpretation of the data collected that will feed the discussion at the beginning of the next chapter.

During the last chapter (Chapter IX) we reflect about the results provided by the qualitative studies made and we try to answer some questions regarding the phenomenon of aesthetic distance and the different distancing factors of the three interactive artworks studied. This discussion will then lead us to the notion of *flow design* and to a qualitative study that attempts to measure flow states during the experience with the installation *The Legible City*. Regarding the negative feedback provided by this study, we introduce the notion of *smooth design* to characterize interactive artworks that absorb participants into frictionless action, yet don't hold the distancing power needed to provoke some kind of critical reflection.

The end of the chapter is dedicated to explore the notion of *friction design*. Here, we analyze several examples of digital arts that are designed not to be transparent but rather to "brake" the action flow and to create some distance, and thus some critical thought beyond the interface. This notion is then extended with the concept of *critical play* developed by Mary Flanagan and, finally, we conclude by analyzing some of the recent strategies and tactics for interactive arts outside the gallery and museum.

PART I

Analysis of Interactive Arts, Phenomenology and Semiotics

Chapter I – From object to process: a brief introduction to interactive art(s)

During the last four decades museums and art galleries have been proposing artistic apparatus and installations which demand the active participation of their visitors. The nature of such experiences is however distinct from traditional art encounters. Certainly, paintings, video and photography also demand the physical presence of spectators. As Marcel Duchamp rightfully observed, aesthetic experience occurs according to the triangle of artist, artwork and spectator, yet these recent manifestations only come into being when spectators physically act, triggering the artwork and bringing it to life. (Duchamp, 1987)

In this regard, interactive art encounters bring the claim “the spectator makes the picture” to its full meaning. (Judovitz, 1987, p. 187) What we call interactive art today is not only the product of technological progress and computer science but also the consequence of a social shift that took place at the beginning of the twentieth century. Interactive art is composed of a heterogenic body of works whose origins can be traced back to artistic practices and movements such as Futurism, Dadaism, Surrealism, Fluxus, Land Art, and Participatory Art. As we will see further on in this chapter, the first art manifestations demanding physical participation, even if devoid of any digital apparatus, appeared at the very beginning of the 20th century. Taking this into account, regarding the diversity of proposals and approaches, it seems more reasonable to talk about “interactive arts” instead of interactive art.

Our interest in understanding the experience and sense-making process in machine-based interactive art cannot simply discard and ignore these predecessors. Instead, we should firstly try to analyze what has changed regarding the aesthetic experience of traditional arts. We should try then to examine what made artists share their creative power with the spectator,

transforming them into co-creators of the work. Furthermore, how does this co-creation affect the aesthetic experience? These are some of the aspects that we will try to cover in the course of the chapter, while clarifying and defining some operational concepts that will be useful as an attempt to understand and to characterize the sense-making process in interactive arts.

1.1) Defining interactive arts

In the last few decades interactivity has become a trend in the art world which is according to Claudia Giannetti “not only the sign of the contemporariness of the piece of work but also of its quality.” (Giannetti, 2004, p.1) But if all human-made objects, spaces, messages and systems seem to offer a potential for interaction then why apply the adjective interactive to an artwork: is this not redundant?

The term interaction has been applied and used in many different fields of human knowledge and action, although the meaning tends to change and we should make it clearer what we mean by *Interactive Arts* in this context before moving forward.

The definition of *Interactive Arts* seems above all to signalize a separation between two paradigms: one that acknowledges spectators’ participation, in which they are able to touch and physically transform the artwork’s structure, and another more traditional one characterized by a one-way communication process, in which the artwork is able to influence and eventually change the spectator, but not vice versa. Our difficulty in understanding the term interactive in the artistic field increases when considering the statement “all art is interactive” and simultaneously analyzing the definition of the term *interactive* in different dictionaries. (Ascott, 2002, Online) Of course, even in traditional arts, the encounter between spectator and artwork has been regarded as an interactive process in which the beholder is normally influenced and transformed by a painting, a sculpture or a photograph. Yet, despite the long-term physical transformations that an artwork can eventually undergo, it will not

physically change during the aesthetic encounter. The audiences and the context of reception are also able to affect and influence the artwork's aura and meaning over time, but these changes are normally harder to perceive and to track since they are subjective dimensions that evolve very slowly.

Despite the importance of this topic we need to continue analyzing the meaning of the term *interactive*. Thus, according to the Collins Dictionary, *interactive* means: “(of two or more persons, forces, etc) acting upon or in close relation with each other” and *interaction* is described as “a mutual or reciprocal action or influence” or in physics “the transfer of energy between elementary particles, between a particle and a field, or between fields.” (Collins Dictionary Online, 2012)

So, according to these definitions, in order to be interactive each integrating actor or force in a certain system should be able to act and react to the others, providing feedback. However, this definition of *interactive* seems to be a generalization. For Usman Haque, artists and practitioners in the field of interactive art inadvertently use the term *interactive* to describe what is frequently a *responsive* system. In a responsive system, he explains, there is “an artifact doing something solely in linear-causal response to actions by a person (or environment) generally structured on preprogramed cycles of call-and-response between human and machine.” (Haque, 2007, p. 26)

In this interactional mode the artwork contains a set of predefined behaviors that are triggered by a specific external action performed by participants. A dialogue takes place between human and machine in which the former has to find how to trigger and enter into contact with the apparatus and at the same time adapt to its constraints and limitations. In this regard a “real” conversation as in a human-to-human interaction model can hardly take place. Even if the answers from the computer might influence participants to follow a certain path,

the computer is normally unable to adapt and evolve according to a certain input that was not initially programmed by the artist.

For Jean-Pierre Balpe the interactive spectator is part of the model constructed by the artist; he claims that interactivity is a presence in the artwork, and not an attitude like in participatory art. (Balpe, 2002, p. 16) Moreover, for Frank Popper, participation precedes the concept of interactivity in art and should not be confused with it. (Popper, 1999, p. 25; Hudelot, 2008, p. 16)

Inside a participative artistic environment or event participants are able to introduce information and to “walk” through non-programmed paths during their interaction with other participants. If participatory art is normally providing an aesthetic experience that lies in the relationship between the participants or between the participant and the artist, in most interactive arts proposals, the aesthetic experience unfolds from the moment of interaction between spectator and technical apparatus.

As in the example given by Haque regarding the differences between a cash machine and a human bank teller, in the latter, the participants are able to enter a real conversation since they are not limited to a set of options given by a technical apparatus and can dynamically construct a single path by means of collaboration. (Haque, 2007, p. 26)

Giannetti claims that in order to allow a “real information exchange” between human and machine, the technical apparatus needs to allow the user to introduce information so new information can be generated. (Giannetti, 2004, p. 3) Haque defends this same Paskian viewpoint on interaction, claiming that:

“[Interaction] arises because a person is able dynamically to affect the input and output criteria and how they are processed. Each of the interactors (human and machine) is able to act directly upon each other.” (Haque, 2007, p. 27)

A very similar technological approach to interactivity is conveyed by Simon Penny: “An interactive system is a machine system which reacts in the moment, by virtue of

automated reasoning based on data from its sensory apparatus... Interactivity implies real time.” (Dixon, 2007, p. 560)

Interactive artworks are in this sense dependent on spectators actions, favoring real time action, gesture and matter over representation as well as “the instable and transitory character of action over the stability of more traditional work.” (Bleeker, 2007, p. 35) Interestingly, a considerable number of scholars who have been studying digital and interactive arts emphasize the shift from object to action, relation and process: “The object of interactive art is without value, for it becomes valuable only when the viewer changes it”; “[it’s] a relational object that can release a behavior in the visitor or user that also causes a change in the object itself. There is “conditional readiness” on both sides.” (Mulder, 2011, pp. 210-217) In a very similar vein, in the book *La relation Comme Forme*², Jean Louis Boissier highlights the paradigm shift foregrounded by interactive art experiences:

“Si la perspective optique est ce par quoi on peut capter ou construire une représentation visuelle, la perspective interactive est à même de saisir et de modéliser des interactions, de décrire des relations. Nous prenons le parti d’envisager la relation en tant que forme. Nous considérons par conséquent qu’une image-relation peut être produite par ce nouveau type de perspective. On verra alors que la perspective interactive projette les relations dans un espace relationnel, qu’elle les place à distance et les rend ainsi perceptibles, identifiables et jouables.”³ (Boissier, 2004)

Claudia Giannetti also comments on the extinction of the object, observing that “the process prevails over the work; as a consequence thereof, the object disappears in the electronic process.” (Giannetti, 2004, p. 2)

Indeed, if spectators remain immobile as they do in front of traditional artworks, nothing happens and the work will “remain dumb, waiting to be activated.” (Amato & Weissberg, 2003, pp. 240-245) Jean-Louis Weissberg observes that one of the main aspects of the interface is how it calls for gesture. In his view, the gesture is exactly what characterizes interactive reception and he goes further by introducing the notion of *acted*

² Relation as form.

³ If the optical perspective allows us to capture and construct a visual representation, the interactive perspective is capable of capturing and modeling interactions, to describe relations. We consider the relation as form. As a consequence, we consider that an image-relation can be produced by this new type of perspective. As such, we will see that this interactive perspective projects the relations in a relational space, it places them at distance, thus making them visible, identifiable and playable.

image: “an image that causes and demands actions - synonym to interactive image but putting the emphasis precisely on the action in the sense of gesture.” (*Ibid.*)

Nevertheless, despite the focus on the body, gesture and action that is so present in these different scholarships, Weissberg observes that the interface works as a membrane, as a “transducing environment between the semiotic world of the interactive work and the necessary presence of the addressee” which presents a potential for action. (*Ibid.*) As such, the interface is at the same time the figurative element and the command instrument that intertwines action and vision. (*Ibid.*)

Even if in some aesthetic encounters the interface disappears from spectators consciousness, centering their attention on the body, gesture and perceptive mechanisms, we claim that in many propositions the interface is still a very important dimension of our experience, supporting textual and figurative elements, triggering our curiosity, fascination and pleasure of discovery. In this sense, if we only focus the discourse and analysis of interactive art on the novel aspects of such experiences, we might be forgetting certain dimensions that are more traditional but that still need to be taken into account. This aspect will be further addressed by analyzing Jay Bolter and Richard Grusin’s account of *hypermediacy* and *immediacy*, and also in the last chapter while examining the conclusions of our case studies.

1.2) From Spectator to Participant

We have been using the term spectator to identify the person who experiences a certain interactive apparatus or environment, yet this term does not seem to make much sense in the context of interactive arts.

Etymologically, spectator derives from the verb *spectō*, which means, “to watch” and *speciō*, meaning “to look at”. Yet interactive art experiences open up a new chapter regarding

spectatorship that should be signaled here. As we suggested above, the “spectator” does not only watch or look at something but acts, moves and gesticulates, changing the formal structure of a certain proposition. As such, the term spectator does not properly embody properly this potential for action and contemplation that seems to define the “interactive spectator”. In order to fill this gap, different authors have been applying other terms and neologisms to describe this relationship, including interactor, user, player, performer, *vuser*⁴, spectator⁵, or participant.

The terms interactor and user are too broad for our purposes and very often appear connected with software or computer usage. The term player is frequently related to game play and despite the playful character of certain interactive artworks this designation would be too narrow to embody the variety of experiences supported by all the different propositions available. Certain theoreticians as Jean Louis Boissier or Samuel Bianchini have productively analyzed the performative dimension triggered by interactive art environments⁶ but the term performer has been too linked with stage performance or with the artist’s creative gesture more than with this new emancipated spectator that interactive artworks foreground.

From the three remaining designations *vuser*, spectator and participant, the latter seems to correspond better to the type of activity one is engaged in when encountering interactive art forms. While the term participant is strongly rooted in participatory art events from the 1950’s and 1960’s, it presents some advantages in relation to the others that were previously mentioned.

⁴ “Vuser (view + user) questions the place of art in society, understanding that the act of seeing is an active engagement through participation. The artistic content is generated as a product of behavior and interactive relationships.” (Gouveia, 2007, p. 381; Seaman, 1999, p. 30)

⁵ Jean Louis Weissberg uses the neologism *spectator*, in French *spect-acteur*, underlining that the word *acteur* (actor) should not be read in a theatrical or sociological sense but should instead be understood in the sense of the action or gesture. This term couples the perceptual function of looking at (*spect*) with the notion of act/action. In his own words, “For me, being a spectator is also being a spectator. Nevertheless, to be a spectator, you have to intervene in the formal matter of the propositions (stories, works, etc.)”

⁶ Cf. AAVV, (2004), *Jouable – Art, jeu et interactivité*. Haute Ecole d’Arts Appliqués HES, Genève, Ecole Nationale Supérieure des Arts Décoratifs, Paris, CIREN, Université Paris 8, Centre pour l’Image Contemporaine, Saint-Gervais Genève. Cf. Bianchin. S. (2012) La performance. Quand dire, c’est faire.

Etymologically, *participant* stems from Latin *participare* meaning "to share in, partake of". On the one hand it embodies the movement or action of engaging with something and on the other hand it carries with it a fundamental dimension of interactive artworks: the process of creation is shared.

Artists create environments featuring different degrees of openness that create some space for participation, in this way sharing their creative power with their public. More than simply acting by performing certain movements and gestures, the public engages with a certain environment being mediated by a certain technical apparatus and participating in the act of creation. This dimension is crucial to this type of art manifestation opening an unprecedented aesthetic paradigm at the beginning of the 20th century. The question that subsists at this point is: why have artists left their works "incomplete" and why have they decided to share their creative power with the spectator?

1.3) Tactiloclasm and the Origins of Interactive Art(s)

"Interactive art subverts the system that has been objectified, defined and concluded by the artist, a predominant system in our Western culture and in artistic manifestations. Therefore, the interactive work of art means a step forward with regard to the classic aesthetic theory, focused on the art object, towards a new theory, which has as its main reference point the observer, the audience, the user." (Giannetti, 2004, p. 2)

The introduction of the spectator as a co-author of the artwork was greatly influenced by the social context at the end of the nineteenth century. There was a clear paradigm shift at different levels of Western society that was strongly linked to technological innovation. The introduction of electricity in steam-based industries and in the home, the invention of the telephone and the production of cheap photographic cameras augmented the number of gadgets and small apparatus available, which were quickly reproduced and multiplied reaching the household and raising the levels of domestic consumption. These electrical

devices rendered people's lives more complex, as well as their relationship with objects and with others.

At the beginning of the twentieth century, according to Erkki Huhtamo, Western society was essentially "tactiloclastic". Regarding the relationship between the spectator and the artworks in galleries and museums, the author explains that "tactiloclasms" are cases where physical touch is not only absent but also forbidden. (Huhtamo, 2007, p. 75)

In his article *Twin-Touch-Test-Redux: Media Archaeological Approach to Art, Interactivity, and Tactility*, Huhtamo goes back in time, in an attempt to locate the origins of tactility in art experience. According to him, a confusion rooted in this "tactiloclastic" paradigm describes the present relationship between spectators and artworks inside museums and galleries. Some of these places bring together interactive and participatory artworks while presenting other non-interactive forms, thus giving rise to doubt and confusion and creating a tension between spectators and the institutional rules. (*Ibid.*) Huhtamo agrees with Classen who regards the situation inside museums at the end of the nineteenth century as a cultural construct and not as something natural:

"Touching with one's eyes only was a manifestation of an ideological mechanism, where the formation of the aesthetic experience was associated with "stepping back" – maintaining physical distance from the work: Touching a sculpture or a painting was not only deemed vulgar, but forbidden." (Huhtamo, 2007, p. 76)

Huhtamo sees the materiality of the artwork as a reason for this behavior in the art world of that time. According to him, the admiration and romantic worship of superior craftsmanship that was the result of the work of an "artist-genius" conceded artworks a certain special aura, sacralizing them.

The artwork's commercial value was another reason for this cultural construction. Such value was not only preventing people from touching the artwork but it was also separating two classes, one bourgeois that was able to collect, invest in and "touch" it and the other that could only look at it. (*Ibid.*)

At the same time, by the end of the 19th century Huhtamo identifies a similar situation regarding the department stores. Unlike today, most of these stores did not allow their customers to touch the products. There was always some kind of mediation between product and client – the store assistant or salesman would prevent clients from any kind of incorrect behavior. If inside the museum this barrier seemed to empower the artwork's aura and to maintain the work's sacralization, in the store, the products kept behind the glass of the displays were supposed to create a desire for consumption through haptic visuality.

Outside the art world a tactile paradigm began to arise in the midst of all the regulated behavior from in the museum, the church and the department store. (Huhtamo, 2007, p. 77) Slowly, technological progress brought all kinds of interactive devices into the mainstream, and during the first two decades of the 20th century the art world underwent remarkable transformations that might have been essential to the emergence of what we call today Interactive Arts. Despite the existence of early museums and cabinets of curiosities where touching the pieces was allowed and encouraged, the role of the artist and spectator was always well defined until the beginning of the twentieth century. (Huhtamo, 2007, p. 76)

According to Boris Groys this dichotomy began to collapse due to the emergence and rapid development of visual media that, throughout the twentieth century, transformed a vast number of people into objects of surveillance, attention, and contemplation to a degree that was unthinkable in any period of human history. (Groys, 2010, p. 14) Moreover, Groys claims that at the end of the nineteenth century Kant's disinterested contemplation that was previously considered the "highest manifestation of the human spirit" was discredited and the *vita contemplativa* gave place to the *vita activa* as the most refined human condition. (Groys, 2010, p. 35)

It was also at the beginning of the twentieth century that Marcel Duchamp changed the art world by introducing, among other things, the concept of *ready-made*. *Roue de*

bicyclette, the first known *ready-made*, was presented by the artist in 1913 and it consisted of a sculpture composed of a bicycle wheel mounted by its fork on a painted wooden stool. Later, Duchamp presented other known ready-mades such as *En prévision du bras cassé* and *Fountain* in 1917. These objects were not manufactured by the artist but rather selected by him and lately introduced into the art gallery. These were mass-produced objects used in everyday life, which according to Duchamp worked essentially as vessels for conceptual thinking.

The readymade worked against the romantic idea that regarded artists as virtuous geniuses inspired by a certain divine entity, which allowed them to create unique and irreproducible objects that had as their ultimate goal a purely retinal consumption and worshipping. The affordances for movement, bodily action and physical activation embodied by *Roue de bicyclette* foreground the artist's interest in the triangle: artist, artwork and spectator.

Some years later, in 1920, Duchamp constructed another kinetic sculpture called *Rotary Glass Plates (Precision Optics)* that demanded physical activation by the spectator. After turning the device on, the spectator should then step back and stand one meter away from the structure in order to observe the image produced by the movement of the striped glasses.

As we will see in the next section, Duchamp was concerned with spectators' role in the creative act of aesthetic experience, realizing that it is "the spectator who makes the picture." (Judovitz, 1987, p. 87) He subverted and interrupted a tradition in which the spectator's aesthetic experiences took place at a distance. By introducing a small amount of technological knowledge, he brought spectators closer to the artwork, including them as co-authors.

1.4) Proto-interactive Artworks and the Invitation to Touch

During the early years of the 20th century we find some avant-garde artworks that played on and commented on the established physical distance between spectator and artwork imposed by the museum or the art gallery. The aforementioned *Roue de Bicyclette* (Bicycle Wheel) was an ambiguous proposition that, due to its shape, invited spectators to touch – to set the wheel in motion – creating a moment of tension which had at one extreme the desire to touch and at the other an inverse strength of social commitment and museum regulation that prohibited any physical contact with artworks.

Erkki Huhtamo calls these types of works – ones that have the power to afford touch but that do not need to be physically activated by the spectator – *proto-interactive* objects. (Huhtamo, 2007, p. 81) In another artwork by Man Ray, *Objet à détruire*, a metronome in action swings a piece of paper representing an eye. According to Huhtamo, in front of *Objet à détruire*, the spectator wishes to “break the spell of the to and fro movement of the eye.” (*Ibid.*)

Due to their material qualities and texture affordances, *Sculpture for the Blind* by Constantin Brancusi and *Le déjeuner en fourrure* by Meret Oppenheim create a strong desire on the part of the spectator for physical touch. (*Ibid.*) Moreover, one should also remember the highly haptic qualities already found in the pictorial elements of *The Ambassadors*, a painting by Holbein from 1533 (*Cf.* Fig. 3).

John Berger describes the experience with this painting as: “the eye moves from fur to silk to metal to wood to velvet to marble to paper to felt, and each time what the eye perceives is already translated, within the painting itself, into the language of tactile sensation.” (Berger, 2008, p. 84)

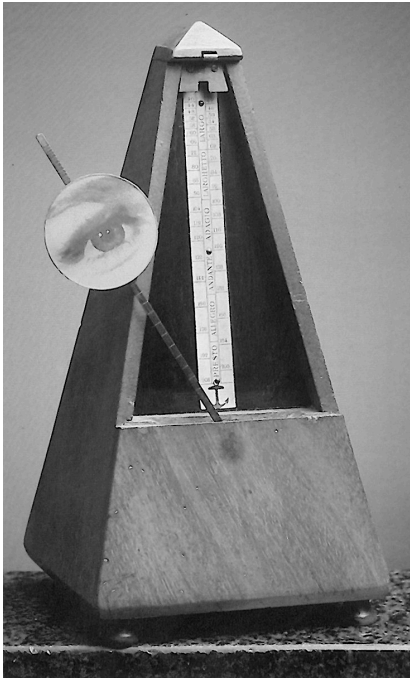


Fig. 1 – *Objet à détruire* by Man Ray Fig. 2 – *Le déjeuner en fourrure* by Meret Oppenheim

However, it is important to note that the context and the statement are not exactly the same. While the mentioned *proto-interactive* artworks were probably the first to propose an abolishment of the physical distance between artwork and spectator, secularizing the artwork and the artist-genius, Holbein’s painting is according to Berger a new kind of wealth: “Painting itself had to be able to demonstrate the desirability of what money could buy. And visual desirability of what can be bought lies in its tangibility, in how it will reward the touch, the hand, of the owner.” (*Ibid.*)

More than new original forms of visual representation, these proto-interactive objects seem to constitute the conceptual structure that is at the origin of contemporary computer-based interactive art. Certainly, some years after this pre-interactive ground, Kinetic Art was introducing the spectator as an active element capable of transforming the formal structure of the artwork.



Fig. 3 – *The Ambassadors* by Hans Holbein, 1533

The movement as a subject is normally foregrounded by Kinetic Art's theories and analysis, although Kinetic artworks have also introduced new possibilities of participation beyond automatism. Scholars have recognized this aspect yet it remains only superficially explored.

1.5) Kinetic Art, Participatory Art and Video Art

Between subjective movement and objective movement, painting, sculpture and photography represent movement since 1860. Frank Popper has defined three types of *oeuvres en mouvement* (moving artworks) – static, kinetic and virtual movement. In the first type, static, the movement becomes perceivable after a period of contemplation, the kinetic type displays the real movement of a body in motion and the virtual movement is inbetween both these types, giving the sensation of movement suggested by the use of transparent layers, lines and color compositions. (Popper, 1970, p. 87)

According to Peter Weibel, Kinetic Art renounced representation in favor of real movement and the perceptual phenomena became a subject rather than instrument and a perceptual experience that was often triggered by the spectator. (Weibel, 2007, p. 25)

Kinetic Construction no. 1 (Standing wave) by Naum Gabo and *Rotary Glass Plates* by Marcel Duchamp are two kinetic sculptures from the early 1920's that constitute the reduced body of pre-kinetic art sculptures, which was probably at the origins of a movement [Kinetic Art] that reached its peak of production between 1950 and 1975. Both sculptures are three-dimensional apparatus that are set in motion by the spectator who pushes a button and contemplates the movement propelled by an electric motor.

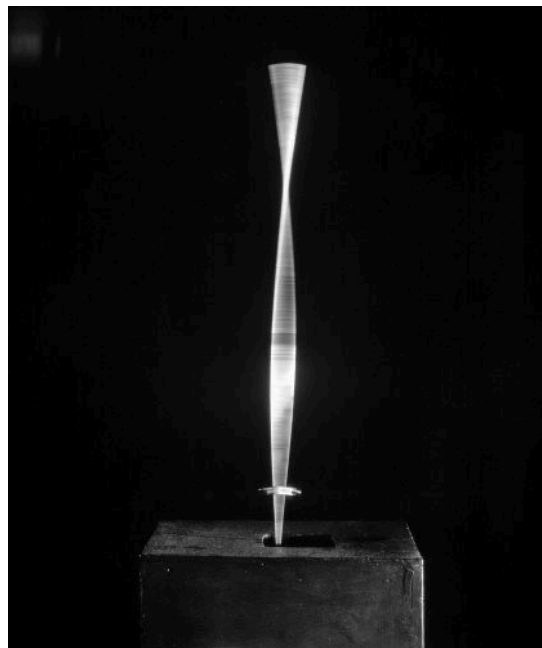


Fig. 4 – *Kinetic Construction no. 1 (Standing wave)* by Naum Gabo

This gesture became popular and more complex in new propositions that emerged between the 1950s and the 1970s.

During an exhibition at the René Gallery in Paris in 1955 one could read: “Prière de toucher”, and some years later during the 3rd Biennial of Paris the group G.R.A.V. (Groupe de

Recherche d'Art Visuel) distributed a flyer bearing the words: “Défense de ne pas participer – Défense de ne pas toucher – Défense de ne pas casser.”⁷” (Dezeuze, 2005, p. 84)

The spectator was expected to act by simply touching, pushing buttons or other kind of actuators, compose forms with metallic panels like in *Bichos*, a sculpture by Lygia Clark, walk and explore the installation space as in *Spazio Elastico* by Gianni Colombo or in *Pénétrables* by Jesus Rafael Soto.

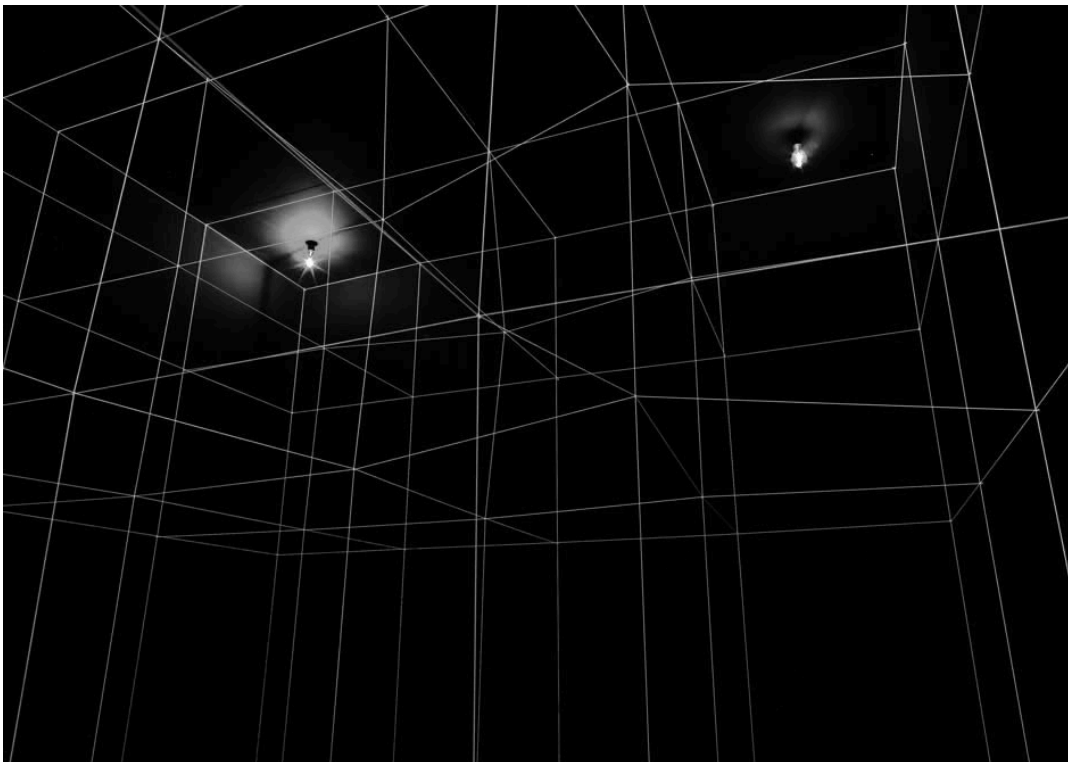


Fig. 5 – *Spazio Elastico* by Gianni Colombo

For a number of artists Kinetic Art was not only an exploration of movement’s qualities as a source of aesthetic experience but, according to Yaacov Agam and to some neo-concretist artists, the exploration of real life, energy and organic forms in art.

For Dezeuze the lifelike dynamism observed in neo-concrete art practice is a reaction to the rationalism and rigidity observed in concrete art, and the spectator’s gestures and

⁷ “Do not not participate – Do not not touch – Do not not break.”

actions constitute an infinite source of energy that is capable of setting a system in motion, transforming and reconfiguring the artwork. (Dezeuze, 2005, p. 85)

Moreover, the introduction of spectators' choices into the way the artwork is presented to her seems to reject a mathematical ideal of perfection in the combination of form and color and the authoritarian artist who controls the perfect composition regulated by an equation or formula. (*Ibid.*)

Despite the openness observed in some kinetic artworks, the degree of openness seems to vary according to the work and the artist. Regarding his works, Yaacov Agam observes that the spectator is not able to create something that he himself has not previously programmed or thought about. In contrast, for Lygia Clark the spectator should be able to establish a "dialogue" with the artwork, free from the artist's sovereignty, the spectator and the artwork becoming in this process completely inseparable one from the other. (Dezeuze, 2005, p. 87-89) For Dezeuze, different kinds of openness present distinct formal and philosophical issues. (*Ibid.*)

"(...) C'est peut-être là que l'on peut situer l'héritage constructiviste qui fonde ces œuvres: la structure géométrique, le refus du mimétisme et de l'illusionisme et le désir de parler un langage universel permettent des façons de parler du corps qui n'ont rien à voir avec les happenings, performances et environnements d'inspiration surréaliste ou expressionniste des années 1960.⁸" (Dezeuze, 2005, p. 90)

Kinetic art was indeed a period where the active relationship between spectator and artwork was explored, but it is necessary to go back in time and consider previous forms of art that constitute the body of pre-Participatory Art.

According to Boris Groys, at the beginning of the nineteenth century artists started to care about and to reflect on the separation of art from its audience. (Frieling & Groys, 2008, p. 19) For him, the seminal *Art-work of the Future* by Richard Wagner was an influence for many avant-garde movements at the beginning of the 20th century. In this work from 1849-

⁸ It may there that we can find the constructivist heritage that founded these works: the geometric structure, the refusal of mimesis, of illusion or the desire to speak a universal language that allows the body to speak in a different way from the happenings, performance and surrealist or expressionist environments of the 1960s.

1850, Wagner regards the artist as an egoist who serves the taste of a rich elite, stating that in order to become serious, artists need to move closer to people in order to express their “artistic desire,” adding that they should be able to work with different media, collaborating with other actors. (Groys, 2008, pp. 21-22)

This attempt to get closer to people and to dissolve artistic authority and individuality was later developed during Futurism and Dadaism. More than creating artistic objects, the Italian Futurists “activated” their audiences through events and collective experiences by provoking public scandals as a strategy to bring the audience out of their passive and contemplative attitude. (Frieling & Groys, 2008, p. 25)

The *Cabaret Voltaire* in Zurich is at the epicenter of Dadaism and was according to Groys a parody and also the reincarnation of Wagner’s *gesamtkunstwerk*. Inside this Cabaret conducted by Hugo Ball, collective performances erased the individual voice to give birth to a collective multi-language poetic body. (*Ibid.*) These early forms of audience participation involved the corporeal presence of the artist and audience in the same place and they can be seen as the predecessors of happenings, *Situationist* events and public performances.

Participation in art shifts from form to process, performance to performativity, intent to indeterminacy, passivity to activity, spectator to participant, and individuality to collectivity. (Frieling & Groys, 2008, p. 33) Participatory artworks are collaborative open environments that involve the artist, the participants and sometimes interaction between participants themselves, which can be mediated by a certain apparatus or any kind of objects sharing a public space, a museum or gallery, an artist’s atelier or even an online space. The artist sets up an event, demanding the audience’s active participation and giving participants a varying degree of authority and autonomy.

In many participatory events created by Fluxus, participants were asked to follow a set of precise instructions, yet in most events participants found a situation, a set of static or

dynamic variables that depended on time, chance, other participants or on the artist's indications. Despite the impossibility of predicting any kind of outcome or behavior, the artist is still the one that controls and sets the initial variables and, in most cases the one who controls the event and is able to stop it or to influence participants to follow a certain instruction.

During one of Yoko Ono's performance at the Carnegie Hall in New York in 1965, the audience was invited to use a pair of scissors to cut off small pieces of Ono's expensive dress while she was seated immobile on the stage. Ono announces the end of the performance while standing nearly naked. While one part of the audience becomes voluntarily participant, the other stands in their place passively witnessing this moment of tension and discomfort. (Frieling & Groys, 2008, p. 108)

Another participatory event by Valie Export, called *Tap and Touch Cinema* invites the audience to "see" by touching and exploring the performer's body through direct contact with it. The performer appeared in public places using a cubic structure around her upper body, allowing participants to have physical contact with her breasts for 15 seconds.

As in *Cut Piece* by Yoko Ono, this performance opened up two dimensions for aesthetic experience: the active experience of cutting Ono's clothes and the experience of touching Export's breasts, and on the other hand the experience of returning to a passive position as spectator and watching others participating. As the structure surrounding Export's body hid the actions performed by participants' hands from the voyeuristic audience, the public was excluded from part of the action, thus centering their attention on the performer's and participants' facial expressions.

In both works the active participation of the audience is voluntary and acknowledged by each participant, although in other works it can be unintentional and involuntary as in John Cage's piece *4'33"*. In 1952 Cage wrote and presented a piece without using a single

musical note from any instrument. The source of sound was actually provided by the audience's intentional and non-intentional sounds. All that could be heard for four minutes and thirty-three seconds was the sneezing, coughing, rustling and the murmurs of an impatient and puzzled audience.

Proximity Piece by Vito Acconci is another example of involuntary and non-acknowledged participation. During the exhibition *Software* at the Jewish Museum in New York, Acconci followed some of the spectators during their path inside the exhibition, and by entering their personal space he affected their movements and their relation with the space, visitors and artworks.

In most of the examples analyzed the artist still has a central role in the creation, and during the execution or performance the audience has a close relationship with the artist's body; it is this same body that promotes interpersonal relationships between the audience members. However, in works such as *Rede de Elástico* (Elastic Net), *Diálogo: Óculos* (Dialogue: Goggles) or *Diálogo de Mãos* (Hands Dialogue) by the Brazilian artist Lygia Clark, we can observe the emergence of body-to-body relationships that unfold from participants' interaction with these *Relational Objects*. Here, the artist's body disappears, leaving a relational space for interpersonal interaction that aims to "rediscover the meaning of our routine gestures." (*Ibid.*)

Another example is *Hole in the Space* by Kit Galloway and Sherrie Rabinowitz. This project connects two distant geographic places – in a large window from the Lincoln Center for The Performing Arts in New York the passer-by on the street could see, hear and interact with a distant audience located at the Broadway department store in Los Angeles. These two ephemeral groups that met by chance and their emergent behaviors were completely unpredictable and free of any kind of instruction. Relationships not only emerged through the screen but were also observed between people who shared the same physical space.

The spontaneous and ephemeral character found in this event is also found in the installation works of Robert Morris. In *Bodyspacemotionthing*, an interactive installation at Tate Modern in 1971, Morris proposed a group of ramps, tunnels, see-saws, platforms and other interactive objects made of raw materials like wood, plastic or metal that were supposed to be actively explored and experienced by the audience. This installation provided a playful moment asking people to run, jump, climb or roll spontaneously, centering their attention on their actions and creating a certain bodily awareness.

Later on, during the 1960s, the active involvement of the audience was also explored by a group of artists who used the live feedback from video cameras to explore spectators' body awareness. Interactive video installations by Peter Campus, Dan Graham and Bruce Nauman brought spectators "inside" a closed-circuit video camera, transforming the image of the viewer's body into the subject and content of the installation. There, the spectator is not inside the picture, the spectator becomes the picture.

Through the use of video delays as in *Present Continuous Past(s)* and other installations by Dan Graham, the strategic positioning of the video camera and perspective distortion as in Peter Campus's *Interface* or in *Live-Taped Video Corridor* or *Going Around the Corner Piece* by Bruce Nauman, the artists confront the viewers with their own image, actions and movements from a perspective that is familiar to them. Besides drawing greater attention to their bodily and perceptual processes and functions, some of these mirror installations were concerned with the impact of technology on society and with issues such as the politics of video surveillance. But in which aspects do these interactive installations differ from participatory works by Yoko Ono, Valie Export, Lygia Clark or Kit Galloway and Sherrie Rabinowitz?

A common aspect to the artworks previously mentioned is the emergence of a relationship established between two or more visitors. Even if the works by Lygia Clark,

Robert Norris, and Kit Galloway and Sherrie Rabinowitz are mediated by some kind of technical apparatus, they are relational objects or apparatus, to use the terminology of Lygia Clark. The object proposes a relationship and a kind of experience, which becomes meaningful due to interpersonal interaction.

Regarding the works by Yoko Ono, Valie Export or Marina Abramovic one can realize that a relationship is established not only with the artist but with the audience around the artist. Inside Bruce Nauman or Dan Graham's installations the visitor might jump, dance, gesticulate and use her body in infinite ways although, the system-mirror will always behave in the same way. After a period of time spontaneous collective actions might temporarily unfold from the viewer-participants, but this kind of installation mainly affords an individual, contemplative experience rather than a collaborative collective action. The complexity of the interaction found in a Bruce Nauman installation is then very different from the interaction within a participatory project by Yoko Ono or Lygia Clark. This does not mean that one is better than the other but rather that they present different qualities that should be analyzed in more detail.

1.6) Machine-based Interactive Arts

The arrival of computers in the field of art reflects a period of technological revolution in which computers were far from being what they are today. They were slower, much bigger and very expensive tools at the service of military groups, communication and other kinds of engineering research. The knowledge required to operate and program computers was in the hands of a few specialists inside laboratories that slowly started to open their doors to artistic experimentation. At the same time, researchers and engineers started to experiment and work on artistic forms by themselves.

According to Peter Weibel, around 1968 it was impossible to ignore the “new alliance of art, information theory and communication media.” (Weibel, 2011, p. 43) For him, the artist was now able to apply and realize combinatorial, probabilistic, stochastic methods and serial systems with more precision and with a higher level of complexity. (*Ibid.*) The artworks became logic systems that were programmed in advance and could present a static or dynamic behavior, which was dependent on randomness, or exterior variables like spectator participation. According to Weibel, these kinds of artworks (Programmed Art) represent a moment of control by allowing the participation of the spectator and a moment of freedom due to the randomness that characterizes some of them. (*Ibid.*) These programmed artworks were, according to Julio Le Parc, unstable structures that freely produced themselves in time and space, this development being dictated by the program or algorithm and by the external active participation of the spectator. (Weibel, 2011, p. 45)

Kinetic art experiments and objects were already dynamic structures displaying constant ever-changing configurations, although the introduction of programming logics allowed the artist to surprise the spectator with completely unpredictable states of the artwork’s structure that did not depend on the laws of physics. For Weibel computer art updated the concept of participation, and the spectator was a very important part of the artwork since the artist was including them as a variable that should “move in front of the artwork, push it and turn it, and help realize what Max Bense called the *aesthetic information*”. (Weibel, 2011, p. 47)

These programmed pictures were left “intentionally incomplete” waiting for the viewer as a “future partner, in the design of the picture” and for Abraham Moles, artworks were now mixed with the concept of research. He explains that before, research was seen as opposed to completeness and experiment opposed to the artwork. (Rosen, 2001, p. 32; Moles, 2011, p. 301)

The artwork was seen as something to experience in constant movement, constantly presenting itself new and refreshed to its audience. For Umberto Eco it was necessary to invent new incomplete and unfinished forms to change the habits of perception, stimulating the spectator's attention and preventing it from resting. (Eco, 2011, p. 99)

Branimir Makanec observed that the artist was able to develop "interactive programs" allowing the spectator to come closer to the work, having a direct contact with it and thus "experiencing it more intensively." (Makanec, 2011, p. 275) Some years before, the group GRAV was concerned with these aspects of interaction and participation in computer art and kinetic art forms writing the manifesto "Stop Art":

"We have to find a way out of the cul-de-sac of modern art. If there are any social aspects at all in modern art, then they must involve the spectator. We want to arouse the spectator's interest, to liberate him, to relax him. We want him to participate. We want him to seek interaction with other spectators. We want to develop together with him enhanced perception and action. A spectator who is aware of his power and tired of so many falsities and mystifications will be enabled to make his revolution in art and to follow these signs: act and cooperate." (Weibel, 2011, p. 48)

The open structures and the precision of lines, geometries and forms of Computer Art created a set of important questions related to authorship, to artwork reception and to an art market that saw the artwork's secularity fall apart.

According to Margit Rosen the movement *New Tendencies* in Zagreb was a reaction against Abstract Expressionism and Tachism and against the cult of the artist-genius. (Rosen, 2011, p. 27) For her, even if the average spectator was unable to tackle this reaction, which was perceivable in the absence of any "trace of the artist's hand," the spectator would be mesmerized by the sparkling and glimmering visual effects provided by the artworks, regardless of their social background or experience and relation with art. According to Rosen this was in "conformity" with the intentions of New Tendencies artists to build a more accessible and democratized art reception. (*Ibid.*)

In a paradigm in which artists give orders to computers and wait to see the results and then expect the spectator to become physically active, operating and "completing" the work,

the question of authorship comes to the foreground. However one needs to realize that such types of works represent a new kind of art. Even if a small part of the composing body of Computer Art is about simulating pre-existent forms of art, these programmed artworks, as Bruno Munari notes, should not be “considered as an object representing something else, but as “the thing” in itself to be observed.” (Munari, 2011, p. 176)

Computer art is for Weibel the product of a time that was following the ideal of exact aesthetics and for Jerko Denegri the scientification of art led it “beyond its status of an exclusively emotionally based human activity, and achieved the ability to establish certain values objectively; values that are object of exact design processes, as well as of realization and verification of meaning related to this new type of artwork.” (Weibel, 2011, p. 47; Denegri, 2011, p. 307)

The computer allowed the spectator to become a participant who was able to make choices and change the continuous variation of the artwork’s structure according to his or her own perspective or taste. As in Kinetic Art, the spectator’s liberty was dependent on the level of control with which the artist endowed the work but then it allowed the spectator to create different forms not only by changing the organization of the systems parts but also by creating new parts in her own image, depending on her gestures, force applied to the actuator or any other source of bodily action.

The evolution and the sophistication of computer technology and computer science research agendas allowed artists to develop artworks that were increasingly complex, allowing very sophisticated levels of information exchange between human and machine. Yet, as Beryl Graham observes the *level of interactivity* is not one smooth scale and it is difficult to accurately address without further terms of reference. (Graham, 1997, p. 38) So, what do we mean when we say that a certain artwork is more interactive than another?

In order to avoid the obscure task of such classification, Graham tells us that it is more productive to look at *kinds of interactivity* rather than at the *level of interactivity*. (*Ibid.*) The interest of having such a taxonomy present at hand can also be very productive and, as such, we invite the reader to consult the next schema (Fig. 6) organized by Graham.

Mapping all computer-based interactive art modalities would be a very intense and time-consuming task that we cannot afford to undertake here. Artwork's modalities range from *point and click* interfaces that provide more intellectual experiences to highly immersive sensorial environments that are shaped by participants' bodily actions. Moreover, some of these modalities result from the crossover with others, thus it is very complex, if not impossible, to separate them into categories considering the type of technical apparatus involved.

Many attempts to classify and organize computer-based interactive artworks have been proposed by different scholars in this field. In *The History of the Interface in Interactive Art*, Söke Dinkla arranged interactive artworks according to the artists' conceptual approaches. (Dinkla, 1994, p. 6) Dinkla distinguishes two generations of interactive artworks. The first one includes all the work by pioneer artists such as Myron Krueger, Jeffrey Shay, David Rokeby, Lynn Hershman, Grahame Weinbren and Ken Feingold that splits into six

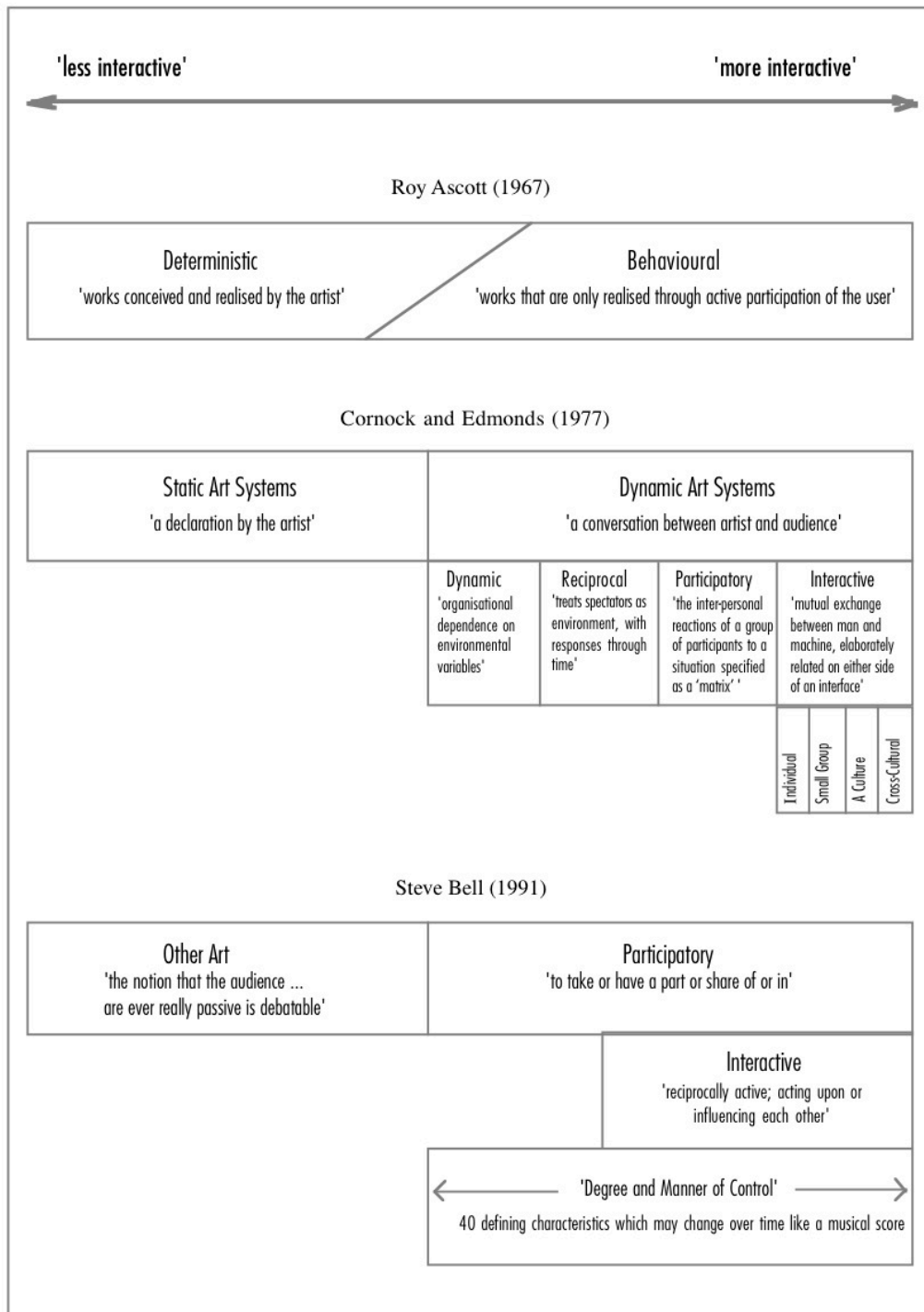


Fig. 6 – Graham’s diagrammatic interpretation of previous taxonomies

main conceptual approaches: 1) Power and play; 2) Participation versus interaction; 3) Proximity and manipulation; 4) Strategies of seduction; 5) Nonlinear narration; and 6) Remembering, forgetting, and reconstructing. (*Ibid.*) While the first generation was more

grounded in stories and metaphors that influenced the content of the works, the second generation led by artists as Bill Seaman, Luc Courchesne or Christa Sommerer and Laurent Mignonneau was more concerned with the interaction process itself, involving unusual and innovative forms of narration. (Dinkla, 1994, p. 6-7)

More recently, in order to classify interactive artworks according to different typologies, Hudelot has defined the “dominant specificities” of certain artworks by defining certain criteria that stem from her qualitative studies. These “dominant specificities” define the type of experience provided by a certain proposition according to the duration of the first phase of the encounter “discovery/comprehension” and the second phase “controlled exploration”, but also according to the degree of implication of a certain spectator. (Hudelot, 2008, p. 288)

As such, three types of interactive artworks have been defined: *cognitive*, *sensible* and *ludic*. *Cognitive* artworks present an important discovery/comprehension phase with an almost nonexistent controlled exploration phase and normally interfaces are complex. In the case of *sensible* artworks, the first phase is almost nonexistent, the passage to the second phase is quick and the interface is normally simple. *Ludic* artworks have a more or less important first phase and participants normally appropriate the artwork. (Hudelot, 2008, p. 289) The reasoning presented by the author is an interesting one yet, as she also acknowledges, it is not possible to define accurate categories since each artwork might have specificities from different typologies. For example, the installation *Bubbles* under the typology *sensible* triggers very engaging ludic and *free-play* experiences. The same goes for *Interactive Plants Growing* by Christa Sommerer and Laurent Mignonneau. (Cf. Hudelot, 2008, p. 292) Despite the semi-obscure interactive grammar, and relatively important discovery phase, we have observed some ludic behavior while studying this installation.

Nevertheless, despite the manifest pitfalls this organization helps us to reflect on our area of study, which sits somewhere between cognitive, sensible and ludic interactive artworks.

What we have attempted to provide here is an overview of the panorama of computer-based interactive arts, but we recommend that the reader consult some previous studies like the ones mentioned above for further insights. Among other findings, this historical approach to interactive arts foregrounds the difficulty in understanding and generically characterizing the experiences with interactive artworks. Firstly, because despite certain similarities found across different artworks, the activation mechanisms and the interaction grammars change from work to work, thus providing a very unique experience that needs individual consideration and examination. Furthermore, despite being a recent art manifestation, the quantity and diversity of propositions available prevent this task from being accomplished in the current research project. In light of this, before turning the page to the next chapter, we would like to circumscribe and describe in more detail our area of study.

During the chapters to come we will be examining different propositions found at the intersection between interactive arts and computer arts, in other words, computer-based interactive artworks. Our selection does not follow any specific conceptual approach, modality or type of experience, although we are particularly interested in studying artworks that involve the participant's body and gestures in an unfamiliar way. That is to say, we privilege objects that use other interaction modalities than the already familiar keyboard and mouse or touchpad. This does not mean that such propositions are not interesting for our research, yet our selection is directly related to the object of study – the influence of operability and *free-play* on the sense-making process. In light of this, we are particularly interested by works that require technical operability and trigger a certain performativity, which acquires symbolic weight during the encounter.

Certainly, one might say that screen-based artworks operated by keyboard and mouse also demand a certain degree of technical operability/learning acquiring a symbolic dimension in the overall experience. Yet this is more strikingly observed in propositions that trigger a more complex physical engagement and that potentially absorb participants into bodily *free-play*. The purpose is to evaluate if in such environments, participants are still able to make sense of their experience from a symbolic perspective or on the contrary, if their experience is more centered on technical operability and *free-play*.

As we described during the introduction, we will use qualitative methods to answer our questions, but we first need to develop our own methodology since this kind of study is still embryonic and each methodology corresponds to a different set of questions. Nevertheless, before that we will start by commenting on the established methods used to analyze interactive artworks.

Our readings on interactive art theory clearly foreground the emergence of an “bodycentrism” that has been overlooking the symbolic aspects of interactive art encounters. The next four chapters attempt to show the advantages of bringing together phenomenology and semiotics in order to understand and describe interactive art experiences in a richer fashion.

Chapter II – *Bodycentrism* and the Analysis of Interactive Arts

2) The Eye and the Body

In the distance a mysterious unstructured and sparkling sound cuts through the resonating hums and murmurs coming from electrical and non-electrical sources distributed throughout the open-space of *ZKM*, the *Zentrum für Kunst und Medientechnologie* in Karlsruhe, Germany. Carried by the hypnotic power of these crystalline sounds we stroll a few meters through the semi-dark space of the museum in an attempt to find the source of such delicate vibrations. Not very far away our eyes focus on the movements of a child playing with projected images of soap bubbles that fall randomly from the ceiling. The crystal-like sound punctuates the precise instant where the child's shadow, intersects the simulated bubble projected on the wall. Despite the absence of touch or any kind of *tactile-feedback*⁹ provided by the visual "contact" with the simulated bubble, both of the actants, bubble and child, are affected by this event. Sometimes bubbles burst or they are elastically repelled, changing their trajectory according to the speed and direction of the gestures made by the child. On the other hand, the child seems to respond affectively to the bubbles' movements but also to the sound generated. In an apparent state of complete absorption, the child reacted to each bubble with a different bodily configuration in a sequence without any predictable pattern.

Whereas children displayed a more spontaneous behavior, adults and young adults were apparently affected in a different way. In such encounters they seemed to try to find some kind of logic or pattern within the sound generative mechanism so they would be able

⁹ Some systems as videogame pads or mobile phones use vibration generators to emit different types of signs to the user. For example, in a videogame car race, when crashing against a wall or another vehicle one might feel the impact in the hands by means of tactile feedback.

to compose and perform according to their personal choices and taste. This interactive experience refers to the installation *Bubbles* developed by Wolfgang Muench and Furukawa Kiyoshi.

Not very far from *Bubbles* we also found *The Legible City* an installation by Jeffrey Shaw that proposes to us to ride a bicycle in order to navigate through the 3D digital space that simulates the cities of Karlsruhe, Amsterdam and Manhattan.

With another installation named *Bedenkzeit* by Mathias Gommel, one is invited to listen to a radio piece by sitting on different referee chairs with different heights. The peculiarity of this experience dwells in the listening mode, which demands that the visitor to place her elbows on a specific point of the chair's armrests and then to cover her ears with the palms of her hands. The sound vibrations emitted by the armrest are transmitted to the ears through the forearms.

As the first chapter and this short description from our visit to ZKM hopefully convey, the body has become a central subject in the negotiations between artists and spectators at the core of new media and digital art practices. The perception process at stake during such aesthetic encounters seems to devalue the central role of vision, foregrounding a network of senses that is normally not so obviously called into our aesthetic encounters with painting, sculpture or cinema. Nevertheless, despite such displacement vision has not been abolished from aesthetic experience. Instead, this sense now participates in perceptive activity coexisting alongside with the senses of touch, hearing, smell and taste.

Caroline A. Jones acknowledges what she calls *Greenberg's visuality* to describe the ocularcentrist regime that traversed the discourse of artists and critics of modern art. (Jones, 2006, p. 8) Analyzing Greenberg's 1960 criticisms of Morris Louis's work, Jones writes: "Greenberg's fantastically effective criticism, produced in sensual prose, argued for the purely visual – the body and its tactile "interference" evaporates in a pure optical glow."

(Jones, 2006, p. 9) Despite the formal characteristics delivered by the paintings of Morris Louis and Jackson Pollock, Jones observes that Greenberg's criticisms reduced such works to the sense of vision, remarking that even outside the art world, multisensory phenomena were often afforded but reduced to the hegemonic reign of vision:

“The body's portals, as separated aggregative functions, were everywhere. At mid-century in particular, modernist technologies of the self targeted ever more finely the ways sense data were to enter those portals: modes of hearing and thinking, smelling and tasting, feeling and seeing. Seeing was admittedly only one pathway, but bureaucratization reigned through the optical above all.” (*Ibid.*)

By observing that “our sensorium is more mediated today than ever before”, Jones is calling our attention to the need to run away from the modernist ocularcentrist regime in order to focus on our body and senses. She avers: “we should begin to reckon with the auditory, the olfactory and the tactile as similarly crucial sites of embodied knowledge.” (Jones, 2006, p. 8) Jones recognizes that recent art manifestations display an unprecedented potential to explore and expand our sensorium, observing that artists should help us to make our technological prostheses “strange again,” turning mediation opaque in order to create consciousness about our techno-bodies. (Jones, 2006, p. 43)

As the first chapter already foregrounds, if there is one “thing” that unites and appears omnipresent in several accounts and theories of new media and interactive art, we should agree that this is the spectator's body. Apparently not just in the field of aesthetics but as Don Ihde observes in the introduction of *Bodies in Technology*, bodies seem to be everywhere:

“Bodies, bodies everywhere. Philosophy, feminist thought, cultural studies, science studies, all seem to have rediscovered bodies. In part this may be because we have had to do some reflection upon being embodied in relation to the various new technologies that we are encountering in the twenty-first century.” (Ihde, 2002, p. xi)

In digital aesthetics the body does not refer so much to the scientific/machinic body made of flesh and bones, capillary and nervous networks that obeys the commands of the higher order of the brain, but rather to a sensorial thinking body that acts in the world creating meaning through its interactions with it. Obviously, interactive artworks strongly

place the body in a central (active) role, giving it more “work” to do, mirroring and short-circuiting its own activity, then removing the centrality of the eyes and the role of vision.

Despite the embodiment discourses being predominantly attached to the digital media regime a few contemporary theorists have been criticized for still rooting their analyses and arguments in the modernist legacy of occularcentrism.

In his book *New Philosophy for New Media*, Mark B. Hansen highlights some of the weak points in Lev Manovich’s analysis of New Media. In his view Manovich fails to understand the aesthetic potentials of New Media due to the reductionist approach that centers cinema as the dominant aesthetic medium. In other words, Manovich insists on using the metaphor of cinema to understand New Media. He observes that: “although all imaging is becoming computer-based, the dominance of cinematic imagery is becoming even stronger.” (Manovich, 2001, p.180; Hansen, 2004, p. 34) Hansen observes that Manovich frames the cinematic experience as one where the viewers are found immobilized in front of a projection screen and then includes pre-cinematic devices, which demand physical activation, within cinema. (Hansen, 2004, p. 35)

Indeed, as Hansen shows by referring to Jonathan Crary’s analysis of pre-cinematic devices (as the Thaumatrope, Phenakistiscope, Stroboscope and Zootrope), to experience such apparatus the viewer needs to activate them manually, first by triggering some kind of movement so that he or she can access the moving images. (Hansen, 2004, p. 37) Regarding Manovich’s analysis of Virtual Reality and Jeffrey Shaw’s *Place: A User Manual*, Hansen argues that the author overlooks the manual and tactile pre-cinematic dimensions re-enacted by new media art experiences, but also the “physical dimension that is at issue in the body’s experience of space, regardless of whether the space concerned is an actual physical space or a simulated, virtual one.” (Hansen, 2004, p. 40)

The dominant empire of vision has been gradually replaced by the empire of senses in both theory and practice. As Ihde wisely observes bodies are everywhere and the theories of embodiment pervade contemporary discussions of art and technology. From Katherine Hayles to Brian Massumi, Mark B. Hansen, Erkki Huhtamo, Anna Munster, Frank Popper, Arjen Mulder or Nathaniel Stern, contemporary digital arts and specifically interactive arts, have been essentially framed and deciphered through the lens of a phenomenological background that includes the philosophical theories of Henri Bergson, Gilles Deleuze, Edmund Husserl, Martin Heidegger, Ludwig Wittgenstein and, among others Maurice Merleau-Ponty.

All these analyses have advanced knowledge of situated interaction and have been successful in scrutinizing and decrypting the complex processes happening during the aesthetic encounters with interactive artworks. However, such emphasis on and effort in “rescuing” the phenomenological body from the dualistic mind/body view that pervaded the discourses of virtual reality and technological discourses during the 1980s seems to have disregarded the strengths of semiotics and hermeneutics in understanding the experience of contemporary interactive arts.

It is known that such experiences foreground the body and the sensory apparatus nevertheless, these objects are still permeated by visual signs, symbols and metaphors. Therefore, considering that we are still participating in a regime of visual signification dynamically intertwined with a phenomenological body that creates meaning by *being-in-the-world*¹⁰, we should also take into account the potentiality of semiotics and hermeneutics in order to create a deeper understanding of such aesthetic encounters.

In this regard one should not discard the work already developed by theoretical approaches to interactive art and embodiment, but rather inspect it to analyze its limitations

¹⁰ For Martin Heidegger we exist in direct connection with the surrounding world. Thus, our consciousness derives from our relation and experiences with the world. This vision builds on the concept of intentionality developed by Franz Brentano and rejects the Cartesian method of doubt.

with the aim of establishing a coupling between the fields of phenomenology, embodiment, semiotics and hermeneutics.

The next chapter attempts to briefly show why the phenomenological approach is more apt than a cognitivist approach to describe aesthetic experiences with interactive artworks. Then, by bringing to the table the phenomenological accounts of Merleau-Ponty, Alva Nöe, Wendy Scholz and Shaun Gallagher we expect to introduce some essential concepts and vocabulary that can be useful in creating understanding and in describing our direct, pre-reflective experiences with the immediate surrounding environment and more specifically with interactive art experiences. This analysis does not convey an extensive description of the different approaches, but instead we will use each one of them to describe different aspects of an interactive art experience called *The Floating Eye*.

We should note at this point that this investigation is not specifically about phenomenology and/or embodiment but rather about understanding the nature of interactive art experience, and thus we will not discuss these domains of knowledge in great depth, since specialized literature is available elsewhere. Furthermore during the next two sections we will highlight some of the limitations of exclusively using phenomenological analyses to describe and to deal with certain dimensions of interactive art encounters.

Chapter III – Phenomenological interpretative Analysis

2.1) The Phenomenological Body

Many years before Caroline Jones' reactions to Greenberg's ocularcentrist analysis, John Dewey was already concerned by the disdain some theorists and philosophers attributed to the body and senses. The senses are according to Dewey the organs connected with motor apparatus that allow us to participate and to discover the qualities of the world. Thus, as we are living creatures, they become essential to our experience and to the construction of meaning. (Dewey, 2005, p. 22) From Dewey's perspective, such corporeal apparatus is not to be disconnected from intellect, and any practical or theoretical separation of mind and body is "at once effect and cause of a narrowed and dulled life-experience." (Dewey, 2005, p. 22-23) He adds that the recognition of sense organs and the basic needs of human activity does not necessarily "reduce man to the level of brutes." (*Ibid.*)

In order to better understand this summoning of the sensory and the corporeal, one should go back in time and recall the opposition between intellect and sensory experience that pervaded in Enlightenment tradition. Cartesian Dualism has been haunting Western culture from Descartes until the present day, delivering an image of the human being in which not only are body and mind separated, but the body is actually subordinated to the higher commands of the mind. (Seidler, 1998, p.17)

In the quest for authentic knowledge and truth, Descartes developed a method of doubt by calling into question all his beliefs regarding reality, the exterior world and even his own body. Isolated in his thoughts and far away from any physical or corporeal existence, Descartes recognized reason as the only way to attain the eternal truth and in the same process, the body became objectified like any other object outside in the world. While

divorcing the mind and the intellect from the bodily and sensorial experience, which was not to be trusted, Descartes was searching for the “vision of nowhere”¹¹ which would later define scientific thought. (Mathews, 2006, p. 56-58)

This vision from outside the world is deprived of any subjective value, emotion or personal perspective. In other words, the properties of a certain object are independent from of the observer’s perspective. They are objective, measurable and quantifiable as size, volume or shape. In this objective vision, qualitative properties that depend on personal relationships with the world are discarded due to their subjective character. (Mathews, 2006, p. 59)

Phenomenology emerges as a reaction to this form of conceiving knowledge, displacing the focus on intellect and objectivity to welcome human subjectivity. Phenomenologists argue that it is not possible to doubt everything at the same time and that in order to doubt something from the world we need to be situated in the world. A complete withdrawal from the world to gain a “vision of nowhere” is simply unattainable. (Mathews, 2006, p. 61)

As humans we are situated in a specific time and space, we are embodied in the world that we experience directly. In light of this, according to Maurice Merleau-Ponty phenomenology proposes that we return to direct felt and lived experience in order to describe our existence in the world – the different ways of *being-in-the-world* and also what precedes the intellectualization of the world we interact with. As the author observes: “the world is not what I think, but what I live through.” (Merleau-Ponty, 2009, p. XVIII) The work of phenomenology then consists in capturing the “essence” of perception and its working modes in our relations within the world.

¹¹ Expression coined by the contemporary American philosopher Thomas Nagel.

In this regard, art is for Merleau-Ponty a privileged locus to rediscover perception. He observes that more than representing a pre-existing truth, art forces us to see the world from a new perspective, thus “bringing the truth into being.” (Mathews, 2006, p. 29; Merleau-Ponty, 2009, p. XXIII) For the author both modern art and phenomenology allow us to avoid any pre-existing assumptions about ourselves and objective knowledge of the world. There, the pre-reflective knowledge that precedes theoretical reflection becomes the focus of our attention, giving us access to the truth.

This pre-reflective knowledge, our mental life and subjectivity exist because we are embodied in the world. According to Mathews, Merleau-Ponty moved away from Husserl’s transcendental phenomenology that acknowledged an *a priori* of mind in relation to the outside world, to meet Martin Heidegger’s phenomenological ontology.

For Heidegger, to “be” always consists in the relations with others or with something else. Human beings exist as *Being-in-the-world*, and given this we cannot separate the mind from our involvement with reality. This condition, says Heidegger, is exclusively reserved to humans and not to other things since we can reflect and call into question our own and other thing’s existence. However, even if objects are defined by us they nevertheless affect our modes of existence thus, as Heidegger avers, we exist as *being-with-others*. (Mathews, 2006, p. 110)

For Mathews, both Heidegger and Merleau-Ponty acknowledge the importance of being embodied and in direct contact with the physical world as a basis for phenomenology although the latter foregrounds a dimension that is essential for the present discussion.

Merleau-Ponty recognizes that *being-in-the-world* depends on the fact that we are embodied in the world as biological creatures of a certain kind. In other words, because we have a physical body that makes us what we are. In *Phenomenology of Perception* the body occupies a deep central place; not the objective body as studied by biology but a

phenomenological body that we experience from the inside and that “rises towards the world.” (Merleau-Ponty, 2009, p. 87) In other words, a body that mediates between internal and external experience. Like Heidegger, he observes that our human-like qualities do not exclusively derive from our “interior” but depend on our connections and relations with the exterior. Merleau-Ponty conceives perception as a way to gain access to the truth observing that one “should be looking for what makes that experience possible instead of looking for what it is.” (Merleau-Ponty, 2009, p. XVIII)

By foregrounding and rendering our bodily actions and perceptual activity opaque, interactive arts appear as an art of phenomenology *par excellence*. Interactive artists recognize the way we are “tightly held in the world” but at the same time incapable of perceiving and contemplating our involvement in the world. Through direct engagement between the participant and the world of the artwork, without words or guidelines, such experiences invite us to the same kind of “radical reflection” or reflection on the *unreflected* that was conveyed by Merleau-Ponty. (Merleau-Ponty, 2009, p. 247) The physical presence and actions yielded by the participant affect the artwork and its perception, producing a unique meaningful experience. Thus, the concept of phenomenological body and embodiment becomes fundamental not just for us, in order to decode and understand such experiences from a theoretical perspective, but also for spectators and participants since they become acquainted with their situation as embodied creatures in the world.

In the following section we explore some of the central aspects that have been previously analyzed in the fields of phenomenology, the embodied mind and enactive approaches, which support an account of perception dependent on bodily action, movement and sensorimotor knowledge. Such approaches diverge from the input-output picture model, which regards perception as the input from the outside world to the mind and action as the

output from mind to the world, considering the brain as the exclusive locus where internal representations of the world are generated. (Nöe, 2004, p. 2-3)

In this context we consider human perception to be an active process that depends on action – we act in the world in order to perceive it and such activity is not exclusively situated in the brain but in the whole body.

The aspects discussed are particularly helpful in the analysis of interactive artworks that depend on the active presence of spectators but such analyses are also important as they support and help to understand the account for embodied perception. Thus, the next section presents a simplified conceptual grounding that aims to help to describe certain aspects of our experiences with interactive artworks. This task rejects the conception of ocularcentrist analyses of interactive art but also the *internalist* approach to perception and it does not attempt to establish any general guidelines to describe the spectator's experience, but rather to show how some phenomenological concepts can be useful when applied to the field of digital aesthetics.

This analysis will examine in detail an artwork developed by Hiro Iwata in order to focus on some of these concepts, but it will also refer to certain analyses made by theorists in the field of digital aesthetics that have previously bridged the fields of phenomenology, embodiment and aesthetics.

2.2) Action, Movement and Affection – A Phenomenological Analysis

“Perceptual experience is hard or even impossible to put in propositional terms.”

“The representational content of experience cannot be thoroughly conceptual, because we do not have concepts of all the things we can perceive.” (Nöe, 2004, p. 118-190)

How can we describe an aesthetic experience when the artwork has lost its materiality and becomes inaccessible to our eyes and the object of the work is now the spectator's process of perception itself?

When the focus of attention becomes our bodily movements, our sensations, our gestures and internal processes, then we need to move towards the field of phenomenology and perception studies in order to introduce into the field of aesthetics "new" concepts that most of the art critics and theoreticians are not acquainted with.

The goal is not so much to scrutinize every single moment of our aesthetic experiences and find propositional terms for each fragment of experience, as to understand the sense conveyed by certain aesthetic proposals that have been entering the art world.

The conceptual ground we aim to expose here will be useful to analyze and to describe some pre-discursive aspects connected to bodily activity observed during the evaluation process of different artworks in Chapter VIII.

This pre-discursive dimension of our experience in the world is a non-intellectualized form with its source in outer perception that anticipates reflective consciousness. (Merleau-Ponty, 2009, p. XIX) As an example of pre-discursive experience we might think about how someone experienced rides a bicycle or drives a car. When riding a bike, if someone crosses our path we automatically react by braking without first reflecting about what we need to do or by explicitly saying to ourselves: "I'll grab the brake handle and press it with a certain force so I can stop before crashing into the obstacle"; "yet I also need to be careful with the force applied so I don't fall from the bike." In short, even if my intentional object is not explicitly the action of braking, my consciousness is still directed to that action. (Matthews, 2006, p. 31)

In this sense we find two types of consciousness, one that is implicit preceding another explicit or discursive one. Likewise, Hubert Dreyfus argues that skilled action does not require mental representation of action:

“A beginner calculates using rules and facts just like a programmed computer, but with talent and a great deal of involved experience, the beginner develops into an expert who intuitively sees what to do without recourse to rules nor to remembered cases. The tradition has given an accurate description of the mental representations used by beginners and of the experts facing unfamiliar situations, but normally an expert just immediately does what normally works and, of course, it normally works.” (Dreyfus, 2008, p. 7)

As we can see in different studies, ocularcentrist and cognitive perspectives simply tend to forget that we exist as *being-in-the-world*, ignoring the phenomenological corporeal aspects of the experience. Yet the pre-reflective or pre-discursive dimension that precedes our cognitive relation with things characterizes a considerable part of the experiential spectrum of some interactive artworks. Indeed, as Merleau-Ponty has shown, this dimension is not restricted to interactive art but is also found in artworks in general. In his first radio broadcast in 1948 he claimed that perception was a quest not only for philosophy but also for modern art. (Mathews, 2006, p. 173)

However, one big difference is found between some interactive art experiences and the experiences conveyed by painting, sculpture or photography. Interactive art encounters are dependent on presence whereby spectators live and directly affect the world of the artwork instead of being mediated by a canvas, a stone sculpture or a photograph. As we will see in Chapter VIII, this difference is fundamental in order to choose the right methodology to evaluate and understand interactive arts. These encounters ask us to forget our acquired knowledge about the workings of perception, placing spectators in situations that require them to re-learn how to perceive and thus to act in the world as if they were sent back to a childlike state.

To interpret such pre-reflective experiences one needs to look into the knowledge that has been developed by phenomenology and perception studies rather than into the methods developed by cognitive psychology, which essentially focuses on high-level, abstract mental

processes. Normally, the task is not easy because such pre-reflective experiences are difficult for the person who experiences them to isolate in fragments and to articulate in words. However, by applying an Interpretative Phenomenological Analysis coupled with an observation method, we expect to be able to partly re-construct and describe the phenomenological experience that is from the perspective of this thesis an essential component of aesthetic experience.

We are particularly interested in understanding how sensorial and perceptual dimensions are synthesized in order to create meaningful experiences. Our departure point regards interactive art environments as situations in which spectators are physically embodied. There, the spectator seeks to decode the meaning conveyed by the artwork through physical actions and symbolic manipulation. Nevertheless as we will confirm, the meaning of certain experiences is found in the act of perceiving itself. In other words, meaning is not accessed by symbolic interpretation – physical manipulation of symbolic contents as text or pictures – but rather it is found during the experience that our bodies go through while *coupling* with a certain apparatus or environment. We might temporarily call such propositions *perception-based works*. Regarding this kind of work Mark B. Hansen argues that contemporary artists seem to have been adapting a Bergsonian vocation:

“(..) By placing the embodied viewer-participant into a circuit with information, the installations and environments they create function as laboratories for the conversion of information into corporeally apprehensible images.” (Hansen, 2004, p. 11)

The body itself becomes the medium where meaning becomes accessible. However, meaning is only available through bodily action. Hansen uses the word “affectivity” to name the capacity that the body has to “experience itself as *more than itself* and thus to deploy its sensorimotor power to create the unpredictable, the experimental, the new.” (Hansen, 2004, p. 7)

Sensorimotor is the name given to a certain type of knowledge that we have and are dependent on as perceiving beings. (Nöe, 2004, p. 1-2) Without thinking, we turn our head to see who is behind us; we walk towards something to see it better or to hear it better. According to Alva Nöe, we are masters of a certain pattern of sensorimotor knowledge and “perceiving is a kind of skillful bodily activity” that demands for example hand-eye coordination. (Nöe, 2004, p. 1-2)

In this sense, and to be more precise, such Bergsonian experiences work as sensorimotor knowledge *détournements*. Through motion these artistic anti-environments¹² short-circuit our normal patterns of sensorimotor knowledge, highlighting the perception process and rendering it opaque.

In the regime of *Digital Image*, Hansen argues that “the act of enframing information can be said to *give body* to digital data – to transform something that is unframed, disembodied, and formless into concrete embodied information intrinsically imbued with (human) meaning.” (Hansen, 2004, pp. 12-13) Therefore, the model of the image as surface appearance, is replaced by another focused on the intensities of embodied affectivity. (*Ibid.*)

Through the analysis of Jeffrey Shaw’s expanded cinematic interactive installations, Hansen observes that our interaction with such environments foregrounds the Bergsonian conception of perception as subtraction and expands the body’s function as a center of determination that has the capacity to filter images from the world. (Hansen, 2004, p. 51) This account defends the view that no act of perception can exist without affection. In Bergson’s words, “affection is, then, that part or aspect of inside of our body which we mix with the image of external bodies.” As such, affection is what distinguishes a paradigm of

¹² Marshal McLuhan and Quentin Fiore regard environments as active processes that we interact with from a fixed point of view, and because we are so embedded, all the ground rules, patterns, mechanisms and gestures that drive us within these environments seem to become invisible, making us lose awareness.

The authors consider artistic practice as an antidote to our numbed routine. They regard the artist as an actor who has the ability to create new points of view by building *anti-environments* and counter situations, temporarily replacing the fixed point of view of the spectator with the artist’s own view. (McLuhan and Fiore, 2008)

perception that is essentially rooted in vision from one that is dependent on proprioception and tactility. (Hansen, 2004, p. 101; Bergson, 1988, p. 58)

As Hansen's analysis confirms, new media arts foreground this *affectivity* that makes vision possible. Regarding the work *The Garden* by the artist Tamás Waliczky, Hansen observes that the experience of this work generates a "pronounced affective correlate" because by entering the space of the image we become alienated from our normal experience. He adds that more than seeing the space we seem to feel it. (Hansen, 2004, p. 109) This and other works ask us to "see with our bodies" and as Brian Massumi and other theorists have concluded:

"Seeing is never separate from other sense modalities. It is by nature synesthetic, and synaesthesia is by nature kinesthetic. Every look reactivates a multidimensional, shifting surface of experience from which cognitive functions emerge habitually but which is not reducible to them." (Hansen, 2004, p. 109; Massumi, 1998, p. 21)

The account for optical vision considered by Massumi arguments for perception to be a habit of movement. In other words, our vision is embodied in and depends on bodily movement and proprioception. As an example to expand this idea, we will examine the experience proposed by *Floating Eye*, an interactive apparatus developed by the Japanese artist Hiroo Iwata.

2.2.1) *The Floating Eye*

With this experience Iwata proposes to participants to wear a helmet that interrupts their normal field of vision, replacing it with an image of a real-time video feed transmitted by a mini-camera that is installed on a small blimp flying above their heads. Spending time experiencing the apparatus then becomes an uncanny activity that makes bodily actions and movements opaque and *present-at-hand*¹³.

¹³ For Martin Heidegger we encounter the world in two different ways, *Ready-to-hand* and *Present-at-hand*. For example, when we use a hammer, we normally do it without reflecting about it, but with the aim to place a nail in the wall so we find it Ready-to-hand. Whereas if for some reason the hammer breaks, it becomes opaque and we begin to theorize about it, thus making it *Present-at-hand*.

Although participants are still able to see through their eyes, this visual source is not stable and makes the perceiving process difficult for different reasons. Firstly, not only does the physical displacement applied to the visual field alter participants' normal perspective (the "eye" x,y,z coordinates and angle have their origin on the blimp) but their sense of light and darkness and the color of the environment also differ from the normal. Moreover, the blimp's instability confers on vision a *floating* character that is affected by participants' movements and by the air streams. Such random perturbations introduce noise into the perception process, and in order to counteract this arbitrary and disorienting image the participant is able to partly control the blimp, as well as camera position and orientation by handling a string that connects the blimp and the backpack carried by the participant.



Fig. 7 – Hiroo Iwata, *Floating Eye*, 2000

The experience of *Floating Eye* unfolds during our action in the world, as soon as we start moving and walking. The exploration of the space around us short-circuits our habitual

spatial orientation sensorimotor patterns. The visual space appears distorted and surrounding objects' shape and size and our distance from them affect our bodily movements and consequently the way we move around. This apparatus is not an extension to improve a certain human faculty but rather one that is made to render our perception processes visible. In other words we might say that we become conscious of ourselves sensing and perceiving the world.

As observed by Hansen, this experience can also be seen as one in which we create embodied images that fit the paradigm of affectivity. The complication of our optical vision field is here a trigger for nonvisual haptic apprehension and proprioception. Aesthetic experience develops from the sensorial disorientation and from the exploration and discovery of our own internal and external body spatiality. Such spaces are normally not accessible because we automatically perform our body in order to walk, to grab and to catch things without having the opportunity to isolate and depict such actions and functions.

Proprioception is according to Wendy Scholz one of the three ways to acquire information about our spatiality. The other two include visual and tactile information. (Scholz, 2010, p. 100) The internal awareness of our bodies is made available through proprioceptive knowledge. As such, even if my optical vision does not inform me about a certain part of my body, I am still able to know its location in space via proprioception. For example, when I am driving and I want to hit the brake pedal with my foot, I cannot see it but I know where it is. The fact that proprioceptive organs are dispersed all over the human body allows us to internally perceive all its constituent parts. According to Scholz, proprioception “is the only form of perception in which I with my hand perceive my hand, or perceive with my foot my foot” or, in other words, perceiver and perceived are the same. (Scholz, 2010, p. 112)

To illustrate this type of non-propositional, pre-conceptual knowledge Scholz observes that one might be aware of and feel a coffee cup from the outside while it is in contact with one's hand, but "I do not possess the awareness of what is like to be a coffee cup from the inside." (Scholz, 2010, p. 104) We simply cannot have this internal awareness of something or someone else, since such awareness derives from a combination of our own movement history and from the subjective experience of our own ways of using the body. (Scholz, 2010, p. 104) Nevertheless, even if by experiencing the *Floating Eye* we are not internally aware of someone else, we become aware of something else. A different form of being, an internal image that is not normally available to us emerges from our movements and bodily actions. Such first hand experiences in which we "proprioceive" ourselves are only available to those who actively experiment and not to external spectators. As Scholz observes regarding movement therapy, we can change our awareness of the way our body is structured by using our body based on that awareness. (Scholz, 2010, p. 108)

In this sense, interactive artworks resemble movement therapy. Such experiences seem to have a direct impact on our internal and external physical states by affording and provoking certain movements, which trigger affectivity, thus making us conscious of our internal physical states.

The way *Floating Eye* explores vision, bodily space and movement resonates with certain cases of *experiential blindness* that are mentioned by Alva Nöe in his book *Action in Perception*. The author gives the example of different situations of *experiential blindness* with the aim of contradicting the input-output picture approach and of showing how the basis of perception is something that takes place within the whole body and that is dependent on sensorimotor knowledge patterns. As Nöe puts it, "to see is not just to have visual sensations, it is to have visual sensations that are integrated, in the right sort of way, with bodily skills." (Nöe, 2004, p. 4)

Regarding an experiential situation in which someone uses left-right reversing glasses, Nöe, based on Kohler's reports, observes that initially "your left hand may look as if it is on the right, but it continues to feel as if it is on the left." (Hurley and Nöe 2003a) "And when you snap your fingers, the sound of your "hand on the right" seems to come from the left." (Nöe, 2004, p. 9) However, according to both authors, vision becomes gradually restored, "gaining nonveridical content" in different adaptation stages and the effect of taking the goggles off produces the same kind of experiential blindness as putting them on. (Nöe, 2004, pp. 9-10)

As this experience shows with the adaptation and re-configuration of sensorimotor patterns, sense of movement (kinesthesia) and body position (proprioception) in favor of optical vision, perception is not only dependent on the quality of stimulation but also on our exercise of sensorimotor knowledge. (Nöe, 2004, p. 93)

With a different kind of sensory stimulation than the reversing goggles, the *Floating Eye* is in a certain sense a form of *experiential blindness* that highlights our sensorimotor dependence. It supports the enactive and phenomenological hypothesis by showing without using propositional knowledge that the visual world as we perceive it comes to be what it is as a result of our actions and our movements and does not appear to us as a photo. These movements include head, eye and whole body exchanges that coordinate to allow us to look around in order to examine and depict the surrounding environment. And this, as Nöe observes, includes and demands certain bodily skills that we gain and improve from the day we are born. In this sense our vision system does not resemble a photographic camera but rather is an active exploration of the world. As Merleau-Ponty claims, vision is "palpation with the eyes." (Nöe, 2004, p. 73)

Recognizing this tactile character helps us to understand a certain dimension of the experience conveyed by the *Floating Eye* that was already identified above. We are masters

of certain sensorimotor patterns that allow us to depict; the *Floating Eye* breaks down this knowledge, producing a situation of disorientation that is provoked by the disconnection between the participant's eyes, head, bodily movements and vision. Nevertheless, the apparatus does not deprive us of vision completely since we are given new sensorimotor possibilities in order to see. As mentioned above, we are still able to define the source of visual sensory reception by controlling the position of the camera through skillful manipulation of the string. It is as if we could take out our eyes, hold them in our hands and define our field of vision with them.

In a certain way, the *Floating Eye* augments the movement capacity of our eyes, but at the same time it complicates it because one needs to learn and to adapt to this new sensorimotor regime, which is not completely predictable due to the almost random floating character of the blimp. This disconnection is supposed to redirect our attention to our body's modes of functioning, to the way we become automated and "cephalocentric" beings as we grow older, making us think somatically¹⁴.

At the beginning of the experience, in the intimacy of our own corporality we find ourselves analyzing and making sense of the new sensorimotor patterns afforded by Iwata's apparatus. By somatically thinking, mental and physical processes are not distinct and depend on each other. As Scholz proposes, there is no such thing as a purely "mental" act of imagining that precedes the "physical" act of moving. For the author, somatic thinking involves the entire body. (Scholz, 2010, p. 18) Thus, when the participant is initially analyzing the perceptual system she might somatically think: "In order to depict the person on my left-hand side I need to pull the string and thus the blimp to the left, with my left hand and pull it down to have a closer look." Initially she might refer to verbal propositional know-
that which derives from non-propositional know-how, originating from direct experience and

¹⁴ To use Scholz's words, to think somatically "is to be in the body; that is, to adopt the internal proprioceptive awareness of the body, while imagining oneself doing the activity at hand." (Scholz, 2010, p. 12)

as Scholz remarks, even in such moments her hand “is just as involved in the imagining as her head is.” (Scholz, 2010, p. 18)

The process of adaptation occurs by repeatedly applying the new sensorimotor knowledge. Throughout this process the imagining fades away and the initial verbal propositional knowledge that guides movement vanishes and with practice the new sensorimotor becomes assimilated as when one uses reversing goggles for a long time.

What this process of adaptation foregrounds is the intertwined relationship that mind and body have to the point that they cannot be distinguished. Thinking about the movement and the imagining process cannot occur without our body and our proprioception of the body, as no movement can take place without mindful awareness. (Scholz, 2010, p. 23) Although, considering the average time span of the experience with the *Floating Eye*, adaptation seems to be impossible. The participant becomes aware of the failures in her attempts to perceive and to adapt to the new perceptual regime, while trying to ease the short-circuit imposed by the apparatus. As in a game, this experience introduces a playful dimension by challenging our perceptual skills to adapt to an “adverse”, unfamiliar situation.

The bird’s eye perspective that optical vision acquires changes the perspective that we normally have of the surrounding space and consequently the visual properties of objects one finds while moving around. This transformation is intensified by the distorted image that is produced by the video camera’s fisheye lens. (*Cf.* Fig. 8) As a consequence, the surrounding physical world is transformed into a space of which we simply have no previous experience. Size, form, volume, color and distance appear differently, thus, as we have already observed above, movement unfolds carefully and each bodily movement is re-thought.

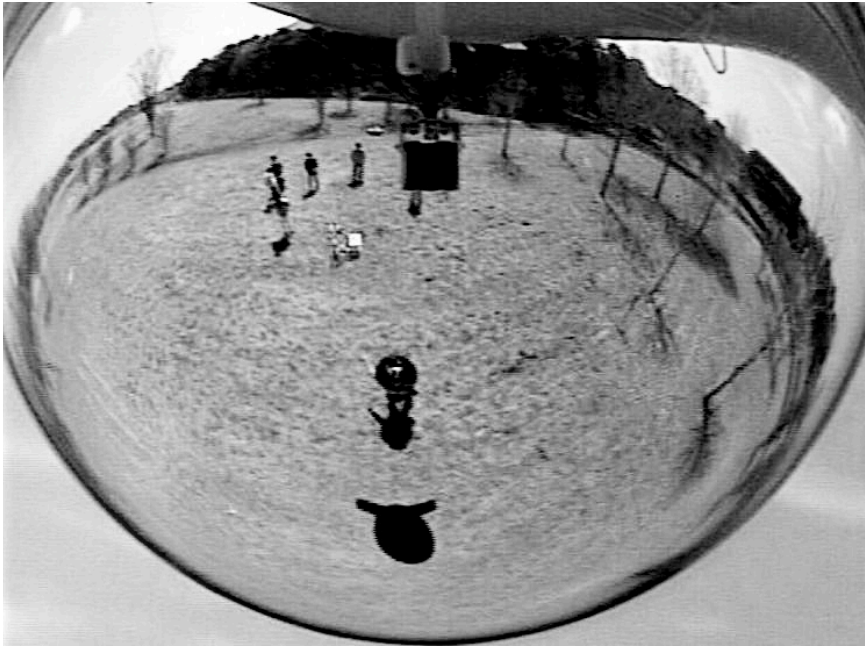


Fig. 8 – Top image provided by the camera installed on the blimp

Moreover, participants engage in playful and open-ended experience that does not present concrete goals but rather expects them to explore and discover a new form of *being-in-the-world*, in a video game style in which the apparatus allows the participant to see herself performing in a way that is normally unavailable when we move and walk down the street or in other everyday perceptual operations.

In our analysis, we can distinguish two different modes of awareness of our body; one external and one internal. By external we are referring to the dimension of the body that we access from the outside. In other words, the image we receive from our body, the visual representation of the body given by a mirror or in the case of the experience at hand, when the participant watches herself from above. By internal we refer to the internal image stemming from our awareness of our sensorimotor knowledge, movement and proprioception.

As the analysis of the experience of the *Floating Eye* conveys, both dimensions are deeply intertwined, as vision and movement also seem to be. Both internal and external

awareness modes constitute what the psychoanalyst Paul Schilder has named *body image*. (Gallagher, 2011, p. 37) In order to define this concept we will refer to the analysis of Shaun Gallagher that defines body image by contrasting it with the concept of body schema.

According to Gallagher, such concepts have been defined in confusing and ambiguous ways in existing literature. Yet he claims that a distinction between them is important to build a vocabulary in order to better understand embodiment. (Gallagher, 2011, p. 37) The author describes the *body image* as:

“(…) a complex set of intentional states and dispositions – perceptions, beliefs and attitudes – in which the intentional object is one’s own body. This involves a form of reflexive or self-referential intentionality.” (Gallagher, 2011, p. 25)

In other words, the *body image* is characterized by awareness and consciousness of one’s body. The *body image* appears at the moment in which a bodily part or a movement becomes the intentional object of consciousness. Gallagher observes that certain studies make a distinction between different types of intentional contents: *Body percept*, *body concept* and *body affect*. (Gallagher, 2011, p. 25) In our study we are essentially interested in the first type. In contrast with the body image, Gallagher describes the *body schema* as:

“(…) a system of sensory-motor processes that constantly regulate posture and movement – processes that function without reflective awareness or the necessity of perceptual monitoring. Body Schemas can also be thought of as a collection of sensory-motor interactions that individually define a specific movement or posture.” (Gallagher, 2011, p. 38)

The *body schema* “runs” in the “background” at a pre-personal level and it comes into being with bodily action. We might not have our body present as an intentional object of consciousness, yet in order to perceive and to act in the world, the *body schema* operates to support intentional activity, including cognition. In contrast, the *body image* includes a personal level of experience that is related to the body’s ownership. I perceive the body as *my own body* but at the same time as an external object that is differentiated from the environment; so we can only represent our body partially. (Gallagher, 2011, p. 38) In other

words, as we have seen with vision and its palpation character, only a certain part of the body appears emphasized to our consciousness; we cannot be aware of the whole body at once. On the other hand, the *body schema* keeps us informed about the relative position of each limb when we move through space in a holistic way. As Gallagher puts it “a slight change in posture involves a global adjustment across a larger number of muscle systems.” (Gallagher, 2011, p. 38)

As an example, when adapting to Iwata’s apparatus we focus the attention on our body schema configuration but more specifically on the way in which we make use of our hand to manipulate the string that controls our eyes (the video-camera on the blimp). So, in other words, we might say that this experience provokes a rupture of our normal *body schema*. The disequilibrium between body and environment provoked by the failure to move around and to maintain posture brings the body schema to the foreground. As Gallagher observes “focused attention or the lack of it on specific parts of the body may alter postural or motor performance.” (Gallagher, 2011, p. 35) Yet, even if a part of our body schema is failing, all the rest that is left “unaffected” by the effect of the apparatus is still able to operate in order to cooperate with the adaptation process.

The experience of the *Floating Eye* seems to be double-sided. As we fight against the short-circuit taking place in our body schema, we bring the body to our consciousness, differentiating and isolating it from the surrounding environment. We realize that our body is, in the end, a construct and a product of our movement and perceptive habits. On the other hand, we become aware of how the limits of our body and environment are intertwined. Not the visual limits or contours of our body but the customarily invisible *body schema*. There is a continuous relationship between environment and body. The *body schema* is in this sense both an extension of the body into its surrounding environment and an extension of space and environmental affordances.

Gallagher observes that the *body schema* has access to information that goes beyond the boundaries defined by our *body image*. When we are immersed in experience he says, for example when we dance, we are aware of where our body stops and where our partner's body begins. (Gallagher, 2011, p. 37) As when we play Twister, we might not be able to see our feet but we know which feet are ours. This information is provided by our network of proprioceptive organs. (Scholz, 2010, 101) This also resonates with Mark B. Hansen observations regarding the experience with the virtual-reality environment *Osmose* by Char Davies: "the living body exceeds the boundaries of the skin and encompasses parts of the environment." (Hansen, 2004, 112)

On the other hand, Gallagher recognizes that the *body schema* is an extension of the surrounding environment in such a way that we often incorporate certain parts of it and certain objects that provoke the reorganization of the *body schema*. As Nöe's analysis clearly foregrounds, this reorganization is immediately clear when someone uses inverting goggles for a few days. (Gallagher, 2011, p. 37; Nöe, 2004) Following James J. Gibson, Gallagher observes that the *body schema* is "not something entirely *in-itself*" since it is affected and defined by environmental affordances. (Gallagher, 2011, p. 37)

So far, regarding the characteristics associated with the *body schema*, one realizes that this concept is central to understanding the nature of interactive art experiences. By developing experiences and apparatus that require the participants to be present and to act, interactive artists are more precisely interfering with our body schemas and making them opaque, re-organizing them by making us move in unusual ways. We become conscious of our posture and focus on the position of our limbs in space and their relation to each other. Such experiences foreground the importance that movement and body schema have in the way we perceive and act in the world but also the spatiality of our body. As Merleau-Ponty observes, the perception and the spatiality of the thing and its being are the same. (Merleau-

Ponty, 2009, p. 169-171) The author also adds that the various parts of the body, visual, tactile and motor are not simply coordinated but synthesized in one's body:

"I do not translate the "data of touch" in to the language of seeing or vice versa – I do not bring together one by one the parts of my body; this translation and this unification are performed once and for all within me: they are my body, itself." (Merleau-Ponty, 2009, p. 173)

Moreover, together with other phenomenologists, Merleau-Ponty maintains that we never have a simple or isolated visual or tactile experience. A tactile experience is simultaneously and constantly also an experience that is structured by all the senses:

"A certain tactile experience felt in the upper arm signifies a certain tactile experience in the forearm and shoulder, along with a certain visual aspect of the same arm, not because the various tactile perceptions among themselves, or the tactile and visual ones, are all involved in one intelligible arm, as the different facets of a cube are related to the idea of a cube, but because the arm seen and the arm touched, like the different segments of the arm, together perform one and the same action." (Merleau-Ponty, 2009, p. 175)

This unity that Merleau-Ponty identifies is recurrently made visible and incoherent in our interactions with new media artworks. As an example, as we have already seen, the experience of the *Floating Eye* removes the normal sensorimotor patterns of vision by displacing the habitual position of our source of optical vision. If one thing comes from eye, neck and head movements, it is the awareness of a certain disconnection that frustrates our perception and leaves us without experience. This "negative" prosthesis then perturbs and interrupts what is normally continuous and united, unfolding an internal haptic space that is always there but that is normally transparent in our daily perceptive activity. As Mark B. Hansen observes regarding the experience of the installation *Skulls* by Roberto Lazzarini:

"(...) We could say that *skulls* solicits a haptic mode of vision that cannot anchor itself in anything pictorial or sculptural and that consequently require us to transform the haptic from a modality of vision (perception) into a modality of bodily sense (affection). (...) These warped skulls generate a total short-circuiting of vision and a violent feeling of spatial constriction that manifest, literally, as a haptic experience of the space of the body." (Hansen, 2004, p. 230)

This analysis made by Hansen resonates with our analysis of the *Floating Eye*. The inoperative regime of vision deployed by both experiences allows the emergence of a haptic regime that is normally always there, although we are not conscious of its existence. Hansen goes on to claim that a shift from a perceptual to affective proprioception is at stake "since

the in-folding of tactility by the body serves not to realign the forces that disturbed perception (i.e., the ordinary cofunctioning of vision and proprioception) but rather to create a bodily spatiality.” (Hansen, 2004, p. 230) Nevertheless, regarding the experience of the *Floating Eye*, if such affective space is created this is due to the attempts of the participant to find a perceptual equilibrium while moving around. In this sense, the internal space seems to emerge precisely from this unconscious intention of our bodily activity.

One thing as least is clearly foregrounded by the analysis present in the preceding pages: the phenomenological body occupies a central place in the experience of interactive artworks. Particularly in those that we have previously named *perception-based works* and that Mark B. Hansen relates to the Bergsonian affective regime of new media arts. In light of this, the phenomenological body is here recognized not simply as a “machinic” vessel that transports our brain and our sensors from one place to another, but rather as a complex dynamic unity at the same time corporeal and incorporeal. Body is intertwined with mind and this unity comes into being in continuous relation with the world. As the analyses of Merleau-Ponty, Nöe, Scholz, Massumi and Hansen exemplarily demonstrate, we need to consider this unity and its dynamic coupling to the world in order to understand our perceptual activity and the way we exist in the world. As embodied beings, our perception is dependent on action, movement and affection. With the analysis of Iwata’s *Floating Eyes* we have assembled a basic set of phenomenological concepts that we expect to be useful in further analysis with other interactive experiences.

2.3) Perception-détournement Artworks and Symbolic Interaction

Many of what we call *perception-détournement* interactive works have been said to resemble *experiential blindness* tests and other experiences that are often utilized in the fields

of perception, phenomenology and experimental psychology to study certain phenomena or perceptual events.

Historically, in the field of art such works seem to emerge from a tradition that started during the 1950s and the 1960s with movements as Op Art and Kinetic Art. As we've seen before, in both traditions, movement, light and perceptual phenomena became not only the media but also subjects. For Peter Weibel they were used "not as means of representation but as activated perceptual experiences in which the viewer was a crucial factor." (Weibel, 2007, p. 25)

Ultimately, when looking back in time and analyzing contemporary artistic productions one realizes that such aesthetic experiences are supported by very different types of media that in many cases come into existence due to the collaboration between actors from different disciplines. Such propositions are clearly influenced by the contemporary technological backdrop. One curious aspect is that we often find the same idea or very similar subjects upgraded and re-enacted with new technologies. Digital and electronic supports have nevertheless expanded the range of possibilities to explore and short-circuit perceptual experiences. It is also common to find mixed media proposals that assemble old techniques and new digital or even biological technologies. When regarding both non-electrical and digital/electronic paradigms, one finds different artistic proposals in the form of painting, sculpture, portable objects, wearables, installations and environments. Of course this division grows in complexity due to the characteristics of each specific artwork. They might possess self-movement or demand the activation of the participant in order to produce the desired effect, they might demand that the participant be equipped with a certain apparatus and to move around in the space or to sit, close her eyes and wait.

To give some examples, we might look to some projects using analog and mechanical technologies such as the *Upside Down Glasses* by the artist Carsten Höller, in which

spectators wear a pair of upside-down goggles and move around in the space. The apparatus produces a similar experience to the one analyzed by Alva Nöe and Ivo Kohler, although instead of reversing the horizontal axis of the optical field of vision, it reverses the vertical axis. We therefore might perceive our hands and arms as coming from above and our feet as being located above our head. (Schwartzman, 2011, p. 32)

Another project from the same artist, *Kit For the Exploration of the Self*, consists of a backpack apparatus that allows participants to see themselves from behind. Thus, as I walk forward I walk towards myself. (Schwartzman, 2011, 32)

Similar perceptual détournements using mirror systems which short-circuit optical vision and sensorimotor pattern knowledge are found in different works by Alfons Schilling. *Kleiner Vogel* is a wearable device that augments the distance between the eyes making us perceive as if we were giants. (Schwartzman, 2011, p. 53) Another project that allows participants to experience the surrounding environment from the perspective of something else or someone else, but using digital technologies is *Inter Dis-communication Machine*, a project by the Japanese artist Kazuhiko Hachiya. This relational experience involves two participants who wear headphones and a wireless head-mounted display with an in-built microphone and a micro-camera. The apparatus allows each participant to access the audiovisual perspective of the other. In other words, what one participant sees through her HMD and hears from the headphones is actually the “content” of the field of vision of the other participant and the ambient sounds as heard from that participant’s location in space.

Video artists have also been exploring different perceptual phenomena and the notion of embodiment since the 1960s. The closed-circuit video installations developed by Peter Campus, Dan Graham and Bruce Nauman foreground the qualities of bodily space and movement, complicating the relationships between *body image* and *body schema*. *Interface*, an installation from 1972 by Peter Campus, uses a closed-circuit video loop together with a

video projector to produce a disorienting encounter with our body image. In a dark room, the spectator faces a transparent sheet of glass where she sees herself reflected along with another unexpected reversed real-time image of herself.



Fig. 9 – *Interface* by Peter Campus, 1972

Such installations can be seen as “pre-historical” forms that possibly influenced artists as Myron Krueger in his creation of complex responsive environments using computers and advanced software at the end of the 1970s. The “mirror effect” explored in closed-circuit video installations but also in some of Dan Graham’s sculptures (e.g. *Double Cylinder – (The Kiss)*, 1994) has been deeply explored within the field of contemporary digital and media arts.

Artists such as Toshio Iwai, Golan Levin and Zach Lieberman, Daniel Rozin, Camille Utterback, Rafael Lozano-Hemmer and, among others, Scott Sona Snibbe have actively created interactive environments that explore this “mirror effect” in order to trigger experiences of self-perception, space, movement and affectivity. The strategies vary according to the artist and the notion of mirror does not necessarily include the reflection of

the spectator's body, but rather a reflection of her actions or movements or something that belongs to or stems from her. As an example, the installation *Messa di Voce*, developed by Golan Levin and Zachary Lieberman, asks participants to produce sounds in order to generate a certain visual directly influenced by the qualities of the sound. In other words, the installation works like a sound mirror, but also recognizes the participants' silhouette creating causal relations between silhouette and digital contents (e.g. the digital graphic circles produced by a certain sound might collide with the silhouette, thus the participant can affect her movement and behavior in the digital space).

Another type of mirror that is often found in digital art installations is what we might call a *Rozin Mirror*. We use this name not because Daniel Rozin was the first to create this kind of mirroring (explored extensively during the 1960s and the 1970s) but due to the quantity and diversity of mirrors using the same system that we find in his personal work. In a simplistic way that does not make justice to the richness present in his works, we might say that Rozin's mirrors do not just *purely* reflect the things in front of them but always add a certain effect controlled by the artist. In other words, the image sent back to the spectator is an abstract version of her *body image*. In Rozin's dynamic Mechanical Mirrors the spectator sees herself reflected in wood, glass and metal surfaces that normally do not have the capacity to reflect. Although better known for his mechanical mirrors, Rozin has also developed a certain number of software mirrors that, like the mechanical versions, reflect an abstract image of the spectator, yet with certain possibilities that are not available when using physical matter. *Time Scan Mirror* for instance displays a fluid image that is the memory of the spectator's movement in the last 30 seconds. *Snow Mirror* reflects a low-detail image of the spectator composed of white dots and dark spaces. Against a background that is well illuminated, the image delivered is essentially defined by the spectator's silhouette.

As one can realize after this small enumeration of projects, the typology of artworks that fall under the label “*Perception-détournement works*” and the specificities and grammars of interaction are endless and extremely diverse. We simply cannot list and describe each type of work that is found under the classifications: installation, wearable or sculpture. As we observed during the first chapter, building an extensive taxonomy around the subject would be time-consuming and certainly meaningless for the project at hand. Nevertheless, the few listed works, as well as others not mentioned that we found and analyzed during our research, foreground certain patterns that are important for the task at hand. Such works favor action and body movement over representation. As Maaïke Bleeker observes regarding relational artworks, “the instable and transitory character of action [is favored] over the stability of more traditional work.” (Bleeker, 2007, p. 35)

In this regard, interactive art experiences foreground an ever-changing experience that depends on participants’ presence and that can always be re-activated in a different way. In other words, form is not “complete” and “finished” as in traditional art forms. Yet what is specific to these *perception-détournement* works is their objectless character. Indeed, there is still a material object that is visible and tangible, a pair of goggles, a modified HMD set, unidentified assemblages of known objects as in the *Floating Eye*, or a projection screen that presents ephemeral images which result from different types of human and technological agency. Nevertheless, these objects are only vessels that activate an experience and then eventually disappear into the periphery of our conscious perception. The physical object itself, for example the pair of goggles in Höller’s *Upside Down Glasses*, is not so much the target of our refined and attentive examination as the “vessel” that allow us, through bodily action, to directly examine the physical environment and our modes of perception. In other words, the pair of goggles in itself does not represent anything but a potential to experience something.

The work of the artist is in this sense to build experiences rather than to depict and materialize with paint or clay what she herself has experienced. This resonates with the way Bruno Munari defines a work of programmed art: “something to be observed and considered not as an object representing something else, but as “the thing” in itself to be observed.” (Munari, 2011, p. 176) What is crucial in his definition and important for us in the context of interactive arts is when he observes that such works do not represent “something else” but are “*the thing* in itself”. From this perspective the work has its own world that is “previously unknown” and that is in the case of interactive arts discovered through action. This loss of referential to something else is then a fundamental part of the essence of *perception-détournement* works. If they refer to something then it is to human perception. But instead of representing a mode of perception, they demand that we actually live it. As Arjen Mulder observes “they give us a feeling of what’s happening, not an image of it.” (Mulder, 2011, p. 171) In other words, they create embodied images. We are only able to understand and to access the meaning of such propositions by acting and by doing.

One might indeed understand the working modes and to partly access the meaning of works as *Messa di Voce*, but we argue here that one cannot fully grasp and understand the proposal just by watching someone else engaging with it. Susanne Jaschko observes that interactive art encounters arise from a processual experience that involves a dialogue between artwork, artist and audience in which “the physical object or system still plays a role, but cannot be isolated from the other components of the process. (Jaschko, Online) As such, there is an “invisible” side to these experiences that we can only grasp if we become physically involved with them. As Mulder claims, the “interactive art object wants to influence the visitor’s body, not symbolically, as a realization or memory, but physically.” (Mulder, 2011, p. 202)

Indeed, no visual symbols or signs are found in works such as *Upside Down Glasses*, *Inter Dis-communication Machine* or *Kleiner Vogel*. However, the same might not be so evident when regarding the mirror-like experiences provided by *Interface*, *Messa di Voce* or Rozin's mirrors. These semi-dark, empty spaces are potential sites for meaningful interaction and action, becoming active and unfolding from the spectator's presence. In the absence of presence, movement or sound, these screens remain black and motionless. Then, they do not simply display a neutral or "objective" image of the spectator standing there in front of the screen. A certain subjectivity is introduced by different elements in these three installations.

In *Messa di Voce*, the participant generates and controls the behavior of simple visual elements that emerge from the sound she produces. The digital particles might have different shapes – circles, continuous vectorial lines, and other shapes that depend on different types of forces. The participant becomes a kind of magician who is suddenly empowered with certain skills, which allow her to create particles out of her voice and control their motion with her bodily movements. The particles are abstract forms that leave room for subjectivity and imagination. They can be very different things, they represent a potential for something else. However, it is through them that interaction happens. Therefore, forms are also a potential for action. They afford relationships between participant and apparatus and other participants and bodily performances of a certain kind. This type of playful relationship is also found in the experience conveyed by Peter Campus' *Interface*. The participant is initially surprised by the double image that appears side by side with her "expected" reflection, but as soon as she becomes acquainted with it, a playful relation seems to emerge between the participant and the screen.

Regarding the meaningful relationships established between apparatus and participant, Mulder argues that: "Meaning is not something semantically fixed in the work, something in it you can point to. If you can, then it has lost its living content. Meaning is

something that comes to life for a while in the interaction between the art and the viewer.” (Mulder, 2011, p. 202) The relational and the operational aspects are immediately foregrounded when we compare such experiences with the encounters one has with traditional artworks. However, one cannot simply analyze the “new” features in order to understand the nature of such interactive art experiences: we should also pay attention to the symbolic aspects that are found in these “living” environments.

Meaning emerges from the relation and interaction between participant and apparatus. Nevertheless, in some experiences not only is meaning encoded on a bodily, perceptual level or in embodied image but it demands symbolic interpretation and manipulation. In other words, some proposals contain certain symbols, signs and semantic objects that we need to take into account when making sense of the experience.

In the article *Unusual Positions – Embodied Interaction with Symbolic Spaces*, Camille Utterback analyzes several interactive artworks that engage our bodies and different representational systems that include language, linear perspective using three-dimensional rendering and other symbolic aspects such as the various forms of computer code itself. (Utterback, 2004, p. 218) In installations such as David Small and Tom White’s *Stream of Consciousness: An Interactive Poetic Garden*, Camille Utterback’s *Text Rain* and *Drawing from Life* or Jeffrey Shaw’s *Legible City*, the participant engages with the apparatus in different ways: by pressing a sensor pad, by using her entire body and its silhouette or by riding a bicycle. Yet in all four experiences, there is a textual layer that affords and sustains the interaction but that also demands a certain attention from the participant so that this relation can be meaningful. In such experiences, the text still holds a symbolic weight as words but it becomes objectified. Words become objects. In *Stream of Consciousness* words become leaves of detritus carried along by flow of the water; in *Text Rain* letters are metaphors for raindrops and in *Legible City* for buildings that compose the streets of

Manhattan or Amsterdam. (Utterback, 2004, p. 220) In other cases, the text elements might be replaced by objects or symbols that carry a certain meaning as in Jeffrey Shaw's *Golden Calf*.

With these examples in mind we would like to put forward the idea that phenomenological analysis is very useful to help us decode and understand the interactive experiences, although this methodology can become insufficient to explore the type of experiences that we have just briefly described. In such encounters, the phenomenological body is brought into being yet semiotic interpretation emerges from action and symbolic manipulation.

Recently, theoreticians adopting a post-cognitivist approach that acknowledges embodiment and enaction theories as central to interactive arts seem to foreground a phenomenological understanding of such experiences whereas the symbolic aspects are barely taken into account. While "ocularcentrist theorists" centered their analysis of interactive art forms within the reign of vision, using the same conceptual tools of traditional arts, one might acknowledge a certain *bodycentrism* in the field of interactive art theory. This *bodycentrism* is frequently followed by a formalistic description of the interaction grammar and the technical workings of the artworks.

To give an example, in the analysis of Jeffrey Shaw's *The Golden Calf*, Hansen clearly privileges a phenomenological and formal description of the installation and interaction potentials, disregarding a symbolic interpretation of the work.

2.3.1) The case of *The Golden Calf*

At the center of a well-lit room we find a white pedestal supporting a small hand-held TFT color monitor connected by a cable to the pedestal structure. On the left- and right-hand sides of the monitor we read "hold here", thus we are immediately impelled to hold and to

manipulate the monitor. By pointing it at the top of the pedestal we have access to a digital form, a shiny 3D golden calf that “mysteriously” appears embedded in real space, standing on the pedestal. By moving the monitor in all directions, approaching or moving away from the pedestal, we can carefully analyze the surface of this intangible calf and thus we realize that the surrounding environment appears reflected (mapped) by (on) the calf’s shiny skin.



Fig. 10 – *The Golden Calf*, 1994 by Jeffrey Shaw

According to Hansen, *The Golden Calf* inverts the traditional panoramic model, producing a mode of affectivity through bodily movement:

“[*The Golden Calf*] underscores the fundamental correlation of photography in its digitized form with the “reality-conferring” activity of the viewer’s embodied movement in space and the affectivity it mobilizes. If the viewer feels herself to be in the panoramic image space, it is less an account of the image’s autonomous affective appeal than of the body’s production, *within itself*, of an affective, tactile space, something that we might liken to a bodily variant of Deleuze’s notion of the “any-space-whatever.” Moreover, if this penetration into the image necessarily involves a certain fusion between actual and virtual image space, it foregrounds the body-brain’s capacity to suture impossible worlds in a higher transpatial synthesis.” (Hansen, 2004, p. 120)

Despite this interesting analysis and aside from recognizing such apparatus as inverting the traditional panoramic model, Hansen seems to overlook the symbolic aspects that this experience potentially entails. Should the simple fact that it is a golden calf (or

cow?) that is represented and not any other animal or object not enter into the equation that will help us to understand the experience at hand? What is it about this artistic proposition beyond the innovative technical apparatus that “allows the body to confer reality on actual and virtual space alike”? (Hansen, 2004, p. 121) Is the artist saying to us that we have now entered the immaterial momentum in which physical objects and sculptures disappear to give way to intangible pieces rooted in numerical codes? But why use a golden calf and not any other object? As these questions seem to demonstrate, the analysis of interactive art experiences from a phenomenological perspective is essential but also restrict. Considering that interactive artworks also contain different types of sign systems one needs to take them into account to understand such aesthetic experiences. Phenomenology presents very rich and detailed explanations on how we engage with the world, acting and perceiving it through movement and action.

As we saw in this chapter, through phenomenological analysis we can actually give names to pre-discursive and pre-reflective dimensions of the experience that emerge when engaging with interactive artworks. Another important aspect that is highlighted in this analysis is the inseparable connection and dependence between body and mind. The different authors referenced here support the idea that body and mind exist intertwined thus we cannot think without our body as we cannot have a body without thinking. The negotiations that occur between body and mind are to some extent deliberately simplified in our analysis.

We are not so interested in understanding how these processes occur in detail, at a neurological level for example, or in examining what goes on inside the “black-box”. Instead we aim to analyze how participants create meaning from such symbolic operations. More specifically, how do they interpret signs that are dynamic and change structurally according to manipulation and certain operations? How do they interpret bodily actions and gestures, as

a process, a phenomenon but also as semiotic signs that are connected with other dynamic signs? In this regard, we are not only interested in the moment(s) in which bodily action, movement and proprioception become opaque and *present-at-hand* or when they gain the status of signs or embodied images, to use Hansen's terminology. We also aim to understand if the participant is still able to distance herself from the movement and from the action provoked by the proposition, to interpret her actions and the symbolic manipulations.

The emergence of signs as objects rooted in bodily activity can be very well described by phenomenological analysis, yet how can we correctly analyze our relationship with signs that are already out there in the world, that refer to and represent other things beyond themselves and that are also dependent on the participant's memory?

The cognitive approach would be the logical answer to this question since it can provide us with detailed knowledge about the higher processes taking place in the brain, and the ways we perceive, process, archive and retrieve abstract, symbolic and iconic information. Yet, as we have previously remarked, this Cartesian *input-output picture* model, in which humans are reduced to computer processors that receive sense data through their eyes and process this information with their brains, might produce contradictory situations, since as we have seen bodily activity is so central to the experience of interactive arts.

In this regard, how can we analyze a third type of signs that only comes to existence with a certain type of bodily action/manipulation or gesture? In other words, a sign that is itself fixed on the gesture or in the action.

We are dealing with two different types of knowledge. On the one hand, embodied knowledge that derives from our direct relationship with the world and on the other, mediated knowledge that relies on indirect second-hand signification. The second type of knowledge is essentially semiotic thus we should briefly turn our attention to this field of knowledge in

order to find out how participants create meaning while interpreting different kinds of signs in the encounters with different interactive artworks.

We will start by quickly examining the action range of semiotics and by reviewing its approach regarding traditional media. Yet our aim is to develop a semiotic analysis of interactive arts. To accomplish this task we will be frequently referring the work developed by Shaleph O'Neill regarding the semiotics of interactive media but also his *embodied-semiotic* approach developed to understand interactive media. Despite of his interest and roots in the fields of Human Computer Interaction and Interaction Design, his account contains several aspects that we might adapt to accomplish the task at hand.

Finally, before starting the semiotic survey we will firstly turn our attention to the problems of interpretation in an art paradigm in which the sensorial and the body have become privileged.

Chapter IV – Interpretation and Semiotics

2.4) Against the Analysis and Interpretation of Image

Throughout the history of art and particularly with the emergence of performance art, many theoreticians have protested against the interpretation of artworks, defending their sensory and emotional dimensions, the intentions of the artist or the materiality of the body. In the introduction of Roberto Simanowski's book *Digital Art and Meaning*, he analyzes this question by giving a number of useful examples of authors such as Susan Sontag, François Lyotard, or Hans Ulrich Gumbrecht who have reacted against interpretation. (Simanowski, 2011, p. 10) In her essay *Against Interpretation*, Sontag criticizes the “overemphasis on the idea over the content”, calling our attention to the need to “(...) recover our senses” concluding that: “in place of a hermeneutics we need an erotics of art.” (Simanowski, 2011, pp. 11-12) A performative shift identified by Erika Fischer-Litche in the aesthetics of the 1960s is according to Simanowski the announcement of the transition from text to performance, and therefore from hermeneutics and semiotics to materiality and event. (Simanowski, 2011, p. 12)

In the same vein as Sontag, François Lyotard shifts the focus from “the *what* to the *that*”, from significance to presence of objects and Gumbrecht supports the concept of presence without rationalization. (Simanowski, 2011, p. 14) Gumbrecht uses the example of the “Argentinean convention”, arguing that one should not dance to tango that has lyrics:

“The rationality behind this convention seems to be that, within a non balanced situation of simultaneity between meaning effects and presence effects, paying attention to the lyrics of tango would make it very difficult to follow the rhythm of the music with one's body; and such divided attention would probably make it next to impossible that one let go, that one - quite literally - “let fall” one's body into the rhythm of this music” (Simanowski, 2011, p. 14)

Simanowski inscribes all these reactions in what he calls the shift from the “empire of signs” to the “empire of senses” observing that despite the validity of the author's messages art should not just be “reduced to ideas”, although “one should not avoid ideas when talking

about art.” (Simanowski, 2011, pp. 16-21) He argues that in a paradigm characterized by an aesthetic of *play* which foregrounds the phenomenal body, there is still space for critical reflection on the semiotic body. In reaction to Gumbrecht’s example of tango he observes: “There is a lot one misses about the tango if one never listen to the lyrics.” (*Ibid.*)

These observations and the argumentation of Simanowski, which will be re-purposed again later, are very useful in two different ways. Firstly they show us that even in the “empire of the senses” we are still in a regime of signification and that reflection and interpretation can co-exist with the sensorial and affective dimensions of aesthetic experience. This is a fundamental aspect for the task at hand since we are dealing with works and experiences that highlight the sensorial and the phenomenological body. Moreover, like Simanowski we start by acknowledging that interactive artworks are not mere displays of technology but rather products of a certain artistic intention that afford meaningful interaction. In light of this, they call for interpretation and semiotic analysis even when one is or has been absorbed in playful interaction. Furthermore, even if the author does not address any precise methodology, he acknowledges the importance of a meticulous analysis of the materiality and artifact’s structure as well as the interpretation of the action of the body when interacting with artworks.

These reactions against interpretation identified by Simanowski resonate with some of the aspects that are found in the analysis of Martine Joly. She observes that we normally oppose art to science, and as such we tend to regard aesthetic experience as something that cannot be reduced to propositional verbal knowledge, thus rationalized. In this regard, approaching an artwork from a sociological or semiotic perspective appears suspicious. (Joly, 2008, p. 51) Joly also identifies other causes that seem to be connected to the refusal of image analysis: 1) images are “naturally” understandable, thus a semiotic analysis seems to be redundant; 2) the interpretation might deform the original intentions of the artist.

Regarding the first point, Joly distinguishes image perception and image interpretation claiming that we often seem to misunderstand both. The author recognizes the existence of certain common mental schemas and representational archetypes found in the experience of every human although this does not mean that there is a universal way to read a certain image. One might be able to understand a few patterns in the image yet be unable to grasp what the image is trying to convey. As an example one could think about the images found in the Lascaux caves or the images from ancient Egypt. Most of us are able to identify different animals or people and objects, yet without being able to decode why they were depicted. From this perspective the work of the semiotician is then to decode the meaning encrypted in the “naturalistic” images that surround us. (Joly, 2008, pp. 46-47)

Joly affirms that if we refuse to analyze images because we are not sure if our understanding matches the intentions of the image creator, then the best thing to do is to give up on the observation or reading of every image. She claims that in order to understand an image we should start by placing ourselves by the side of the receivers, claiming that the message is there, waiting to be decoded and that we should observe it, examine it and compare it with other interpretations in order to achieve a likely interpretation. (Joly, 2008, pp. 48-49) According to the author the analysis of images needs a purpose and needs to serve a specific project with defined objectives. Nevertheless this analysis can simply represent a source of pleasure to the analyst, augmenting her knowledge and helping her to understand the workings of the image – how the different signs organize to transmit a certain message. Unsurprisingly, this instrument appears to be essential in the field of advertising and marketing campaigns. (Joly, 2008, pp. 51-53)

As a consequence of the heterogenic nature of images and objects that can be semiotically analyzed, the methodology adopted for such an analysis is constructed on the

objectives of departure. From this perspective there are no pre-defined or absolute methodologies and we need to build them from scratch according to our needs and intentions.

As we have said, interactive artworks also deal with the same symbolic, iconic and linguistic elements found in painting, photography or video. Of course, the “new” embodied images generated by these experiences need special attention. However, despite the “newness” of the aesthetic regime they open up, we will now try to analyze artworks displaying visual images that contain signs, symbols, icons and indices that require physical operation.

2.4.1) A semiotic approach to interactive arts: dynamic signs, icons, indices and symbols

From our childhood we learn to look at images yet when we grow older this task becomes immediate and transparent, as do the processes of perception that allow us to gain access to the objects of our environment. But despite this innate and natural ability to “grasp” images and other visual objects, images seem to contain different dimensions and aspects that can be approached when analyzing them. In light of this, to analyze the image from a sense-making perspective rather than from an aesthetic, emotional, sociological, cognitive or perceptual point of view we will turn our attention to semiotic theory. As Joly observes,

“(...) to approach or study certain phenomena from a semiotic perspective is to consider its mode of sense production, or in other words, the way they trigger meanings, or, interpretations.” (Joly, 2008, p. 30)

The field of semiotic theory includes the study and analysis not only of images but of every type of signs. Thus, a sign is not exclusively visual, but something that can be perceived and that contains meaning or that expresses ideas, triggering an interpretative attitude in our minds. (*Ibid.*) It can be an image, a color, a sound, a form, a gesture or a texture. Here we are not only interested in the semiotics of image but also in a certain kind of bodily semiotics. In other words, we recognize that by creating certain apparatus and

experiences, artists encode meaning within bodily activity that needs to be interpreted by the participants during or after the aesthetic encounter. These signs are found in gestures, body movement and posture, for example. Therefore, a semiotic analysis needs to take all the aspects of the experience into account; not only the signs conveyed by the image or visual and spatial composition that we access through vision, but also the signs that are encoded in participants' gestures or in the way they physically activate the experience.

In this sense, the role of semiotics relies on the analysis of the different categories of signs and attempts to understand how different signs are assembled to form sign systems and to convey meaning. As several theoreticians have observed, different media propose different kinds of sign systems and thus different meanings.

2.4.1.1) Signified and Signifier

Ferdinand de Saussure founded the field of semiology, conceptualizing it as a general theory of signs. He was mainly interested in linguistics, thus he began by isolating the unities of language, separating the sounds – the phonemes, without any meaning and the morphemes, the linguistic signs with meaning. So according to the author, the linguistic sign is composed of a signified that is the mental representation of what an object is, for example a cat, and of a signifier, the sound or the assemblage of letters C A T. When someone is staring at the sequence C A T, and of course is able to read English, she is likely to mentally think about the concept of a cat. Not a real cat in front of her but the abstract concept of what a cat is.

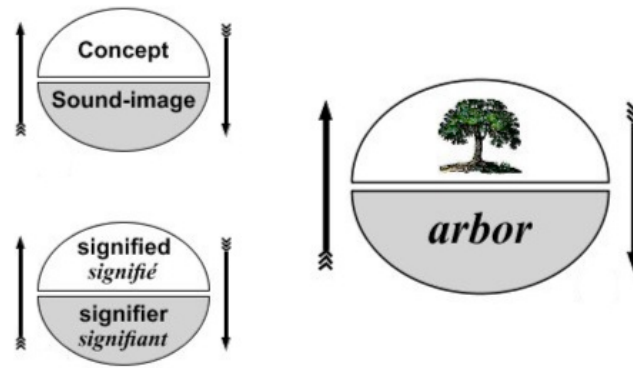


Fig. 11 – A reconstruction of Saussure's schema of the sign by Wendell Piez

2.4.1.2) Representamen, interpretant and object

Despite the importance of the work of Saussure as a pioneer in the field of semiology, his work on linguistic sign systems was essentially based on the description of linguistic forms, their rules and working modes. In this regard, his approach range seems to be limited. We thus need to turn our attention to the work of other semioticians such as Charles Sanders Peirce, who proposed a wider and more complete theory of signs that could cover linguistic, but also other sign systems within image.

Departing from a phenomenological perspective, Peirce recognized that the sign has a materiality that one is able to perceive – see, hear, smell, touch or even taste. A sign is then something that substitutes, evocates or signifies the absent thing, the referent; like the word CAT that replaces the physical presence of a cat but that is still able to abstractly evoke it. Or the presence of grey clouds in the sky, which indicate that it will probably rain; the use of black clothes, which might mean that someone from my family has died; the sound coming from a bicycle bell behind me signalling the bicycle's presence; or the smell of burning reminding me that the coffee is burning in the kitchen. As Martine Joly observes, from this perspective everything can be a sign. And particular cultures will have particular signs. (Joly, 2008, p. 35) For example, in some cultures, wearing black clothes at a funeral is not

necessarily a sign of respect for the traditions and ceremonial protocols. Another aspect of this view of signs reveals that real objects like a cloud in the sky or the smell of coffee might not be auto-referent signs but rather signs for something else, as in the previous examples. (Joly, 2008, p. 35) Furthermore, more importantly, according to Peirce a sign is something that implies a triangular relationship between an object, the referential, the *representamen* and the *interpretant*. (Peirce, 1978)

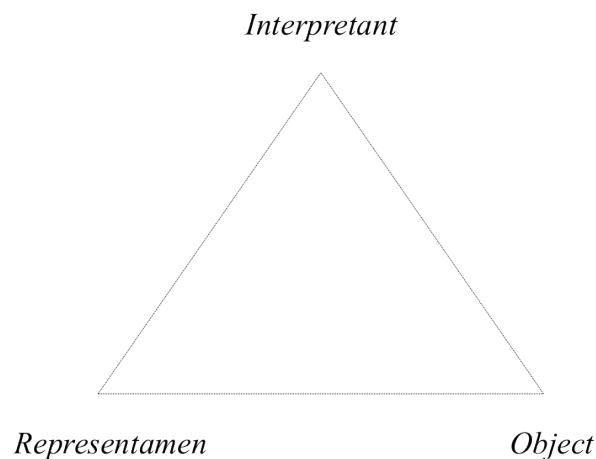


Fig. 12 – Peirce's triadic sign

The object or referential stands for the represented thing, the real cat and the *representamen* stands for the signifier, or for what we perceive from the sign, the image of a cat or the word CAT. The interpretant or meaning derives from a mental process that Peirce names *Abductive Reasoning* whereby the person connects the lived experience of the object with the experience of the *representamen*. (O'Neill, 2008, p. 69) So when we create meaning from observing the drawing of a cat (*representamen*) we are actually in full-blown semiosis or experiencing what the author defines as a state of *thirdness*.

Peirce's phenomenological account considers three states of experience: *Firstness*, *Secondness* and *Thirdness*. The first state refers to the direct access, undifferentiated and non-propositional experience that we have of the world. Whereas the second, as O'Neill observes is:

“Where we begin to differentiate the “us” from the “not us”, ourselves from the world around us, sensations of pain from causes of pain and actions from reactions. Effectively this means that there is some kind of mapping between some sensation and its cause or something and something else without any meaning coming into play.” (O’Neill, 2008, p. 69)

The author refers to an example whereby the smoke means fire; the fire is a direct cause of the smoke, so a physical link is established between signifier and signified without the need for interpretative mental processes. (O’Neill, 2008, p. 69)

According to these three experiential states of signification, and by recognizing the diversity of sign types and their own specificities, Peirce defines different types of signs: *Icons*, *Indices* and *Symbols*. Icons are related to *firstness* and they are analogs to the objects they refer to. A figurative drawing of a cat or a house or a cloud presents similarities in order to be recognized. Indices are related to a class of signs that “keep a causal relationship of physical contiguity with the things they represent.” For example, smoke for fire or a cloud for rain or a storm. (Joly, 2008, p. 39) As we have already seen, *indices* are related to the concept of *secondness*. Finally, symbols are signs that respect a certain convention within a certain culture, society or group. They do not resemble the object they stand for as icons or have a relationship with them as indices normally do. As examples we can think of the flags that represent a certain country or region as well as the white dove that means peace or other omnipresent logos or symbols such as words or numbers.

Our semiotic survey could go on indefinitely, examining the theories of many other authors such as Umberto Eco, who unlike Saussure supports the idea that meaning does not unfold from individual constructs, but rather from interaction with a certain culture and society. (O’Neill, 2008, p. 72) Or the theories of Roland Barthes and Louis Hjelmslev, who analyze concepts such as *denotation*, *connotation*, or *metalanguage*, or even the theories of Saussure and Peirce in more depth. Yet we should use this space to see how these theories that mainly derive from text and image analysis can actually be framed and be useful in order to examine interactive media artworks.

As O'Neill concludes in his analysis regarding semiotic theory, the Saussurian conception of *sign* is still a very primitive tool for examining certain aspects of interactive media, although concepts such as *syntagms* and *paradigms* can be useful to describe interactive structures, as can the Peircian concepts of *firstness*, *secondness* and *thirdness*. (O'Neill, 2008, pp. 80-81)

Like film, interactive media structures bring together very different types of media that use symbolic representations, e.g. the window concept in graphic user interfaces, or refer to visual metaphors (analogy) e.g. the desktop concept. As we will be able to see during our semiotic analysis, due to the multi-layered meaningful structure sustained by media convergence, interactive media works make the work of semioticians a very complex task to perform.

2.4.1.2) The semiotics of interactive media

To begin his semiotic analysis of interactive media, O'Neill starts by acknowledging the work that has been developed by SERG¹⁵, a research group interested by the process of signification with dynamic information. Yet the author claims that the group is not so focused on understanding how interactive media users create meaning from their interactions, but rather on how they can improve the communication between interface and user. He avers: "semiotic engineering is not so much about exploring the layers of meaning that users interpret while interacting as it is about usability evaluation." (O'Neill, 2008, p. 79)

In an attempt to construct a conceptual toolbox to decipher different interfaces O'Neill uses the research conducted by authors such as Jacques Bertin, Peter Bogh Andersen, Gunther Kress and Theo van Leeuwen or Christian Metz, concluding that in a screen-based paradigm the predominant logic is still textual. (O'Neill, 2008, p. 85) Through the graphical

¹⁵ The *Semiotic Engineering* Research Group (*SERG*) is an academic center of advanced research involving Semiotics and Human-Computer Interaction (HCI).

analyses of Bertin, we become aware of the fundamental differences between pictograms and graphics. The first are normally figurative or representational images and thus polysemic whereas graphics are abstract, symbolic and monosemic. O'Neill compares the Bertian graphic with the Peircian symbol, which demands convention and pictograms with icons which rely on the viewer's everyday experience. (O'Neill, 2008, p. 88)

Considering that symbols, graphics and pictograms should not only be analyzed individually, since they also acquire new meanings when displayed together or under certain circumstances, the author introduces a "visual grammar" through the analyses of Gunther Kress and Theo van Leeuwen. The authors analyze several aspects and elements that constitute images, such as size, shape, position, salience of objects or relationship between objects in order to explain how such compositions become meaningful to the viewer. As such, as O'Neill argues, "the visual grammar offers us an understanding of syntagmatic compositional techniques." (O'Neill, 2008, p. 91)

By acknowledging the similarity of the moving images that we commonly find in new media environments and interfaces and the images of film, O'Neill relies on the analysis of Christian Metz, who is best known for his semiotic analysis of cinema. According to the author, Metz's analyses foreground the syntagmatic structures of film, both temporal and spatial. (O'Neill, 2008, p. 93) However, in Metz's *Grande Syntagmatique*, the focus of analysis remains in the image track, avoiding the oblique relationships between sound and image. In the same work, Metz acknowledges the inexistence of a semiotic unity in film, conceiving film as a meta-medium in which, due to the co-existence of multiple signs, each film "shot" is more like a statement than like an individual word. (*Ibid.*)

Indeed, in O'Neill's analysis this threefold conceptual toolbox aims to analyze interfaces and interactive objects that are essentially denotative. In other words, artifacts that are designed to clearly deliver a message. Yet the usefulness of such a toolbox lies in the fact

that a considerable quantity of interactive artworks exhibit similar structures and sign systems to those available in “denotative artifacts”. In interactive artworks these structures and signs allow and conduct the interaction, focusing participants’ attention or possibly also diverting to gain other meaning than that previously established (e.g. the works of Collective Jodi). Nevertheless, even if such signs become transparent and are only there to give access to something they still need to enter the semiotician’s analysis.

Another problem that we should try to address when analyzing and interpreting interactive artworks is their processual and epistemic nature. In other words, as dynamic experiences more dependent on process and relation than on form and pre-defined, static images, the semiotic analysis of interactive artworks needs special considerations. In image analysis the semiotician is concerned with the image’s heterogenic character, the internal relationships established between different categories of signs, iconic signs, linguistic signs and colors, shapes, internal composition or textures. (Joly, 2008, p. 42) This task appears to be more complex when the image is constantly in construction, depending on the actions of the participant and in some situations on the internal interactions of the system. Yet this does not mean that we should simply abandon the concepts and methodological approaches applied to old media but rather that we should adapt them to the understanding of new media propositions. As an example the next section presents the analysis of the interactive installation *The Golden Calf*.

2.4.2) Proceedings to analyze an interactive artwork from a semiotic perspective

As we observed previously, the material features found in traditional artworks are significantly reduced in machine-based interactive artworks. In many cases the physical components of such propositions have been reduced to technological apparatus or computers,

which most time are running in the background, in technical rooms that hide these gears and make them invisible.

To give an example, in the interactive installation *Very Nervous System* by David Rokeby, there is simply no visual referential at all beyond the video camera installed in the room and the empty space that surrounds participants. Some moments after entering the room the participant becomes aware of the workings of this “invisible” apparatus, which reacts to her bodily movements, reproducing random sounds. A performance emerges spontaneously in the empty space, directing the participant’s attention to her bodily movements, actions and gestures.

This example is particularly relevant to support this shift from form to relation, event and performance. It also foregrounds another relevant aspect for this analysis, the fact that the body is here transformed into sign. As we remarked previously, such works bring to analysis a diversity of signs not commonly found in traditional arts. Additionally, some of these signs stem from bodily actions, during interaction with an apparatus, thus they are part of complex syntagmatic chains of meaning that demand an analysis of the work as it unfolds, during a particular fragment of interaction.

It seems impossible to consider all the possibilities and possible configurations that certain interactive artworks potentially contain, since their outcome is directly dependent on the actions of participants and internal interactions of the system. O’Neill actually ends up with the same conclusions from his analyses with screen-based interactive media objects. He observes that the quantity and the complexity of signs and syntagmatic structures present in all the different types of media makes the semiotician’s work very hard to achieve:

“(…) Semiotics could be applied to each different media element such as the graphical component, the video component, or the interface component, but still this would not account for oblique meanings across media elements.” (O’Neill, 2008, p. 105)

He recognizes that in order to make this task possible one should employ semiotics to “understand how meaning is established during interacting, rather than in trying to analyze all the aspects of the entire medium into its components parts. After all, it is the interactive component of this type of media that orchestrates all the others” (O’Neill, 2008, p. 105)

Of course, we can try to analyze the visual components of interactive artworks, their interface graphics, images, videos, and the nature of sound events, but we will always need to take the physical engagement of the body, the gestures and movements involved into account.

As an example of a semiotic analysis we will examine *The Golden Calf*, an interactive installation created by Jeffrey Shaw in 1994. Our methodology will be based on a number of questions: 1) Are there any types of signs? What kind? 2) How do these signs articulate between themselves? Can we distinguish a visual grammar? 4) How do these signs/syntagms relate to external interactions? And to internal interactions? 5) What is the implicit meaning conveyed by this sign system?

2.4.2.1) *The Golden Calf* – A Semiotic Analysis

Context and expectations of reception

Before starting the formal analysis of the piece itself we should briefly try to make sense of the context of production and the expectations surrounding the reception of this artwork. As Joly observes, they are both intertwined and they deeply affect the interpretation of the message and the readings that can be made of the artwork. (Joly, 2008, p. 69)

The Golden Calf appears as part of Jeffrey Shaw’s research agenda and interest in Virtual Reality environments and technologies. Despite the limited number of art exhibitions featuring digital and electronic technologies in the mid-1990s, virtual reality was not something new for the audiences in such venues. Oliver Grau observes that the quest for illusion in art, using digital technologies, had become very popular by the end of the 1980s.

(Grau, 2003, p. 3) Through the development of immersive environments using HMD (Head Mounted Displays) or, later on, CAVE environments, artists and researchers allowed spectators to explore three-dimensional worlds which evolved according to their position and bodily actions. Outside of the gallery, the cultural environment stimulated by arcade rooms, video games, personal computers and long-term exposure to a science-fiction imaginary seem to have provided the appropriate context for the exhibition of such artworks. But what seems striking and particular about this proposition, as well as other pieces from the same artist is its unique and innovative mode of interaction with the virtual world, and also the way in which this world appears integrated into the physical world. In light of this, familiarity with more conventional virtual reality experiences (HMD, CAVE) and the unusual mode of interaction introduced by *The Golden Calf* produced a rupture with previous experiences, subverting the visitor's expectations and fascinating her.

Formal analysis

This analysis was supported by the video documentation from the exhibition *Invisible*, curated by Emanuele Quinz and inaugurated in October of 2004 at the *Palazzo delle Papesse* in Siena, Italy. *The Golden Calf* was installed in a dedicated room, well lit with a ceiling covered in colorful drawings and motifs. The ceiling details are important because the work's virtual world includes parts of the surrounding environment in the calf's 3D dynamic rendering.

The visual elements of this installation are divided into two different groups: 1) the physical elements and 2) the virtual world's elements. In the first group we find two objects: a white plinth located at the center of the room and a handheld LCD screen that rests on top of the plinth, connected to it through a black cable. Yet the ceiling and the room space are also part of this first group. In the second group, the 3D virtual world that we access by

manipulating the handheld screen, we find a white plinth that serves as a base for a shiny 3D rendering of a golden calf that reflects the motifs from the physical ceiling. The rest of the space in the room is reduced to a homogeneous white surface. Indeed, the second group only comes into existence if the participant actively uses the apparatus. If one passively stares at the assemblage plinth-screen without using it, nothing will happen. Although, to prevent such a situation, one can read on both sides of the small screen: “Hold Here”. These are the only linguistic signs present in the piece. Following Peirce’s sign typology we have no difficulties in recognizing that the 3D rendered plinth is an icon whereas the 3D golden calf seems to have an iconic and symbolic nature. We are immediately able to recognize the “calf” or the cow if we consider Edward Shanken’s analysis. (Shanken, 1995, Online) Yet the texture of the golden skin opens up a symbolic dimension, amplifying the connotative aspects of the sign. By analyzing the “plastic” message, one can verify that the gold color and the light “emitted” by the calf and the shiny, mirror-like texture of its skin are highly contrasted against the homogeneous white of the background. This composition confers on the calf a precious and sacred dimension that is also reinforced by the way spectators carefully examine the object without being able to touch it.

Regarding the virtual world’s structure, we verify that the plinth and the calf are attached, forming a *spatial syntagm*¹⁶ between them but also between the physical plinth and the handheld screen. In this regard we acknowledge that one of the main structural characteristics of *The Golden Calf* is a dynamic *spatial syntagmatic* structure that is dependent on the participant’s bodily actions, and that articulates physical and digital space and places them in relation with each other. The participant circles around the plinth examining all the sides of the calf; when she moves the screen closer to the plinth the calf

¹⁶ The combination and relationship of different shapes or colors in paintings, photos, or any other objects in order to convey a certain meaning.

appears bigger and is displayed according to the rules of traditional perspective. By moving the screen too close to the plinth the participant can actually see the empty interior of the calf.

As Jeffrey Shaw observes regarding the experience of this piece, during bodily manipulation and examination, one seems to depict a certain performative ritual around the plinth, a quasi-religious act of contemplation. (Shaw, n.a., Online) According to Roland Barthes, a plain sign provokes a first level of signification, but he defends a rhetoric of connotation whereby the meaning of a first signifier has the faculty of provoking a second level of signification. (Joly, 2008, p. 85) As such, we consider that this applies not only to visual signs but also to sound, gestural and other categories of signs.

With this in mind the “involuntary” choreography stemming from the interaction with the apparatus becomes a sign with certain connotations. Indeed, the connotation of ritual and ceremony suggested by the choreography does not emerge from the movements of the participant around the empty plinth alone, but from the movements around a sign with connotations of a sacred dimension. In that sense one might say that both signs, bodily performance and the golden calf, work together to produce meaning.

The golden calf is historically known as an image of worship which is mentioned in the Hebrew Bible and which was worshiped by the Israelites when Moses went up Mount Sinai. Yet what does this technological re-enactment of such worship actually mean beyond this first layer of understanding – the aesthetic encounter as adoration of the golden calf?

On the one hand the participant is unable to “touch” the calf and the only way to access it is by means of digital technology. In light of this, the role of technology attains here a status of super-power that is actually already reinforced by the fascinating workings of the apparatus. On the other hand we can penetrate the interior of the calf, somehow violating the sacred status assigned to this icon to also find that there is nothing but empty space.

According to Shanken, Shaw uses the calf's empty interior to comment on the absence of responsibility or ethics that characterizes the essence of technology:

“Whereas the single, spiritual god of the Judeo-Christian religion replaced the polytheistic, material cult of animism, Shaw's techno-wizardry revitalizes an ancient relic which, by virtue of its silicon miracles, engages its viewers in a farcical religious transformation. Indeed, technology has become the god of information society. But blind faith in its beneficence must be carefully considered, for as Shaw intimates, it is empty inside, it has no spiritual core, no sense of responsibility or ethics.” (Shanken, 1995, Online)

Nevertheless, as Shanken wisely points out during his analysis, the calf is actually a fully-grown cow that belongs to a predefined collection of 3D objects – Silicon Graphics Computer. Despite this second piece of information being inaccessible to participants during the aesthetic encounter, both findings open up a set of new questions and interpretative paths complicating the understanding of the piece:

“Why call it a calf then? Does the arbitrary quality of this calf's origin suggest a critique of other religious icons, or do its commonness and immaculate conception suggest an affinity? Is there symbolic meaning in the voyeuristic penetration of the phantom object's mysterious interior? What is the relationship between the male creator, the viewer-consumer, and the female-procreator? And what does all this mean when it takes place in virtual reality via technology inspired by the military? Holy cow!” (Shanken, 1995, Online)

One could also understand this proposition as a commentary on the immaterial and reproducible nature of digital media artworks, and thus on the substitution of the physical object by a technological apparatus that only gives access to a representation of the real artifact. From another perspective, the spectator is given the power to manipulate and to play with a sacred symbolic sign, thus, instead of the established ritual of contemplation and adoration that demands physical distance, this new engagement with the golden calf conveys a provocative and somehow desacralizing relationship. In this regard, the experience of *The Golden Calf* seems to express a new ceremonial act but simultaneously a rupture with another one.

Despite the apparent structural simplicity of the work, this experience raises an endless set of questions regarding its signification. The speculation on the symbolic aspects and the connotations associated with the different sign types could in fact be much more

developed and occupy this entire thesis. However, this is far from being the aim of our analysis; what we want to foreground and discuss here is the structure and the method that we employed to study *The Golden Calf* using a semiotic approach.

To summarize, the different components of the artwork analyzed were: 1) the context and expectations of reception; 2) the design signs: color, light, texture and composition; 3) the linguistic signs; 4) the iconic signs: icons and symbols (visual and bodily/gestural); 5) the structural spatial syntagms (static and dynamic); 6) the connotation or second level of signification of the different signs (individually and the ensemble); 7) different layers of meaning implicit in the experience. As in the analysis of images, we examined the different elements and signs of the installation in an attempt to find the meaning encoded in this aesthetic encounter. However, new types of signs, syntagmatic structures and relations are found in interactive artworks if we compare them with the structures of static images of painting or photography. Some of the signs (the 3D plinth and the bovine model) are dynamic elements that change shape over time according to exterior manipulation. Such structural changes also imply changes in the connotation attributed to signs – penetrating through the body of the bovine changes its shape as well as meaning. So we might say that connotation is also dynamic and is in action. On the other hand, the bodily sign(s) (the performative gestures that operate the handheld screen and the movements around the plinth) become connoted and have second levels of signification, whereas in the reception of painting or even video bodily performance is essentially absent and thus meaningless. Moreover, the signs affect each other, thus they exist dynamically in relation to each other. They form spatial static syntagms – the bovine model is always connected to the plinth so their relationship does not change – but also temporary syntagms if we consider the relationship between bodily performance and the syntagm plinth-bovine.

Despite the evident differences found in the structures of traditional media and digital interactive media artworks, the instruments provided by semiotic analysis are still very useful to understand and decode the implicit meaning of interactive art encounters. However, some dimensions of the experience provided by *The Golden Calf* could not be grasped and analyzed here because we did not physically engage with the apparatus. Even if we can partially learn the workings of the apparatus and interpret the meaning conveyed through an exterior observation of participants in interaction, we argue that to obtain a complete understanding of the artwork one also needs to leave the position of spectator to become a participant. This is valid for the common spectator but also for the semiotician or the art critic. In fact the description of some aspects of *The Golden Calf* could benefit from a personal experience, particularly when it comes to the descriptions of the apparatus.

Moreover, it would allow us to verify if, as participants concentrated on the operational level of the apparatus and absorbed by free-play, we are still capable of making sense of our bodily performance and of interpreting it as a sign. Additionally, in order to further develop our understanding of such aesthetic experiences we should also try to compare interpretations made by different people. This task should not be searching for the “right” implicit meaning, or a convenient one, but instead should be useful to track some patterns and particularities found during participants’ sense-making process. This will hopefully lead us to a better understanding of the nature of certain similar interactive art encounters.

As shown by this analysis, semiotic theory is useful but also limited when it comes to describing the bodily dimensions of such experiences. In order to understand such complex structures and interactions one needs to take the phenomenological body into account again. In this regard, if one methodology is to be developed it needs to combine phenomenological and semiotics.

Although, as Shaleph O'Neill rightfully observes, this connection is not without problems. This difficulty arises from the fact that such fields have very different research grounds, perspectives and objectives. While the first one is concerned with the study of our pre-conceptual and pre-reflective experiences while directly engaging in the world, the latter is interested in the ways in which we relate to sign systems, and consequently to a higher level of abstract experiences. At the root of such approaches there is a clear split. The phenomenological approach to reality that we address here is based on the knowledge that we acquire from direct experience with the world, thus highly dependent on the body and action. This is essentially a realistic position that excludes any separation between body and mind. On the contrary, as O'Neill observes, semiotics are essentially rooted in an anti-realistic position by building upon a cognitivist view in which we create reality according to mental interpretation of sensorial information. Reality and mind are here inseparable. (O'Neill, 2008, p. 130) We seem to encounter the world in continuum¹⁷ and to learn from our actions and lived experiences, but also to make sense of the symbolic forms we find in our way in a smooth and continuous fashion. So why do phenomenology and semiotics appear as discontinuous schools of thought? And in this regard how can both fields be articulated?

In the next chapter we explore the *embodied semiotics* framework developed by O'Neill, which introduces a way to understand interactive media experiences by essentially combining embodiment theory, embodied cognition theory and semiotic theory. This will, we hope, shed some light and bring some useful insights into our questions and into the methodology we aim to develop here.

¹⁷ Umberto Eco refers to "continuum" as a direct experience of the world, an undifferentiated continuum of sensation, in which nothing can be signified. (Eco 1976, 1999; O'Neill, 2008)

Chapter V – Phenomenology and Semiotics

2.4.3) An *embodied semiotics* approach

With the aim of deepening understanding of the structure and function of our increasingly mediated and inauthentic¹⁸ environment and our physical interactions with it, O'Neill has united Gibson's theory of ecological perception, the phenomenology of Martin Heidegger, the proto-semiotics of Jacob von Uexküll and the semiotics of Peirce. By presenting all these theories together he explains how they overlap. His assemblage thus becomes a very important resource that could create some insight into the discontinuity between phenomenology and semiotics.

O'Neill draws a parallel between the theories of Gibson, Heidegger and Peirce, finding that each one of them unfolds different main aspects, modes of being and modes of experience that are essentially all compatible with each other (*Cf.* table n°1). He analyzes these relationships extensively, establishing interesting connections between Heidegger's notions of present-at-hand and Gibson's theories of internalization, as well as exploring the notions of authentic and inauthentic activity, mediated and unmediated experience.

Despite this insightful analysis we will pass over the detail and concentrate on the overlap between phenomenology and semiotics. The relation between Gibson's direct perception and Heidegger's ready-to-hand is coherent, but the concept of Peirce's firstness does not seem to fit in. In this regard, O'Neill claims that better than the concept of firstness is the concept of secondness and the proto-semiotic view derived from von Uexküll. (O'Neill, 2008, p. 144) We should note here that, like O'Neill, we use Peirce's semiotics due to its origins in phenomenological ground. Regarding Peircean semiotics, he observes: “[Peirce] is mostly

¹⁸ According to Heidegger “authentic” being is related to our direct experience of the natural environment, our relationship with trees and things from the nature, whereas “inauthentic” being stands for our “secondhand” experiences, our interactions with objects produced by man, such as books, photos, paintings.

concerned with understanding what various forms of experience feel like from an internal perspective.” (O’Neill, 2008, p. 133)

| | |
|---------------------------|--|
| Ecological Theory | <ol style="list-style-type: none"> 1) Direct perception that works without the inclusion of representational knowledge. 2) Knowledge itself, representational or otherwise, that is part of other higher cognitive processes, e.g., thinking, imagining, etc. 3) Mediated perception, as distinct from direct perception, in that it provides us with information about the world at second hand. To some degree knowledge must be brought to bear on understanding, although the perceiving media is still direct. |
| Heidegger’s Phenomenology | <ol style="list-style-type: none"> 1) Ready-to-hand: The mode of smooth coping and mastery of everyday tasks involving the equipment of the world as we find it. 2) Unready-to-hand: The mode of being where we are learning to cope with the world around us, or where we encounter some new situation in which we have only partial mastery or understanding. 3) Present-at-hand: The mode of being where we experience the world from a reflective, thoughtful state of mind, that draws on our knowledge of different experiences. |
| Peirce’s semiotics | <ol style="list-style-type: none"> 1) Firstness is purely and simply described by Peirce as the qualitative feeling we have of being conscious in a primal state. It is a state of flux, of fleeting undifferentiated sensations that are not tied to any clear perception, representation or concept. It is a state of pure possibility that has the potential to form habits. 2) Secondness is the state of perceiving. It is not full-blown signification but proto- semiotic. In secondness the ego encounters the other (an external real world that forces itself upon us continually as constraints). In encountering the other, the ego becomes aware of itself, its limitations and capabilities. 3) Thirdness is the state of full-blown semiosis where we encounter not only the other in the form of an external world but representamens that stand in for absent aspects of that world. It is the category of mediated relations that form signs composed of a representation, the object being represented and an interpretation of what the representation is representing. |

Table 1 – O’Neill’s framing of Gibson’s Ecological Theory, Heidegger’s Phenomenology and Peirce’s Semiotics

Yet the connection between phenomenology and semiotics seems to be found on a more basic level. O’Neill explains this by referring to Von Uexküll’s *Umwelt*. According to the latter, *Umwelt* characterizes the world that a certain organism perceives and interacts with. For the author, organisms find meaningful elements or signs in the surrounding environment that assure their survival. Different species will find different affordances in the environment, according to their perceptual capabilities. (O’Neill, 2008, p. 144) As an

example, the *Umwelt* of a tick is constituted by light, grass branches, butyric acid, animal fur, warm-blood and other ticks. In this regard, at the phenomenal and biological level our interactions with the world already present a semiotic character:

“Drawing on Uexkull’s work, Sebeok makes it evident that semiotics is not, as first suggested by Saussure, an arbitrary conventional process but that semiotics is present throughout the animal kingdom, and that humans in particular can be considered to be “semiotic animals” at a fundamental level, i.e., the level of the body.” (O’Neill, 2008, p. 149)

But how can we explain the crossing of the semiotic threshold, or in other words the passage from this proto-semiotic stage, in which we make sense of real objects and environmental affordances, to full-blown semiosis in which we can actually decode constructed, inauthentic signs as words, or visual icons and symbols?

According to O’Neill this answer is made more complex due to the “specter of representationalism” that still characterizes semiotics, even with Peirce. The author claims that in order to shed some light on the issue we should examine the notion of *semiosic primitives* but also focus on the distinction between Peirce’s secondness and thirdness. (O’Neill, 2008, p. 146) *Semiosic primitives* are according to Umberto Eco the fundamental “notions” of high and low, up and down, feeling pain or relief that one eventually acquires from perceptual and phenomenological activity. This is not conceptual knowledge that was previously stored in our minds but rather primary interpretants triggered by our actions in the world. (O’Neill, 2008, p. 146) As Lakoff and Johnson also observe with their *bodily-derived primary schemas*, we seem to acquire certain notions and body-based understandings of the world as center, part, or verticality, because we have a body and we are embodied in the world. Thus, as O’Neill claims:

“These bodily originated primitives provide the stepping stone across the semiotic threshold, from the perceptual experience of the undifferentiated continuum of the world, to higher cognitive function, by acting as a primitive embodied framework of reference from which semiotic inferences can be drawn.” (O’Neill, 2008, p. 147)

At this point of O’Neill’s analysis we can verify, as we have seen before with Nöe’s and Scholz’s analyses, that even if higher cognitive processes such as thinking or imagining involve representations in the mind, they have their origin in embodied experience. The “genuine signification” or Peirce’s thirdness and the *conceptual blending*¹⁹ in which primary interpretants combine in unlimited semiosis are thus only possible through embodied schemas. (O’Neill, 2008, pp. 150-153)

It seems that we have reached a reasonable explanation of how phenomenology and semiotics can be combined in a compatible framework, thus we will not go deeper to explore the idea of conceptual blending; instead, we should take a quick look at the embodied semiotics schema developed by O’Neill.

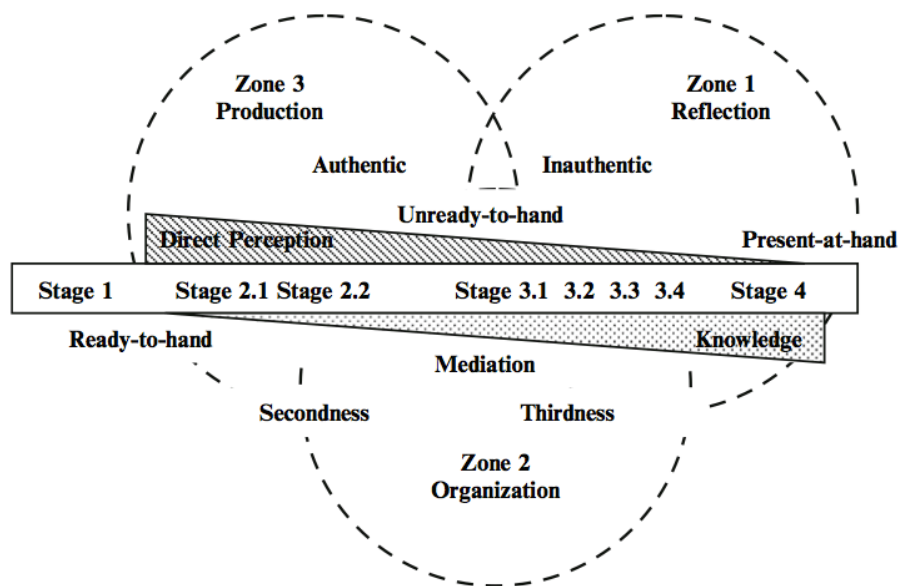


Fig. 13 – O’Neill’s schema of Embodied Semiotics: The Continuum of Interaction across the Zones

By assembling all the different theories that he explored, this schema denotes a continuous flux between our experience of the world in a pre-reflective way and the way we think, represent the objects of the world and produce knowledge. This assemblage allows us to see

¹⁹ O’Neill borrows this term from cognitive linguists to explain how concepts combine to form new knowledge.

where these theories overlap but also to understand how they relate to each other. On the left side we find the world as potentiality, we exist and manipulate objects *ready-to-hand*, in pure, authentic experience (Peirce's *firstness*, stage 1). In the other side, after going through a complex number of processes: Peirce's *secondness*, direct perception (Stage 2.1); Primitive Embodied Schemas (Stage 2.2); Internalization (Stage 3.1); Semiosis and Imagination (Stage 3.2); Expression (Stage 3.3); The Mediating Environment (Stage 3.4) we finally arrive at a state where conceptual blending takes place (Stage 4). At this stage the object manipulated becomes *present-at-hand* and rather than using it, we start to think about or reflect on it or its contents. (O'Neill, 2008, pp. 154-157)

We can observe three distinct zones, which correspond to the three circles and which intersect each other. These zones derive from the study that O'Neill conducted, observing the way someone interacts with Photoshop while drawing and the way someone paints by using a real canvas, brushes, ink etc. He then established the three zones, which characterize these two activities. In the *reflection zone* both agents are essentially distancing themselves from the object and task at hand in order to make decisions and to think about what they will do next. In the *organization zone* they prepare and organize the materials in order to actually draw. And finally, in the *production zone* they are sketching, erasing, drawing and coloring. (O'Neill, 2008, p. 154)

Can we also observe these three different zones in encounters with interactive artworks? Even if such zones are more apt to describe our interactions with software or the structure of productive activities, how can their description and definition help us to reveal the structure of our experiences with interactive artworks?

In this regard, in order to find and define the structure of a certain experience we first need to have one or to analyze someone else's experiences.

So this rejoins the conclusions previously found at the end of the analysis of *The Golden Calf*. Therefore we need to analyze individual experiences with a certain artwork but also the experiences of different participants. This should allow us to compare the different experiences and try to find common patterns and finally a certain structure. Regarding the co-existence of both pre-reflective and interpretative dimensions in such encounters, this analysis should integrate a phenomenological-semiotic approach that will hopefully lead us to a better understanding and description of such experiences. We should also make clear our intentions and the objectives of pursuing such an analysis. More than just searching to define the structure of a certain artwork, we wish to understand the lived and felt experience with certain interactive artworks. The aim is not to create a general model for all interactive artworks but rather to develop a functional methodology that can be applied to analyze these works.

Still, there is a fundamental concern that primarily drives this research. We want to understand how meaning is constructed and affected by the physical operations and manipulations that the participant is required to learn and to do to activate the experience, and by the physical playfulness triggered by such interactive art encounters. In other words, to understand whether play and free-play override meaning, preventing the participant from having a critical reception or interpretation of the experience she has or has had. Indeed, despite the simplicity of such question, which will be developed further in the next chapters, a possible answer involves a number of requirements that we should try to summarize here.

First we need to briefly define the aesthetic of play that characterizes interactive art experiences. For this task we will start by analyzing some of the theories of game and play and then circumscribe our analysis to the field of art, using some works as examples but also

bringing to the table the little theoretical grounding available relating to play in interactive art.

Secondly, we will explore the notions of critical distance and psychological distance that have mainly been discussed in the context of traditional arts. Besides defining such terms, this analysis should help us to clarify the meaning of these concepts in the context of interactive arts.

In the third phase, which will be developed in chapter VIII, we will analyze some interactive artworks using a qualitative method based on an interpretative phenomenological analysis. This methodology is supported by direct observation of several aesthetic encounters but also by qualitative interviews with each one of the participants. The methodology was built according to our needs and informed by the notions explored in chapters III, IV, V and VI.

In this regard, by using a phenomenological-semiotic analysis, we are particularly interested in understanding if reflection and critical consciousness are triggered by those experiences but also in knowing how such thoughts are structured and originate from bodily activity, affect, movement and gesture.

PART II

Play, *Free-play* and Distance(s)

Chapter VI – Game, Play and Free-play

3.1) Playful and Ludic Dimensions in Open-ended Environments²⁰

The first time I entered *ZKM* in Karlsruhe I had the immediate sensation that this was not an art space like the others I had seen before. At that moment I could not say why, and maybe due to all the works calling for my attention I just did not have the opportunity to reflect on that. Yet, without stepping back, one word seemed accurate to describe that place – fun!

Unlike the average museum that is normally filled with a deep contemplative silence, the ambient noise in the *ZKM* announces life, movement, action, participation and collaboration. This is not so much due to the “noisy” nature of the works exhibited but mainly a secondary effect from the human activity while participating in the creation process. Such absorbing experiences seem to take participants away to another place. They jump, run, fly “inside” digital worlds by opening their arms, fold and stretch their bodies into unusual positions while laughing, or commenting on what they are doing. They scream, talk and sing into the headset of *Delayed*, a relational installation by Mathias Gommel. This apparatus invites visitors to enter into a dialogue with a sound delay of 3 seconds. In an apparent state of surprise and confusion participants laugh and then try again with different sounds and words and then laugh again. The affordances for conviviality are evident and beyond the demand for physical manipulation and participation. A considerable number of projects are multiuser or demand collaboration between participants. In this regard, the discussions concerning the functioning mode of the work, its conceptual connotations and other aspects seem to take place between participants, even among strangers.

²⁰ According to Ann Morrison, open-ended environments are “free-form in that they provide an abstract yet embodied experience that requires their audience to actively construct their own meaning from direct experience with the works. As we have noted, these are non-narrative works, with no prescribed meanings, guidelines or rules to drive the interaction. Neither is there a ready character role for the participant to adopt nor a linear storyline to become engaged in; rather, the participants discover their own motivations and meaning and invent their own interpretations.” (Morrison, 2011, p. 1)

Such aspects contrast with the *tactiloclastic* tradition that reigns inside the traditional art museum. There, the spectator is “invited” to contemplate the artwork in her own mental space and to keep a minimum physical distance from it. Interaction between visitors is normally limited to discussing the artworks and seems to occur less spontaneously among strangers.

But the pleasure and enjoyment of such environments does not only stem from the feeling of control while acting and manipulating these ludic interfaces, but also from the challenging nature of the different propositions. The initial challenge consists in decoding and understanding the mechanisms and internal rules of the apparatus. The participant has to discover her role, the possibilities to interact and later the goals of such interaction. But in most of the situations, there are no precise goals and these seem to be defined and negotiated by the participant during the encounter. The challenge at hand is twofold – on the one hand participants need specific sensorimotor skills to activate the encounter and on the other, they are challenged to reflect on the sense and meaning of what they experience. As we will see, the difficulty of both challenges vary according to each artwork.

With the exception of a few video installations available, most of the propositions exhibited foreground a playful dimension that greatly resembles the formal structures of games. In the first part we already mentioned a few examples such as the *Legible City* by Jeffrey Shaw or *Bubbles* by Wolfgang Muench and Furukawa Kiyoshi. In such propositions there is a clear potential for play although without clear defined goals as in a game.

At first glance, the *Legible City*'s 3D world formal qualities resemble a video game although, instead of using a typical gamepad or joystick, the participant uses a real bike to control and navigate the digital environment. But despite such visual and functional resemblances there seems to be something missing in this digital world. While wandering around in the empty streets of Manhattan, Amsterdam and Karlsruhe, the participant seems to

be looking for something. She searches inside the letter-shaped buildings, wandering until the limits of the map in an attempt to find the enemy, a sign, or any clue that will take her to the next level. But this search will be unproductive and in many cases it will frustrate the participant until she abandons the experience.

The play-mood in the installation *Bubbles* is even stronger than in the experience of *The Legible City*, at least in a physical sense. As we have already seen by the description made in Part I, the challenge seems to vary according to the person involved in the experience. While children are seen more deeply engaged, jumping and running, enthusiastically popping the bubbles, adults seem to be more concentrated on creating meaningful and harmonic sound compositions. Yet despite this evident playful and enjoyable dimension that seems to appear in so many games, *Bubbles* is not a game in which one earns points by touching or popping the digital bubbles. There are simply no concrete goals to accomplish, nothing to win or to lose beyond the pleasure of popping bubbles or composing soundscapes. In this regard, due to their open-ended nature, both installations could be more accurately described under the name *open-ended environment*. In fact, this is observable in many interactive art installations in which aesthetic pleasure seems to stem from sensorial discovery, bodily activity and performance, therefore from the process and involvement rather than from attaining a certain goal.

From Peter Campus' *Interface*, Dan Graham's *Present Continuous Past(s)*, Myron Krueger's reactive environments, David Rokeby's *Very Nervous System* to more recent propositions as Random International's *Audience*, play appears as a fundamental observable characteristic of such encounters. Nevertheless this kind of play is very particular to such environments, therefore in order to better understand these interactive experiences and this "aesthetic of play" we should now turn our attention to the field of game and play theory.

The relationship between play and art is not new or particular to interactive artworks and, as we will see in the course of this chapter, they have been intertwined for a long time. However, given that these propositions allow participants to act directly on the work and are not merely to be looked at, they introduce new possibilities and play modes that need some detailed examination. Furthermore, operability and physical playfulness appear to open up a new aesthetic regime that we attempt to understand better, using not only theoretical tools but also qualitative methods.

3.2) Games, Play and Types of Play

Play is at once metaphor for art and a description of the structure of art.
(Gill, 2019, p. 12)

As we have pointed out interactive art installations present a significant number of formal characteristics that are commonly found in different types of play and games. Therefore, a more distanced and distracted observation of someone engaging with this type of environment (e.g. *Bubbles*, *Text Rain* or *The Legible City*) might eventually trick us and lead us to identify and compare such experiences to those proposed by Microsoft Kinect²¹. However, if such experiences might apparently resemble digital games, the software's internal structure, the psychological states and the sensations induced by them in the participant/player are essentially different. By foregrounding such differences we expect to describe and better understand the nature of play in open-ended art environments. Of course each of these installations has its own rules and formal aspects, providing very different types of engagement and therefore different physical and psychological experiences. Nevertheless,

²¹ Microsoft Kinetic is a motion sensor device that allows full-body interaction in video game play with the Microsoft Xbox 360 console. It has been extensively used by artists and designers in the creation of interactive experiences, which demand bodily movements, gestures and other kind of complex inputs.

as we will see, the type of play observed essentially has a common nature even if some experiences present more potential for play than others.

Any attempts to define play in contemporary game and play theories refer inevitably to the seminal work of Johan Huizinga – *Homo Ludens*. In his theoretical studies about play, more than trying to deliver a detailed description of each type of play, Huizinga was interested in understanding it as a cultural phenomenon but also in defining culture as a construct with its origins in play. He observes that even basic needs and activities as hunting, that have as their main goal the assurance of vital aspects of human life, tend to assume a play-form in archaic societies. (Huizinga, 1980 [1938], p. 46) However, his precious distinctions between different types of play are still valid and valuable today, thus we will be using them in the task at hand.

Huizinga recognizes that the word “play” has different meanings in different languages and that several words are available in different languages to characterize different dimensions of play. (Huizinga, 1980 [1938], pp. 28-45) Nevertheless, despite the minor variations found in the different translations of play, the author proposes a definition that seems to assemble the main characteristics of this activity:

“Play is a voluntary activity or occupation executed within certain fixed limits of time and place, according to rules freely accepted but absolutely binding, having its aim in itself and accompanied by a feeling of tension, joy and the consciousness that it is *different* from *ordinary life*”. (Huizinga, 1980 [1938], p. 28)

According to Huizinga this definition fits to adults and children and, sometimes, also animals, including: “games of strength and skill, inventing games, guessing games, games of chance, exhibitions and performances of all kinds”. (Huizinga, 1980 [1938], p. 28)

Despite the comprehensive range of this definition, we find some fundamental characteristics of play that are undoubtedly found in many of the experiences of interactive art. Firstly, as Huizinga observes, play is essentially a free activity whereby one chooses when to play,

according to her will and without being ordered to or forced to. Likewise, one is also limited by a time frame – the duration of a tennis match for example. Yet one is also free to stop playing when she wants or when she has stopped having fun. Beside the time limits, we also play within certain space limits – the tennis court or the ping-pong table which are delimited by physical markings and objects: the lines of the court that identify inside and outside, and the net separating my field from my opponent's. In some cases the game takes place between physical and imaginary space. In children's *car chase play* for example, the bedroom becomes the city, the furniture becomes the different roads and buildings where the action takes place and the toy car become real cars. Most of these games are oriented by certain rules and objectives freely accepted by the player in order to enter the magic circle.

As observed by the French philosopher and sociologist Roger Caillois, such rules are essential for the correct functioning of the game and the game does not make any sense without them. (Caillois, 2006 [1958], p. 38) In light of this, the pleasure of the game is partly found in the space of action allowed to the player in the quest for an “answer that is approved within the rule limits”. (*Ibid.*) From his perspective, this power to decide our destiny and the development of the game confers on such activity an uncertain nature that is crucial to play.

In Caillois's own words: “constant and unpredictable definitions of the situation are necessary, such as are produced by each attack or counterattack in fencing or football, in each return of the tennis ball, or in chess, each time one of the players moves a piece”. (Caillois, 2006 [1958], pp. 38-39)

Nevertheless, even if most games have pre-defined rules, in some situations temporary rules are created during the process and in agreement with the different participants, while other games present a more anarchic structure, as in the example of children's *car chase play*. Patrícia Gouveia establishes a difference between game and play, claiming that “while in play there's a possibility to construct rules that are negotiated and amplified, in game the

flexibility resides in the openness of certain rules and in the tactical decisions”. (Gouveia, 2010, p. 41) In *car chase* play imagination and free improvisation appear to override the rules. The cars might jump, fly or dive into an imaginary river but also acquire other magic powers without disrupting the magic circle. Hence, if any competition is at stake here it is one that challenges children’s imagination and creativity rather than one that recognizes and values the car arriving in first place. Anyway, the “protocol” is always negotiable and seems to change dynamically over time. Thus, on one hand the pleasure in this type of play seems to derive from the imaginative powers that transform ordinary objects of our routines into other things (e.g. the soup spoon that becomes a plane or a train) or into things with extraordinary powers (e.g. the car that can fly). As Caillois puts it, “the chief attraction of which lies in the pleasure of playing a role, of acting as *if* one were someone or something else, a machine for example.” (Caillois, 2006 [1958], p. 40)

In the other hand, another type of pleasure seems to stem from such activities – a sensorial pleasure rooted in bodily engagement and physical manipulation. Nonetheless, pleasure is also found in play that tends to foreground a more intellectual nature, like in a chess match for example. One can perfectly recognize the continuous oscillation between zones of tension and release, pleasure and joy during a chess match. This oscillation is perhaps more evident in competition games because something is clearly at stake, the rules are as clear as the goals to attain. Yet even if the relationship between tension and release is not so contrasted in “as-if” games, we can still feel a certain tension arising from the expectations and negotiations with the others with whom we play. According to Caillois “the sentiment of *as-if*, replaces and performs the same function as do rules”. (Caillois, 2006 [1958], p. 40)

Finally, the definition proposed by Huizinga refers to an important aspect of play – the conscious separation and suspension from ordinary life. The author recognizes that despite the engaging nature of certain games we are always aware of our condition as players:

“The child plays in complete – we can well say, in sacred-earnest. But it plays and knows that it plays. The sportsman, too, plays with all the fervor of a man enraptured, but he still knows that he is playing. The actor on the stage is wholly absorbed in his playing, but is all the time conscious of "the play". The same holds good of the violinist, though he may soar to realms beyond this world. The play-character, therefore, may attach to the sublimest forms of action.” (Huizinga, 1980 [1938], p. 18)

In this sense, for Huizinga play does not belong to “real” life but stands momentarily outside of it. In the interior of the magic circle, the rules from our “real” world do not produce any effect. Therefore, an absolute and peculiar order is found inside each play. As the author observes, “[Play] creates order, is order”. (Huizinga, 1980 [1938], p. 10) As soon as someone breaks this order by transgressing the rules or breaking the illusion by other means, the game is over and we go back to “real” life again. (Huizinga, 1980 [1938], p. 11)

Another interesting aspect mentioned in this excerpt is when Huizinga characterizes the way children play as “sacred-earnest”. As the Dutch author points out, we normally tend to oppose seriousness and play, but “as soon as we proceed from "play is non-seriousness" to "play is not serious", the contrast leaves us in the lurch-for some play is very serious indeed”. (Huizinga, 1980 [1938], p. 11) Huizinga goes on to stress that “play may rise to heights of beauty and sublimity that leave seriousness far beneath”. (Huizinga, 1980 [1938], p. 14)

Given the strong relationship observed between interactive art forms and play, it is not hard to imagine that criticisms regarding seriousness and non-seriousness have frequently been addressed to such art forms. For some theoreticians there is a lack of “seriousness” due to the “frivolous” merry play and fun mood that characterize a considerable number of such propositions. (Cornwell, 1996) However, this subject needs further examination so we will return to it in more depth at the end of the chapter.

We realize at this point that the definition of game advanced by Huizinga is useful because it proposes a big picture of the main qualities observed in different games, but, as expected, several points have been left out, added and criticized by later theoreticians.

Roger Caillois, for example, has criticized the definition for being too broad and too narrow at the same time. (Caillois, 2006 [1958], p. 33) Caillois's critiques also address the absence of games of chance and gambling activities in Huizinga's theoretical framework. Nevertheless, despite his critiques, Caillois's definition of game is not radically different from Huizinga's. With his definition the author essentially inserts the *uncertain* and *unproductive* dimensions of game. Therefore, according to Caillois six different formal qualities seem to be commonly found in games:

1. Free: in which playing is not obligatory; if it were, it would at once lose its attractive and joyous quality as diversion;
2. Separate: circumscribed within limits of space and time, defined and fixed in advance;
3. Uncertain: the course of which cannot be determined, nor the result attained beforehand, and some latitude for innovations being left to the player's initiative;
4. Unproductive: creating neither goods, nor wealth, nor new elements of any kind; and, except for the exchange of property among the players, ending in a situation identical to that prevailing at the beginning of the game;
5. Governed by rules: under conventions that suspend ordinary laws, and for the moment establish new legislation, which alone counts;
6. Make-believe: accompanied by a special awareness of a second reality or of a free unreality, as against real life. (Caillois, 2006 [1958], p.9)

Each definition presents valuable points that help us to analyze different dimensions in play experience of interactive art. As games, such encounters are free and voluntary; they do not force the spectator to become a participant. Likewise, the aesthetic experience only takes place if the visitor participates by physically activating the artistic apparatus. But this choice is left to the visitor's own free will. Therefore she engages with the apparatus when she wants and for as long as she wants. Certainly, and as we will see in Chapter VIII in the analyses provided by different case studies, this engagement depends on very different

factors: the visitor, the complexity of the artwork, the context of reception, the presence of other visitors, among others. Hence, this aspect collides with the second dimension noted by Caillois and Huizinga, in which they claim that game occurs “circumscribed within limits of space and time, defined and fixed in advance”. (Caillois, 2006 [1958], p. 9)

The participant’s actions and movements generally occur inside a delimited space, which is normally the installation space. As an example, in installations that involve full body interaction, there is a sensitive area, which perceives the input from the participant’s actions. If she suddenly steps out of this area, it simply disappears from the system’s calculation and consequently any action will simply have no impact and will be meaningless for the interactive environment. In screen-based artworks for example the notion of space is slightly different. The play space is normally restricted to the participant’s physical relationship with a desktop computer (screen, keyboard and mouse). Yet if we consider the virtual space generated by the participant’s relation with the apparatus, then it might be difficult to define the limits of the play-space. In some propositions the virtual space is limited and the participant can quickly grasp the spatial borders and edges, yet in others the system is always generating space according to internal and external interactions.

As we have already seen, the notion of space and the programmed short-circuit between physical and virtual/digital spaces are in many propositions the subject and the motivation for phenomenological exploration. In artworks such as *Hole in Space* by Kit Galloway and Sherrie Rabinowitz, *Access* by Marie Sester, *The Legible City* by Jeffrey Shaw, *Live-taped Video Corridor* by Bruce Nauman or in plenty of other propositions that use HMD, the notion of space changes and with it the playground limits. Digital space connects remotely distant physical spaces, and enters the physical space perturbing our normal routine with it. In this sense, even if the “windows” are the same – the computer screen, the gallery

space, the projection screen, the TV monitors or the HMD – in some of these propositions the spatial content is dynamic and constantly changes.

In *Hole in the Space*²² for example the spatial configuration or visual composition is constantly changing. Here, the play-space is composed of our physical environment that we share with other people side by side with us but also of the digital image space in which a remote location is projected in real-time. When different people enter the camera view at the remote location, new potentials for play arise. Moreover, the people sharing the same physical space also affect the overall interaction since they also interact and eventually play spontaneously amongst themselves.

The play-space in *The Legible City* is essentially virtual and generated in real time according to the perspective and position of the participant. This space exists as potential, depending on physical activation and operation. Indeed, the play-space is composed of both operational space (the steady bicycle) and the screen virtual space, although, as soon as we start operating the bicycle, our attention on the physical apparatus is almost immediately diverted to the visual images that directly unfold from our movements. The bicycle becomes transparent as we concentrate on the structure of the city, the shape of the buildings, the interior of the letters, the limits of the map but also when we try to find the “enemy”, or some kind of clue that will make the goals of this proposition clearer.

The notion of time referred to in both Huizinga’s and Caillois’s definitions also needs some special considerations here. Most of the propositions developed by interactive artists do not demand a particular minimum or maximum amount of time of engagement. In opposition to games, the limit of playtime in interactive artworks is not defined and fixed in advance but rather left open, to be decided by participants. These propositions are normally *ready-to-play*.

In other words, they do not have a precise beginning or end. As an example, in the case of

²² *Hole in the space* is a public installation made by Kit Galloway and Sherrie Rabinowitz in 1980 that connected the Shopping Center in Century City (Los Angeles) and the Lincoln Center for the Performing Arts in New York through a real time video connection. The passers-by in the street could see and interact through a screen with far-off passers-by.

The Legible City, one starts playing where the previous participant left off. Hence, such open structures induce a certain type of play that is not constrained by time. Nevertheless, at the beginning of such encounters, a certain involvement and time investment becomes essential in order to grasp and attain full aesthetic experience. These environments are initially found *present-at-hand* and then, as soon as we spend some time trying out the different possibilities of interaction and working modes of the apparatus, this first operational level gradually fades away, becoming transparent so we can finally concentrate on the contents and sense of the experience.

Then, regarding the absence of concrete goals and objectives to pursuit, the participant can keep playing for as long as she wants. Obviously one might find several action-oriented goals that allow the experience to take place, yet no concrete final goals are normally defined. If we take the example of a chess match, the final goal of the game is to put the opponent's king in *check*, and win the match, although one can observe the existence of n sub-goals supporting the final goal: the physical movement of the pieces around the board is a transparent and automatic action that normally serves a strategy. Without sub-goals the main goal is impossible to achieve. In aesthetic propositions the final goal is not so easy to identify, although the artist encodes a certain meaning in the participant's actions, gestures and movements so she can be emotionally involved and can critically interpret the experience at hand. As such, interactive artworks too depend on and are oriented by several quasi-transparent *action-goals* that are to be discovered bit by bit through physical involvement. Nevertheless, attached to these goals we find certain rules and protocols that are defined by the game and by the artist. In the case of chess, one cannot freely move the pieces on the chessboard but instead follows certain pre-established rules. For example, each type of piece (king, queen, rooks, pawns, bishops and knights) has a specific way of moving and the initial distribution of the 32 pieces respects a certain order. Thus, the n sub-goals (e.g. all the

captures of pieces from the opponent) are only achieved according to certain rules that are essential to the dynamics of the game. The player normally acknowledges and learns these rules before the game starts. In contrast, interactive environments are designed in a specific way to avoid any type of previous instructions and rule-learning. One is supposed to learn while playing. Yet in many situations artists make available small written textual guides with small hints that ease the interaction process. The rules are not so evident in these open-ended environments; they are “invisibly” inscribed in the code, hence when we are testing the interface we are actually verifying the limits and possibilities of the system and so its laws. But can we really speak about rules in these situations?

Obviously, the quantity and diversity of interactive artworks available does not allow us to study case by case and confirm the nature of rules in each proposition, yet we will take *The Legible City* as an example in order to make this point clearer. Firstly, we are confronted with a certain number of *activation rules* or *functioning rules* – pedalling makes us “move” inside the virtual city, turning the bicycle’s handlebar allows us to change direction and pushing the yellow button on the handlebar changes the city generated on the screen (we can choose between Manhattan, Karlsruhe and Amsterdam). After learning these rules by doing, one can freely move inside the virtual space, yet this occurs under the hegemonic laws of code. The digital world appears to us with its internal rules and limitations. We are allowed to transpierce the letter-shaped buildings, go faster or slower, but we cannot jump, fly or destroy the buildings, for example. Nevertheless, with the exception of these internal rules, no rules are imposed on us in the way we move and explore the different cities. So from this perspective the rules found in games such as chess, for example, are not common in open-ended environments.

We have just observed the case of *The Legible City*, but this applies to many other interactive experiences. The participant needs to understand the *activation* and *functioning*

rules in order to interact with the interface, yet in most cases, there are no precise guidelines that need to be applied during the exploration and discovery of the apparatus. The terms “exploration” and “discovery” already denote a certain liberty and free play devoid of rigid conventions. As we have also seen, the digital world is in itself a construct based on a certain number of *code-rules* that we do not directly have access to, but which directly affect the way we interact with it.

The two dimensions added by Caillois’s definition, which refer to uncertainty and unproductivity, are also observable in our experience with interactive artworks. The first is clear when we are thinking about a chess match, for example. One does not know what will happen and how it will finish, who will win and how. This is an essential characteristic of games since it would not be as interesting if we knew from the beginning how it would end and which strategies would be used during play. Uncertainty in the experience of art is not as clear and does not have the same importance as in competition games, but nevertheless, an interactive aesthetic encounter is by its very nature an uncertain moment for different reasons. Firstly, the output and the lived and felt experience are dependent on the participant’s actions and input, but in some cases they also depend on the system’s internal interactions. We can interact with *Text Rain* by Camille Utterback once, and the next time we do it the output can be different even if the overall experience is essentially of the same type. From another perspective, a different performance can unfold from each encounter and in this sense the output is also uncertain. Each time we find a certain artwork we bring to the encounter a particular mindset, emotions and previous experiences that influence the way we feel, live and interpret the experience.

The fact that no competition is involved in most of these experiences diminishes the tension that is so often felt and lived in different types of games. Nevertheless, the feeling of joy, which is referred to by both theoreticians, might not always be true in such experiences.

In many situations the participant might feel uncomfortable engaging with the apparatus in a public environment with a cumbersome sensation of being observed by other visitors. In other cases, as we will see in our case studies in Chapter VIII, when the participant does not understand how to activate the apparatus or is confused by the proposition at hand she might feel awkward and interrupt the experience. However, in most of the situations we studied, there is mainly positive feedback and participants often report a feeling of pleasure and enjoyment, which are mainly consequences of playful and bodily engagement.

Regarding the fourth point of Caillois's definition, we should very briefly mention that like games, interactive art experiences are also unproductive. At the end of each encounter the participant has not created any goods or wealth and if she earns something this is mostly located in the field of experiential pleasure and knowledge.

Finally, as Huizinga claims: "the player can abandon himself body and soul to the game, and the consciousness of its being "merely" a game can be thrust into the background." He goes on to observe that both festival and game demand the suspension of ordinary life. (Huizinga, 1980 [1938], p. 21) However, even if the player's consciousness is displaced to the background, Huizinga claims that she still knows that she is playing. Here we find an obvious connection with our relationship to digital arts. One might become lost and captivated by a theater piece, in front of a movie or while contemplating the fantastic world of a painting by Hieronymus Bosch, but we are still aware of our position as spectators. We are still capable of separating the fictional world from our normal life. Obviously, these observations also apply to the experience of interactive art, but this relationship is more complicated. In many propositions the participant seems to be completely absorbed in action, doing, moving, gesticulating and spontaneously embodying different fictional characters.

This brief analysis of the concepts of *play* and *game* defined by Huizinga and Caillois had been useful to identify certain dimensions of the experience in interactive art. To be more precise, it has helped to identify what is game-like and play-like in such experiences. Nevertheless, we have had some trouble in understanding the differences between play and game within both theoretical fields. As Katie Salen and Eric Zimmerman also observe, despite the quantity of important ideas brought forward in Huizinga's analysis, it fails to differentiate "play" and "game". (Salen and Zimmerman, 2004, p. 75) Yet this distinction seems to be central to the work at hand.

At this point we have confirmed that even if interactive art experiences share a considerable number of game-like characteristics, they are not games or *play* as Caillois and Huizinga define. In this regard, considering these observations, what kind of *play* are we involved in when we engage with interactive art environments? We hope to make this aspect clearer throughout the next section.

3.3) *Paidiá, Ludus* and *Wan*: Defining Play in Open-ended Environments

Despite the absence of a clear differentiation between game and play in both definitions, both Huizinga and Caillois refer to games as something that we play. In this regard, they convey that play is the action that occurs when we participate in a game, yet it is something standing outside the ordinary categories of action. Huizinga comments on this precise fact, also focusing on the extraordinary nature of play:

"You "play a game", or "spielen ein Spiel". To some extent this is lost in English by the doublet play and game. Nevertheless the fact remains that in order to express the nature of the activity the idea contained in the noun must be repeated in the verb. (...) Playing is no "doing" in the ordinary sense; you do not "do" a game as you "do" or "go" fishing, or hunting, or Morris-dancing, or wood work-you "play" it." (Huizinga, 1980 [1938], p. 37)

In the second chapter, *The Play-concept as expressed in language*, Huizinga gives us some precious information concerning the different ways to express the play-concept in

several languages. During this rich inventory the author observes that the definition of play greatly differs from language to language, adding that the concept is conceived “neither as distinctly nor as broadly as in modern European languages”. (Huizinga, 1980 [1938], p. 28) However, despite the lack of such references in his definition, he analyzes some concepts that seem to relate more adequately to the type of play that is often observed during the experience of many interactive artworks. He analyzes three different Greek words that refer to game: *paidiá*, *paidía* and *athurma*. Etymologically the first word means "of or pertaining to the child", while *paidía* stands for childishness and *athurma* is connected with the notions of trivial and frivolous. In the words of Huizinga, “a note of light-heartedness and carefree joyfulness seems to be struck in the whole word-group”. (Huizinga, 1980 [1938], p. 30) Moreover, as the author observes, the three words do not cover competitions or contests. Thus competition, an element so crucial in games, falls under the label *agon*. (*Ibid.*)

Caillois also analyzes the word *paidia*. Despite the absence of the acute accent in the “a”, we believe that the author refers to the word *paidiá* mentioned by Huizinga. He observes: “I’ve chosen the name *paidia* because it refers to the child”. (Caillois, 2009 [1958], p. 74) For the author, before the rules and the institutionalization of game, we find a primal core of freedom that is essential to play:

“(…) à la source du jeu reside une liberté première, besoin de détente et tout ensemble distraction et fantaisie. Cette liberté en est le moteur indispensable et elle demeure à l’origine de ses formes les plus complexes et les plus strictement organisées. Pareille puissance primaire d’improvisation et d’allégresse, que je nomme *paidia*, se conjugue avec le goût de la difficulté gratuite, que je propose d’appeler *ludus*.²³” (Caillois, 2009 [1958], p. 75)

This passage by Caillois introduces some aspects that we also seem to find in the experience of play with interactive art environments. He conceives *paidia* as a fundamental force that appears and remains at the origin of complex and organized forms of game. This

²³ “At the core of the game we find a primary liberty, a need for relaxation and an ensemble of distraction and fantasy. This liberty is the indispensable gear and it remains at the origin of complex and strictly organized forms. This primary power of improvisation and joy, that I call *paidia*, combines with the taste for effortless difficulty that I propose to call *ludus*.” (Caillois, 2009 [1958], p. 75)

force is characterized by liberty, improvisation, joy and a need for relaxation and distraction and it appears as the spontaneous instinct of game. (Caillois, 2009 [1958], pp. 75-77) The author identifies the existence of *paidia* in many different situations that include a cat playing with a yarn ball or a child playing with a rattle, but also in the elementary need for disturbance and tumult:

“It explains the pleasure in endlessly cutting paper with a pair of scissors, pulling cloth into thread, breaking up a gathering, holding up a queue, disturbing the play or work of others, etc. Soon comes the desire to mystify or to defy by sticking out the tongue or grimacing while seeming to touch or throw the forbidden object” (Caillois, 2006 [1958], p.142)

For Caillois the first forms of *paidia* cannot be distinguished with a name since they do not belong to “any order, distinctive symbolism, or clearly differentiated life that would permit a vocabulary to consecrate their autonomy with a specific term”. (Caillois, 2006 [1958], p. 142) However, he argues that with the emergence of rules, techniques and apparatus different specific games start to appear. (*Ibid.*)

This transition from an almost anarchic form of play to a more structured and disciplined play is according to the author a defining characteristic of *ludus*. In this refined form of *paidia*, the pleasure seems to be provided by the attempt to solve a problem and to find the solution, although despite the challenging nature already present in *ludus*, one should not confuse it with *agôn*. While in the latter the game has one or more opponents, in the former we are essentially challenged by a certain object or obstacle that we try to master. As an example the author refers to different games: cup-and-ball, diabolo, yo-yo and kite-flying, whereby one is challenged to improve certain physical and motor skills. (Caillois, 2006 [1958], pp. 142-143)

Nonetheless, as we can denote from Caillois observations, like *paidia*, *ludus* also “relates to the primitive desire to find diversion and amusement in arbitrary, perceptually recurrent obstacles”. (Caillois, 2006 [1958], p. 145) Furthermore, the author analyzes the Chinese term *wan* which includes children’s play and all kinds of carefree and frivolous

diversion. (Caillois, 2006 [1958], p. 147) From his perspective this term unfolds another important dimension or transformation of *paidia* play:

“The reservoir of free-movement that is part of its original definition seems in this case to be oriented not towards process, calculation, or triumph over difficulties but toward calm, patience and idle speculation. The term *wan* basically designates all kinds of semiautomatic activities which leave the mind detached and idle, certain complex games which are part of *ludus*, and at the same time, nonchalant meditation and lazy contemplation.” (Caillois, 2006 [1958], p. 146)

This dimension of *paidia* presents a significant number of aspects that are also found in the term *lila* as described by Huizinga: “the noun *lila*, with its denominative verb *lilayati* (the primary sense of which is probably rocking, swinging), expresses all the light, aerial, frivolous, effortless and insignificant sides of playing”. (Huizinga, 1980 [1938], p. 32)

Certain resemblances to *lila* are also found in the concept of flow that has been developed and studied by the psychologist Mihaly Csikszentmihalyi. According to Csikszentmihalyi the experience of flow is characterized by a state of full involvement and enjoyment and can be found during very different kinds of experiences and activities (e.g. swimming, climbing a mountain, playing chess, reading or while looking at a painting). (Csikszentmihalyi, 2008, p. 57) If someone is in a state of flow, one ought to “act with a deep but effortless involvement that removes from awareness the worries and frustrations of everyday life”. (Csikszentmihalyi, 2008, p. 49) Moreover, as the author recognizes regarding the semiautomatic nature and the absorbing power of these activities, one might eventually lose the awareness of the self to focus on the task at hand. (*Ibid.*)

Considering the importance of this dimension and the implications that it might have in play and art experience in general, we intend to return to this point later on, in order to provide more details about the connection between art and flow.

Both *ludus* and *wan*, extensions of *paidia*, are extremely interesting for the study at hand as they seem to coincide with different phases of engagement in certain open-ended art environments. During the research period we observed many artworks involving different

degrees of playfulness and types of play, but a particular pattern seems to emerge from these observations. We will concentrate on the following schema, which represents some variations of the unfolding of *paidia* in different interactive art experiences.

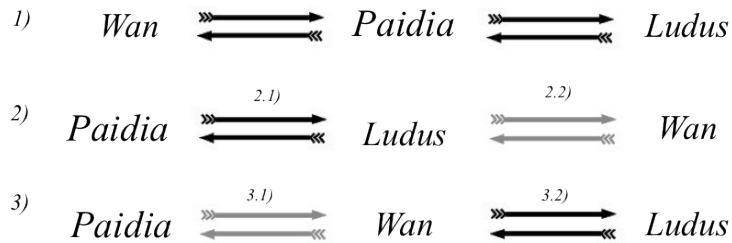


Fig. 14 –The unfolding of *Paidia*

We should first make clear that this schema does not pretend to be a rigid view that slices up and dissects the continuous experience between participants and open-ended environments. On the contrary, we acknowledge its simplistic and reductive character, but also its effectiveness in easily setting out our reflections.

1) As we have seen with the theoretical framing of Caillois, *paidia* has the potential to evolve into *wan* and *ludus*.

2) Our observations inform us that in most interactive encounters, the first manifestations that occur as the participant starts to test the apparatus and its interaction grammar, and immediately afterwards, greatly resemble the descriptions of *paidia*. In these moments the participant is superficially involved, conveying an attitude of curiosity, testing the apparatus and the different possibilities “hidden” in the environment. This exploration period is intertwined with spontaneous, instinctive, slow and rapid movements that denote uncertainty but also a certain pleasure and joy, occasionally evoking the image of a child playing with a rattle or a cat having fun with a yarn ball; this applies to both adults and children.

2.1) In a second phase that subtly stems from the first (*paidia*), the participant becomes familiar with the workings of the apparatus and with the interaction grammar, and the quasi-anarchic play observed during the first phase vanishes and starts to attain a certain discipline, structure and order. This transition is however very clear if we observe different participants over time. In the aforementioned installation *Bubbles*, the vast majority of participants first test the environment, moving and gesticulating instinctively, but after a while start to perform in a more controlled and skillful way, with the aim of composing a soundscape that “makes sense” or is more harmonious to them. In this regard, a certain “personal” challenge starts to emerge from something that moments before was only relaxed and carefree joyful movement and manipulation. However, one should note that the “challenging dimension” emerges freely on the part of the participant and, despite being afforded by the situation, it is not imposed. The participant appropriates the environment with a certain liberty and according to her personal taste, but she is always limited by artistic decisions regarding the apparatus’s spectrum of responsiveness.

2.2) At this point, regarding the qualities identified in the term *wan*, we believe that in certain individual experiences, the second phase (*ludus*) might be intertwined with or give way to a *wan* phase. After some time inside the hypnotic and effortless audiovisual environment of *Bubbles*, participants seem to be fully absorbed into action. Nothing seems to break or brake the flow and the physical engagement between participant and environment. Not even a graphical or sound glitch, or some annoying lag that could frustrate the interaction. The state of serenity that participants in action seem to enter is obvious. They laugh out loud, jump, dance, roll on the floor or unexpectedly perform in front of the projection screen.

Likewise, this *wan* state also seems to be sustained by the repetitive movements that stem from the performance. At a certain point, and for some time, they acquire a certain rhythm

and the participant acts in a semiautomatic mode. Nevertheless, one is not able to tell if such experiences provoke the mind to be “detached and idle” as Caillois describes in his analysis. Obviously this dimension is undoubtedly difficult to understand and interpret if we just observe the participants in action. Yet, as we will see in Chapter VIII, this aspect of the experience can be grasped better if using an appropriate interpretative analysis methodology.

According to Caillois, the *wan* term designates “certain complex games which are part of *ludus*”, thus our observations and affirmations regarding the association of *ludus* and *wan* seem to make sense. Before moving on we should just note that even if we use the term “transition” and the schema transmits the idea of transition between different phases, the transition is not so evident from 2.1 to 2.2 (*ludus* to *wan*) as it is from *paidia* to *ludus*. Actually, it is more accurate to say that no real transition takes place because even if the *wan* state emerges from *ludus*, we still observe an activity presenting characteristics typical of *ludus* play. Furthermore, the transitions between the different types of play are indicated with arrows in both directions since during some experiences, some participants were seen moving from *paidia* play to a more structured *ludus* play and then back again.

Finally, the third point outlines a different unfolding that we observed in other interactive experiences. *Wan* play seems to emerge from *paidia* and, sometimes this effortless and unstructured play can turn into a distinct state of *ludus*. Nonetheless, as we have seen, the process of observation presents some weaknesses and limitations in the identification of the *wan* play. In this regard the schema needs to be considered not as a closed and rigid view that summarizes the different dimensions and types of play in all experiences with open-ended environments, but rather as a guide that we should use during our qualitative studies.

As we have seen, the aspects embodied by the terms *paidia*, *ludus* and *wan* seem to be strongly related to the experience of certain interactive artworks. However we expect to make

these relations clearer by using more precise and detailed examples provided by our case studies in chapter VIII.

Still, regarding the distinction and relationship between games and play, the theoretical work done by Salen and Zimmerman presents some remarkable aspects that could enrich our description of play. The authors make a clear distinction between play and game. This distinction is twofold. According to them play is “an essential component of games” and “a primary schema for understanding them” and inversely, games are a subset of play. This separation might seem a paradox, yet as the authors observe, if we consider certain examples of play such as playing doctor or *car chase*, which are not considered as games, we can clearly understand this way of thinking. (Salen and Zimmerman, 2004, p. 302) The authors emphasize the importance of play by distinguishing between play and game rules:

“From a formal point of view, the rules of a game indeed constitute the inner “essence” of a game. But there is a danger in limiting the consideration of a game solely to its formal system. The complexity of rules has an intrinsic fascination, the hypnotic allure of elegant mathematics and embedded logic. However, it is crucial for game designers to recognize that the creation of rules, even those that are elegant and innovative, is never an end in itself. Rules are merely the means for creating play. (...) The experience of play represents the heart and soul of the game designer’s craft”. (Salen and Zimmerman, 2004, p. 302)

This statement is particularly interesting when the authors highlight the fascination prompted by the complexity of the rules. They claim that when creating games one should not regard the rules as the end but rather as a means for play. This aspect relates to our topic in a certain way. Even if we recognize that most interactive art propositions do not depend on explicit rules to be experienced, the complexity of the interaction grammar and operational rules is clear in many of these environments. As we will explore in the next chapter, this might create certain barriers in the aesthetic encounter. Nevertheless, if Salen and Zimmerman warn us of the fascination with rules, we should warn artists to pay attention to the appealing and absorbing nature of play. Obviously, we are not against play or requesting artists to remove play and the sense of playfulness from the interactive art encounters they

create. In this regard, we should remind the reader that the project at hand is about understanding the influence of play in interactive aesthetic experiences.

Departing from the observation of different common uses of the word “play”, the authors find three categories to classify it: *game play*, *ludic activities* and *being playful*. (Salen and Zimmerman, 2004, p. 303) The first, *game play*, relates to play which results from an experience within a formal structure that depends on certain rules. *Ludic activities* are activities that include games but also non-games like a cat playing with a ball of yarn or children playing car chase. Being playful is according to the authors the broadest category of play. It is more related to a “playful state of mind”, including playing with words, dressing in a playful way, walking playfully, among other possibilities. (Salen and Zimmerman, 2004, p. 303) For them these categories are more open and inclusive according to the schema below:

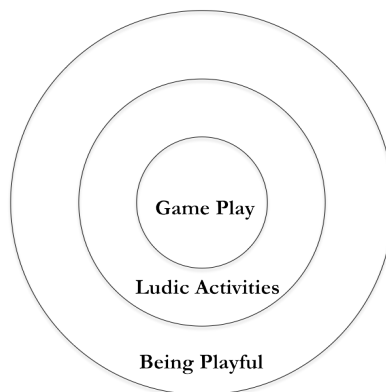


Fig. 15 – Salen and Zimmerman’s schematic view of *play*

The experience of play observed during interactive art encounters is more related to the experiences described in the second and third categories. The participant actually seems to be in a constant limbo between both. *Being playful* neatly describes the sensation that one gets from participating but also from observing someone engaging with an interactive artwork. For example, in many of these works, the potential for *shadow play* or *self-image*

*play*²⁴ is very recurrent, automatically provoking different playful behaviors – walking in an unusual manner in front of the screen, grimacing, jumping, composing images with gestures and unusual body positions, imitating things, other people or animals. The *ludic activities* category has some similarity with Caillois’s *paidia*. As we have already seen, playing without fixed rules, effortlessly and almost anarchically is the most common form of play in such environments. Additionally, Salen and Zimmerman provide us with a more general definition for play:

“Play is free movement within a more rigid structure.”

“Play is an expression of the system, one that takes advantage of the space of possibility created from the system’s structure.” (Salen and Zimmerman, 2004, p. 304)

This definition is useful, as it seems to fit the three categories of play. Play is from this perspective a kind of “dance” that takes place within the formal structure of a game, the rigid structures of architecture (e.g. practicing parkour²⁵) or language (e.g. the use of slang). (Salen and Zimmerman, 2004, p. 304) As the authors observe, play emerges due to the existence of rigid structures but also seems to exist in opposition to them: “In all of its many guises, play opposes and play resists. But it does so playfully, making use of existing structures to invent new forms of expression.” (Salen and Zimmerman, 2004, p. 305)

3.3.1) Transformative play

This last point leads the authors to a very important aspect of our research that they call *transformative play*. Play, they note, has the power to shake pre-existing structures, provoking unpredictable results and changes. They support this idea by quoting the philosopher James S. Hans when he states: “the role of play is not to work comfortably

²⁴ Video art installations such as *Interface* by Peter Campus or *Present Continuous Past(s)* by Dan Graham afford this kind of play. Through a certain kind of effect the apparatus works like a mirror whereby the participant plays with her own *body image*.

²⁵ Parkour practitioners move around cities searching for challenging obstacles in architecture. They run, jump, climb and use all kinds of physical maneuvers, re-interpreting architecture and urban facilities in a creative and playful way.

within its own structures through play but rather constantly to develop its structures through play.” (Salen and Zimmerman, 2004, p. 305) Moreover, some examples of *transformative play* make this idea clearer: the use of playful slang that can later be absorbed into the official language or chess and Tetris players who might perceive space differently. (Salen and Zimmerman, 2004, p. 305) Many other examples could support this idea at different levels. Consider all the quiz games available that allow one to manipulate and acquire different types of abstract knowledge, augmenting intellectual skills and challenging one’s memory, or speed games such as *Set*²⁶.

We can also consider this transformative nature of play by regarding the arguments sustained by the French psychoanalyst Serge Tisseron. In his essay *Le Jeu des Trois Figures en Classes Maternelles*, Tisseron studies the impact of images and TV on children, observing that play is a fundamental aspect during children’s development:

“(…) le bébé a besoin de temps pour jouer, ou plus précisément pour apprendre à jouer. Les apprentissages cruciaux à cette âge se font principalement en jouant et interagissant avec le monde. (...) À défaut, les capacités d’invention, de création, d’humour et d’imagination risquent d’être durablement réduites.”²⁷ (Tisseron, 2011, p. 19)

Before Tisseron, D. W. Winnicott, a British psychoanalyst came to similar conclusions, regarding the importance of play in both children and adults. As Winnicott states: “It is in playing and only in playing that the individual child or adult is able to be creative and to use the whole personality, and it is only in being creative that the user discovers the self.” (Winnicott, 2005, [1971], p. 73)

The observations made by Winnicott point to some dimensions that potentially unfold while we play, although, if we are able to learn things about our *self* during this process, this should necessarily have a long-term impact on the way we think about ourselves.

²⁶ SET is a card game that requires players to find certain visual patterns and combinations of different cards in the shortest amount of time. The fastest player gets the combination and at the end the one holding the most combinations wins the match.

²⁷ “(…) The baby needs time to play, or more precisely to learn how to play. The crucial learning in this age happens mainly while play and while interacting with the world. (...) Its lack might reduce the capacity of creation, humor and imagination.” (Tisseron, 2011, p. 19)

Winnicott's affirmations resonate with observations that have been made by different art theoreticians. According to Itsuno Sakane, interactive art "aims to free the imagination of its audience by providing an infinite number of ways to participate." Such environments "offer unlimited opportunities to unleash human creativity" and in this regard, stimulate a strong sense of joy and self-discovery that emerges from play. (Sakane, 1997, pp. 3-4) While engaging with a certain interactive environment or apparatus we might be able to grasp some psychological traits that we are normally not able to notice. For example, one might feel shy and reluctant when engaging with Camille Utterback's *Text Rain* in a public space or on the contrary one might feel completely riveted and use this moment to capture the attention of other visitors.

Additionally, as we noted during Chapter III while analyzing the experience of *The Floating Eye* and other perception-détournement propositions, the mechanisms of perception become themselves the subject of the experience. Thus, the participant becomes aware of something previously transparent, gaining a refreshed perspective on her own body. Yet this sensorial play does not just temporarily transform the way we relate to our body but seems to affect the way we conceive and conceptualize it after the encounter. The experiences triggered by many of these artworks are however not only moving the awareness of our sensorial structures but are also potent awareness-generators that affect our intellectual and emotional spectrum. As we play we can change our understanding of ourselves but also our point of view regarding any exterior referent. From this perspective, interactive art stands beyond the *aesthetics of narcissism*²⁸ that was previously referred to. (Huhtamo, n.a., p. 3) Still, Erkki Huhtamo was right when he stated, "the artwork serves merely as a mirror." (*Ibid.*)

²⁸ Real interactivity is always related to the idea of the "interpersonal", something happening between human beings. Interactive art, however, is "intra active", creating a monologic loop between the user and his/her self-representations, mediated by technology. The artwork serves merely as a mirror. "Interactive art" is the ultimate triumph of the "aesthetics of narcissism". (Huhtamo, n.a., p. 3) Last accessed on June 2013.

By the time Huhtamo wrote his article *Seven Ways of Misunderstanding Interactive Art*, a considerable amount of the works produced were manifestly fascinated by the technological potential in mapping participants' actions and artworks' answers, many times creating mirror-like situations.

Nevertheless many propositions were already concerned with something else besides the discovery of participants' *body image* and *body schema*. If we consider propositions such as *The Golden Calf*, or more recently Marie Sester's *Access* or *Audience* by Random International, one can find different levels of experience that go beyond self-discovery, the bodily and sensorial/perceptive play. In other words, these propositions clearly invite to an interpretative attitude related to certain aspects of the world that the participant inhabits without being necessarily connected to her self, body or perceptive mechanisms. As such, the experience of play not only constructs but also transforms the way we look at and conceptualize the surrounding world.

Another fundamental aspect that has not yet been mentioned is related to the social skills that unfold from playing. According to Tisseron children need to gain as many experiences as possible, especially from birth until they reach the age of five – the period in which the brain triples in size. For the author, playing is a particularly important experience because it allows them to become intellectually, physically and socially equipped. (Tisseron, 2011, p. 5) Furthermore, Winnicott and Tisseron explain the importance of play and its development in children according to four different phases, observing that in the last phase, the child starts to share and to accept playing with different people besides her mother. (Tisseron, 2011, p. 20; Winnicott, 2005, p. 64) In this regard play seems to transform us from the time we are born, acting as a social bond and easing our societal rapports but also bringing us together as soon as we start to grow older.

3.3.2) Social Play

Social play should here be understood as play that temporarily emerges from the relationship and negotiations between different people with or without defined rules or protocols. This includes all manifestations such as games that afford collective play, but also musicians who gather and improvise together in spontaneous play, children playing together in the park, collective free improvisation in dance, theater or any other kind of performing art, everyday encounters that involve a playful use of speech or the playful rapports that take place within the interactive art environment.

As Salen and Zimmerman note regarding games, apart from some exceptions, the magic circle is a place for social experiences whereby people relate to each other and play together. The authors claim that by “navigating, manipulating and transforming these relationships, (...) players achieve meaningful play in the social realm.” (Salen and Zimmerman, 2004, p. 462)

From this perspective, games are complex emergent systems in a constant state of redefinition that are affected by the negotiations occurring between the different actors involved and the structure’s rules:

“In transformative social play, players use the game context to transform social relationships. They actively engage with the rule system of a game, manipulating it in order to shift, extend, or subvert their relations with other players. Transformative social play forces us to reevaluate a formal understanding of rules as fixed, unambiguous, and omnipotently authoritative. In any kind of transformative play, game structures come into question and are re-shaped by player action. In transformative social play, the mechanisms and effects of these transformations occur on a social level.” (Salen and Zimmerman, 2004, p. 475)

So the experience of game play asks the player to improvise, giving her a certain liberty that is nevertheless bounded by previously defined and accepted rules. Yet, as the authors show, even these rules can be negotiated and in many game situations we find what they call “real” and “ideal” rules. (Salen and Zimmerman, 2004, p. 475) This is slightly different from what happens in children’s games. There, the rules are created, while in play they are improvised. The authors quote Jean Piaget when he affirms: “We are in the presence of rules in which

have been elaborated by the children alone.” (Salen and Zimmerman, 2004, p. 472) A strong sense of improvisation, creativity and liberty is observed when children play. Rules change all the time, varying according to their will or when they become tired of their role.

Another good example of improvisation and spontaneity, albeit more disciplined, is found when musicians come together to play for the first time. In *Free Play, Improvisation in Life and Art*, Stephen Nachmanovitch makes good use of words to describe such encounters:

“I play with my partner; we listen to each other; we mirror each other; we connect with what we hear. He does not know where I’m going, I don’t know where he’s going yet we anticipate, sense, lead, and follow each other. There is no agree-on structure or measure, but once we have played for five seconds there is a structure, because we’ve started something.” (Nachmanovitch, 1991, p. 94)

This passage resonates with some of the observations we made of participants engaging with interactive art environments. As symbolic systems of meaning, despite the absence of any pre-defined structure or dialogue, such environments present a potential to establish deep communication between participants, even if they do not share the same native language.

While engaging in interpersonal relational play, small temporary structures start to emerge and micro-narratives using sound, images or gestures unfold in wordless exchange. The effortless and formless individual *paidia* and *parallel play*²⁹ eventually become more interactive, evolving into a form of *associative play* whereby participants play with others without any organization. When participants start to collaborate and cooperate with each other we observe what Mildred Parten calls *cooperative play*. (Parten, 1933, pp. 136-147)

Until now we have mainly been considering experiences from an individual perspective whereby the participant interacts alone with a certain apparatus, as in the cases of *The Floating Eye*, *The Golden Calf* or *The Legible City*. But even in such “individual” environments, we have observed interpersonal interactions of different natures. For example, the spectators waiting to try *The Floating Eye* eventually engage in playful interaction with

²⁹ Mildred Parten studied different shapes and roles that play might have in groups of preschool children. He defined the *onlooker* as the child that only stares at the others playing; *parallel play* when children play individually without a remarkable interaction between them; *associative play* when children engage in *paidia* play and *cooperative play* when they engage in collaborative play in order to achieve a certain goal. (Parten, 1933)

the participant trying the apparatus, gesticulating, walking around her, speaking or making different types of noise to attract her attention or to disorientate her.

In the other installations, the spectators observing the participant engaging with the apparatus might enter into conversation amongst themselves or with the participant, discussing ways to activate the piece or the meaning of the work, among other means of possible collaboration.

Nevertheless, as we will confirm, in many propositions the relational and social dimensions are more obvious and the interpersonal interactions become determinant in order to activate the aesthetic experience.

Of course, as we saw during the first chapter, these relational and social aspects are not new or specific to interactive art practice. Dadaist performances, participatory art and later relational art manifestations were clearly working on social rapports, replacing art objects with relationships.

As Nicolas Bourriaud observes, “the artist sets his sights more and more clearly on the relations that his work will create among his public, and on the invention of models of sociability.” (Bourriaud, 1998, p. 28) In this context, we could add to this passage that artists attempt to develop models of meaningful social play. Again, this atmosphere of social playfulness has been observed since early manifestations conducted by Futurists such as Filippo Marinetti. Signs of play could be found in wordplay, in the interactions between the artists and the public and in the satirical and provocative nature of their actions. (Bishop, 2012, pp. 66-70)

However, in interactive art installations, play is more related to bodily manipulation, movement, touch, to short-circuiting the body senses and normal modes of perception. A sensitive apparatus replaces the presence of the artist, the performer or the human actor. This environment affords and regulates the interactions between the participant and the cybernetic system, at the same time stimulating and directing interpersonal exchanges. Interactive

installations such as *Boundary Functions*, *Deep Walls*, *Shadow* or *Concentration* created by Sona Scott Snibbe present good examples of social play. *Boundary Functions* (Cf. Fig. 16) materializes the invisible limits of our personal spaces by projecting white lines between the different people in the installation space. When the participant enters the square screen-platform, nothing happens. Yet, if a second participant joins the platform, a white line is projected onto the floor, symbolically separating them. Then, as they move across the space, the line's position and angle changes dynamically. The more participants join, the more divided the space becomes.



Fig. 16 – *Boundary Functions* by Scott Snibbe, 1999

As the analysis made by Nathaniel Stern based on Snibbe's observations confirm, besides the symbolic space it creates, *Boundary Functions* is an obvious space for spontaneous play:

"Snibbe describes how "the first reaction of everyone is to step on the lines that are drawn between themselves and the other people on the floor" (Simanowski and Snibbe). These immediately jump away from them, and that response "adds energy to the space, creating a social stirring" (Simanowski and Snibbe). People chase each other, and the lines that separate them, move away or dance about in unison." (Simanowski and Snibbe, 2006, cited on Stern, 2009, p. 156;)

"When the artist witnessed his audience's encounters with one another whilst using *Boundary Functions*, however, his revelation of their relationships wound up changing the relationships: participants immediately

want to use their bodies to trap or destroy or trick the piece and what it re-presents.” (Snibbe, 2008, cited on Stern, 2009, p. 157;)

As we can verify through the videos and documentation available of other installations by Snibbe – *Deep Walls*, *Impression*, *Compliant*, *Shadow* or *Concentration* – participants seem to engage equally in dynamic, individual and collective corporeal play. Initially exploring the possibilities of the environment and then creating sense by increasingly structuring play or on the contrary, as Snibbe points out, by trying to destroy, hack or trick the system.

Again, we should note that this joyful and playful atmosphere emerges spontaneously between participants and the environment but also between participants who might not know each other in advance. As we have already noted, an important aspect of such play resides in the nonverbal factor that is clearly foregrounded by body language and performance. Here the hegemonic reign of verbal and linguistic communication is temporarily suspended and substituted by nonverbal manifestations that stand outside the routines of everyday life.

Nonverbal interactions are highly complex and rich forms of communication, yet according to Donald B. Egolf and Sondra L. Chester, many of them occurs below the average level of awareness. For the authors, nonverbal communication delivers messages by “virtue of an agent’s internal bodily activity, physical characteristics, adornment, touching behavior, body movements and postures, face expressions, eye behavior, utilization of time, vocal behavior, utilization of space and objects, odor, and taste.” (Egolf and Chester, 2007, p. 7)



Fig. 17 – *Deep Walls* installation by Scott Sona Snibbe



Fig. 18 – *Shadow Monsters* installation by Philip Worthington (Photo by Joseph O. Holmes, 2012)

The different sensitive environments developed by Snibbe, and other installations that afford *shadow play*, such as *Body Movies* and *Re:Positioning Fear* by Rafael Lozano-Hemmer or *Shadow Monsters* by Philip Worthington (Cf. Fig. 18), create a mesmerizing space and time for nonverbal communication that is mediated by the screen or by the surface of video projection. Actually, this communication is triggered by the screen and by the different affordances of movement, gesture and bodily behavior. In other words, participants do not look at their bodies or at others' bodies directly, but rather access them through a reflection given by the *mirror-screen*. In many encounters we observe the emergence of gestures, bodily movement and positions that mimic other things, animals or people that are typically found in *shadow play*. Such mimetic activity occurs in a certain emotional state that, as Egolf and Chester observe, is chiefly transmitted by nonverbal communication. (Egolf and Chester, 2007, p. 11) Thus we have exclusive access to the emotional dimension of the experience by observing and analyzing participants' "body language". Body language appears here in quotation marks because, as the authors claim, there is no recognized system to combine nonverbal units as in verbal language. (Egolf and Chester, 2007, p. 7)

Nevertheless, what seems striking about these encounters is the emergence of a temporary system of bodily movements, posture and gestures that is rudimentary yet meaningful. Micro-narratives unfold from intentional bodily manifestations, engaging participants in joint creative play, in which the goal seems to be to keep the "movie" going. Of course, many of these movies end up being very abstract free forms devoid of any continuous, sharp narrative. As Nachmanovitch observes: "In playing together there is real risk of cacophony, the antidote to which is discipline. But this is not the discipline of "let's agree on a structure in advance." It is the discipline of mutual awareness, consideration, listening, willingness to be subtle." (Nachmanovitch, 1990, p. 97)

However, in our opinion, more than searching for the perfect performance, such encounters search for the potential for expression and human relationships. Despite his analysis, more focused on performative arts such as music, dance or theater, Nachmanovitch describes collective improvisation in a very valuable way that perfectly fits the present context:

“Shared art making is, in and of itself, the expression of, the vehicle for and the stimulus to human relationships. The players, in and by their play, build their own society. As a direct relationship between people, unmediated by anything other than their imaginations, group improvisation can be a catalyst to powerful and unique friendships. There is an intimacy that cannot be reached through words or deliberation resembling in many ways the subtle, rich and instantaneous communication between lovers.” (Nachmanovitch, 1990, p. 99)

The idea of society resonates with Stern’s thoughts when he observes that inside such environments we find a dynamic social system in constant negotiation, showing that “one’s body is always within a plurality, a social order.” (Stern, 2009, p. 149)

3.4) Sensitizing terms for *Free-Play* in open-ended Interactive Environments

Until now we have essentially been building our analysis and understanding of play in interactive art forms through observation and by importing the knowledge available from other fields of study such as game theory, game design, philosophy and sociology. As Ann Morrison *et al.* observe, very little research has been done in order to examine the nature of *free-play*, and the situation is worse in the field of interactive art. (Morrison *et al.*, 2011, p. 1) The authors add that even in the field of Human Computer Interaction (HCI) interest in play and free-play is normally attached to the study of close-ended environments or to children’s play in groups or with artifacts. (Morrison *et al.*, 2011, p. 2)

Regarding these gaps, the authors develop a very useful set of sensitizing terms that qualify the different forms of emergent play in open-ended interactive art environments. Firstly they collect different terms available in literature for sensitizer guides. Subsequently,

following fieldwork, they gather a set of emergent sensitizing terms resulting from participant observation. The initial references they extract from literature have been covered here more extensively, but they analyze two aspects that we should pay some attention to. The first relates to the distinction that James Carse makes between infinite and finite play:

“For Carse an infinite game features six characteristics that could equally apply as a definition for an open-ended work: (1) an endlessly open outcome; (2) play is dramatic with no scripted conclusion; (3) players do not oppose the actions of others but initiate the actions of their own in such a way that others will respond by initiating their own; (4) players allow others to do what they wish in the course of play with them; (5) the length of the game is determined by itself; and (6) the rules continually change to prevent anyone from winning and to bring as many people as possible into play.” (Morrison *et al.*, 2011, p. 3; Carse, 1987)

A second interesting aspect found within their literature framing relates to the identification of different types of players that we can potentially find in open-ended environments. Departing from Richard Bartle’s taxonomy of player types, the authors conclude that according to the different goals in mind, in such open-works we might find *achievers* or *explorers* who are “always looking for where things are and what to do”; *socializers* who “are often the lifeblood of an interactive art experience, interacting and playing with strangers.” Finally, they observe that players might have a *speculative* attitude by “looking at the engineering behind the functions of the work and thinking about what else might be possible and/or what works approach things in a similar fashion. (Morrison *et al.*, 2011, p. 4)

Then, following Steven Dow’s classification, they distinguish between two types: the *engager* and the *observer*. According to the authors, both Carse and Dow recognize the risk of typecasting players or styles. As we observed, as well as the authors, the average participant oscillates from type to type. Nevertheless, as Carse suggests, normally players present a primary defining style. (Ibid.)

After completing the case studies, the authors gather four main sensitizing terms: *situated social play*, *interactive play*, *speculative play* and *comprehension*, using five

literature-derived sensitizing terms to describe the experience of all the works: *observation*, *verbal play*, *embodied play*, *associative play* and *cooperative play*.

Verbal play refers to the way in which participants verbally communicate with each other in a playful way. (Morrison *et al.*, 2011, p. 8) Despite our emphasis on nonverbal communication, verbal play is, as we will see in Chapter VIII, a very important form of play that emerges during interaction.

This set of sensitizing terms advanced by Morrison *et al.* are very useful and we expect that they will be very helpful to describe in more detail the experience with the case studies. Now, before moving on, we need to quickly go back and examine in more detail an aspect of play that was briefly mentioned earlier: the relation between art, play and “seriousness”.

3.5) Art, play and “Seriousness”

“In an art world where clever and of-the-moment novelty, pastiche, a back bend to incorporate the mundane are part of the fun offering, the serious has very little, if any, room. This is the situation as I see it today, four years after my earlier ruminations. Does interactive work, enforced by the association with the computer game and because it requires some kind of rapport with audiences, fall into a trap and simply aid the cultural climate of fun, somehow automatically operating against seriousness?” (Cornwell, 1996, p. 2)

As has been said before, play is often underrated and considered as something opposed to seriousness. Consequently, for some obvious reasons, interactive art propositions have been criticized for the merry play-mood and fun atmosphere that characterize some of them. Interestingly, the qualitative studies we performed informed us that some participants less connected with the art world were often using the word “game” while referring to such propositions. Unsurprisingly this resonates with some of the reflections and studies previously carried out in the field of interactive art.

In the article *Artists and interactivity: Fun or Funambulist?*, Regina Cornwell claims that interactive art and video games have become closer and closer, describing the museum

and the gallery as places of “twisted fun aimed to please [and] not disturb or bother or displease or cause a middle class audience to think.” (Cornwell, 1996, p. 1) Cornwell stresses that artists should not ignore the military origins of computer development but should instead look under the merry mood layer of play to find the power, speed, command and control messages that so well characterize the military, workplace efficiency and consumer culture. (Cornwell, 1996, p. 4) The author avers that if the computer is just the extension of another medium to create easier and “faster paintings and new forms of Pavlovian responses through clever interfaces” then, “art and culture have misunderstood both the computer and interactivity.” (Cornwell, 1996, p. 4)

She suggests that interactive art should in fact question the computer and computer interactivity from an ontological and historical perspective, asking: “can it be programmed to perform as the black sheep?” (Cornwell, 1996, p. 4)

We should underline here that such observations and questions arise from a very specific context in the mid-1990s. The 1980s and 1990s were a period of prolific experimentation in the field of digital arts, but much artistic production was still in a rapport of medium and technological fascination that was predominantly lacking a critical perspective. Nevertheless, despite the relevance of such observations, are interactive art forms necessarily lacking seriousness by cultivating fun that aims to please? Are play, fun, art and seriousness necessarily incompatible?

As we noted earlier, in Huizinga’s analysis, play is not opposed to seriousness but instead, as the author observes, “play is a thing by itself. The play-concept as such is of a higher order than seriousness is. For seriousness seeks to exclude play, whereas play can very well include seriousness.” (Huizinga, 1980 [1938], p. 45)

For the author, one can deny seriousness but not play. As he and many other theoreticians and practitioners have noted, play is an essential factor in child development, an essential

training form that will allow the child to face serious adult life. (Huizinga, 1980 [1938], pp. 2-3; Cf. also Winnicott; Tisseron) Then, referring to an example of a child playing “trains”, Huizinga reminds us that even if play is “only pretend”, it does not mean that we are not seriously engaged: “any game can at any time wholly run away with the players.” (Huizinga, 1980 [1938], p. 8) While analyzing the relationship between play and ritual, Huizinga realizes that both are seriously profound, sacred activities:

“Needless to say, the mental attitude in which a community performs and experiences its sacred rites is one of high and holy earnest. But let it be emphasized again that genuine and spontaneous play can also be profoundly serious. The player can abandon himself body and soul to the game, and the consciousness of its being "merely" a game can be thrust into the background. The joy inextricably bound up with playing can turn not only into tension, but into elation. Frivolity and ecstasy are the twin poles between which play moves.” (Huizinga, 1980 [1938], p. 20-21)

The same idea is found in Hans-Georg Gadamer’s analysis of play in *Truth and Method*. Like Huizinga, he refuses the idea that play is non-serious or opposed to seriousness. According to the author, in all play there is a “sacred seriousness” that is attained when the player “loses” herself completely in play: “Seriousness is not merely something that calls us away from play; rather, seriousness in playing is necessary to make the play wholly play.” (Gadamer, 2006, [1975], pp. 102-103)

Therefore, the one who observes or acts as a spoilsport from the outside is the one who is not being serious. (Gadamer, 2006, p. 103) Interestingly, Gadamer considers play to be the anthropological basis for art experience. According to him, art is a kind of creative game in which audience and artist meet. The goal there is to find the meaning inscribed in the artwork. It is interesting to note that like Marcel Duchamp, he emphasizes the creative agency between artist and spectator during aesthetic experiences. (Gordon, 1997, p. 30-31)

Therefore, play is used by Gadamer as a metaphor for art that allows us to describe artworks’ structure. Like Jean Grondin, Gadamer also observes that the statement or truth contained in the artwork is understood “if one allows oneself to be lifted into its plays”. As

the author clarifies, it is not the spectator who plays but rather it is she who is played or even out-played by the work. (as cited by Gordon, 1997, p. 31)

We have been saying that participants find interactive art environments by physically moving, acting and free playing. But this underpins a “play” emerging from the participant towards the artwork and not necessarily the opposite. Even if we acknowledge that such environments rightfully respond to participants’ actions and movements, the idea of being “played” by the artwork is quite interesting here. This “being played” relates to a state of absorption that originates in the “to and fro” of constantly repeated movement. (Gadamer, 2006, pp. 105-106)

Nonetheless, much earlier, influenced by Emmanuel Kant, Friedrich Schiller was already applying the term play in his writings. However, these authors’ perspective on play was very different from Gadamer’s view. While they regarded play as a vessel for subject self-expression, and were interested in studying the different states of mind one can experience while playing, Gadamer was more interested by the ontological perspective of play. In other words, he was focused on the “mode of being of play” by questioning the purpose of play:

“All representation is potentially representative for someone. That this possibility is intended is the characteristic feature of the playful nature of art. The closed world of play lets down as it were, one of its walls. A religious rite and a play in a theatre obviously do not represent in the same sense as the playing child. Their being is not exhausted by the fact that they represent; at the same time they point beyond themselves to the audience who is sharing in them. Play here is no longer the mere self-representation of an ordered movement, nor mere representation, in which the playing child is totally absorbed, but it is “representing for someone”. This assignment in all representation comes to the fore here and is constitutive of the being of art.” (Gadamer, 2006, p. 97)

As Bert Oliver observes, the striking difference between art and play lies in the fact that art presents a potential representation for an audience, a viewer or a reader, while in game, the players themselves are the source of movement of play, and thus representation. (as cited by Gordon, 1997, p. 31) In this regard, Huizinga has a very different view. He

differentiates visual art forms from the “arts of the Muses”, or musical arts, averring that the play element is absent in the former.

While both creation and contemplation of fine artworks are devoid of play, in music the work comes to life each time it is played and brought into action in front of an audience. He adds that in the absence of visible action there can be no play. (Huizinga, 1980 [1938], p. 166) In this regard, Huizinga’s conception of play relates to Kant when he claims that it is difficult to separate play from movement. (Gill, 2009, p. 2)

Gadamer and Huizinga’s analyses certainly show us that interactive arts open up a new aesthetic paradigm. If one thing is foregrounded by interactive art propositions, it is the movement and action they produce. Not only the movement, actions and transformations of its own structure but also the playful movement of participants. The artwork does not exist without the presence and actions of the participant; rather, it depends on them for completion.

In the present study we are mainly interested in the ways in which the subject engages in play, as well as in understanding what happens during aesthetic experience, yet Gadamer’s writings are very important in order to demonstrate that the relationship between art and play is not exclusive to interactive arts but has always been part of art experience. Moreover, certain theorists have claimed that art seems to have its origins in play.

In the article *An hypothesis of the evolution of art and play*, Ellen Dissanayake, analyzes some of the main characteristics of play (non-serious/serious, non-functional, self-rewarding, social, pleasure-oriented, metaphorical), verifying that they coincide with the most important dimensions of art experience. The author observes that despite some dissimilarities the two behaviors are related, and, as other early theorists such as Schiller, Spencer, Groos and Freud have noted, art seems to derive from play or to be a kind of play. (Dissanayake, 1974, p. 214) Then, from a *phylogenetic* perspective, the author speculates on the possibility that art might have grown out of play:

“In this sense, art in its simplest form, the urge to make something for its own sake, could have arisen from play and in the early stages the two could be indistinguishable. Once play artifacts became at the same time objects of value, this specialized activity could be enhanced by other indistinctive manifestations, needs and motivational systems (such as order, novelty, rhythm, archetypal expressions, social and eventually cultural significance) and become what is today called art, an activity emancipated from play, even though it shares with it certain broad attributes.” (Dissanayake, 1974, p. 215)

Dissanayake claims that one of the possible causes of the emancipation of art from play resides in the social enhancing character of art. She examines the *social signal*, an ethological concept, which demonstrates that most animals have developed different strategies (bodily movements, crouches etc.) to communicate with each other. The fundamental social character of such strategies leads to the enhancement of the original movements, sound, odors or postures, and consequently they are preserved from generation to generation. Therefore, their origins become gradually more obscure. (Dissanayake, 1974, p. 216)

In the same way, Dissanayake argues, art seems to have unfolded from play. She enumerates different social functions that seem to have derived from art-play: *attractive, differentiating, commemorative, didactic, preparatory, ritual or magical*. As the author claims, like social signs, such germinal types of artistic activity evolve, supporting innovative social behavior, becoming gradually distanced from their origins.

Finally, as we have confirmed during this section, several theorists support the view that play and art are not incompatible, reinforcing the idea that they have been always intertwined or, as Dissanayake attempts to show, art might have unfolded from play. Despite the distinctions made by Huizinga between visual arts and the musical arts, the other views refer to art in general.

At first glance we could simply deduce here that Cornwell’s critiques stem from a conservative view of digital arts, yet one should not discard them so fast but rather try to focus on the experience of play in interactive art propositions. Indeed, that is essentially what we have been doing in the course of this chapter.

We have been assembling knowledge from different conceptual fields in an attempt to describe in detail what goes on when we engage playfully with interactive art environments. In our view, these experiences open up an unprecedented aesthetic paradigm whereby intellectual play between audience, work and artist gives way to a type of play that depends on action, movement, operation and interface learning.

As the reader might realize, despite the naturalization of computers and the omnipresence of all kinds of technologies and gadgets in our everyday life, interactive art propositions are normally associated with a learning curve and with certain technical negotiations.

Additionally, we are interested in understanding whether the playful actions and movements required by this kind of proposition eventually override the symbolic dimensions of the experience. Certainly, as we have seen, even the most effortless play is not devoid of meaning and as many theoreticians have claimed, play is meaningful in itself. However, the question here is slightly different. We agree that play is always meaningful, yet some propositions seem to contain certain meaningful layers that are accessed through playful behavior. In other words, the purpose involved does not only stem from sensorial play and self-discovery. In these encounters the participant is required to create a psychological distance between her actions and the temporary objects they create.

In many cases, as we have already seen with *The Golden Calf*, gesture and movement acquire a symbolic value that enters the sense-making process. This distance is an important aspect of aesthetic experience that has been discussed by different theoreticians, mainly regarding traditional art experiences. As such, we will dedicate the next chapter to examining this question in more detail.

Finally, in order to summarize what we have learned during this first part, the next section summarizes the main dimensions of play in interactive art experience and proposes some clues that could be used to create a definition.

3.6) Synthesis

The manifold theories about game and play, the attempt to distinguish both and lastly the few theoretical approaches to *free-play* provide us with a very useful and rich basis for understanding and extending the discussion about play in interactive arts. We have mainly been focusing our analysis on open-ended environments that involve full-body interaction or that at least significantly foreground bodily movement, posture and gesture. Nevertheless, many aspects that have been discussed are also valid for other modalities, which are less dependent on physical activation or body movement, as in screen-based works for example. At this point we believe that it could be helpful to summarize and synthesize the different dimensions of play that we have found and gathered so far.

The type of play at stake in open-ended interactive art environments is spontaneously improvised, without any precise narrative or sequence, occurring within a non-specified period of time. It is devoid of any concrete goals defined by the artist and it is essentially non-competitive, thus no winner is normally identified. The reward lies in the pleasure emerging from the process of discovery and play in itself – playing for the sake of play or *funktionslust*³⁰. According to Hans-Georg Gadamer, “play is really limited to representing itself. Thus its mode of being is self-representation”. (Gadamer, 1989, p. 97) Moreover, it unfolds from voluntary intention, within certain limits of space (physical and/or digital) whereby one needs to learn a few *activation* or *functioning rules* in order to grasp the experience that might oscillate between tension and joy. Furthermore, as we will confirm in more detail in chapter VIII, despite the engrossing nature of many of these experiences, participants are still aware of the separation between the fictional world of play and “normal”

³⁰ *Funktionslust* is according to Nachmanovitch “the pleasure of doing, of attaining an effect, as distinct as the pleasure of attaining the effect.” (Nachmanovitch, 1991, p. 45)

life. Finally, according to the characteristics of the installation and personality of the participant(s), the nature of play might predominantly resemble *paidia* or *ludus*, or evolve from *paidia* into *ludus* or the other way around, or oscillate dynamically between both. The same can be said about social *associative play* and *cooperative play*.

Despite all the definitions available to describe play, we would like to propose the basis for one definition that specifically addresses the nature of play in interactive art encounters. Any potential definition should not overlook the following points:

- 1) Play is a free and voluntary activity;
- 2) Play does not depend on explicit rules; it's spontaneous and improvised; participants eventually create their own rules and it can evolve to a more structured form;
- 3) Play's structure is essentially non-narrative yet, micro narratives might unfold during interaction;
- 4) Play is open-ended; without defined precise goals to attain;
- 5) Play is uncertain; multiple outcomes/outputs are possible;
- 6) Play is non-competitive; no winner or something to win; the act is its own destination or *funktionslust*;
- 7) Play is circumscribed to a particular space (physical and/or digital) although, no minimum or maximum period of time of engagement is defined or required;
- 8) Play is serious;
- 9) Play is meaningful; by physically performing the participant creates meaning and discovers the meaning(s) encoded by the proposition.

As the reader may realize, the last point was not examined during our analysis. Yet this “lapse” was an intentional decision. The scarce research that relates to play in the field of interactive art experience, and our own enquiries, allow us to undoubtedly verify and accept the first eight points without any resistance. However, the last point seems to be more elusive, leaving room for challenges and misunderstandings. As such, the next chapter will explore this point in more detail.

Chapter VII – Play, Art and Distances

“Le sujet face à la machine risque souvent de s’égarer, de s’annuler dans la transparence, de s’effacer dans le flux. Mais l’interface veille toujours à ce qu’il se maintienne une fraction, une distance (définitoire). Et c’est précisément grâce à la persistance de cette distance que la relation interactive, bien que complètement originale, reste une expérience esthétique. Car, comme l’a expliqué Jean-François Lyotard³¹, sans distance, sans cette zone opaque (non de passivité mais de *passibilité*), il n’y a pas de dimension esthétique.³² (Quinz, 2003, p. 5)

We have seen that play and seriousness are not diametrically opposed but instead emerge intertwined in a complex and subtle relationship during *gameplay* and during certain interactive art encounters. Nevertheless, the fact that play can be serious does not necessarily mean that players or participants are able to critically grasp the sense or statement encoded by a certain aesthetic proposition.

In other words, during interactive art encounters one always undergoes certain experiences, but are participants able to distance themselves from the practical, technical operations to critically analyze the experience at hand? Does the absorbing nature of play and interactive art environments’ affordances leave space for critical detachment and reflection?

Regarding the experience of interactive arts, Emanuele Quinz observes that such interfaces keep a distance (“définitoire”) that prevents the participant from erasing and losing herself in the transparency and interface flow. Furthermore, supported by Jean-François Lyotard’s writings, Quinz avers that without such a distance, there can be no aesthetic experience. (Quinz, 2003, p. 5) The same preoccupations are also manifest in the writings of Oliver Grau regarding virtual and immersive arts. According to Grau, this aesthetic distance, so central to art experience seems to be under threat in such living virtual environments.

³¹ J.F.Lyotard, *L’Inhumain*, Paris Galilée 1988, pp. 127-128.

³² “In front of the machine, the user risks to get lost, to be canceled by the transparency, to be erased by the flow. Although, the interface always tries to maintain a fraction, a distance. And it’s due to the persistence of such distance that the interactive relationship is still an aesthetic experience. As Jean-François Lyotard has explained, without distance, without this opaque zone (not passive but passible), there’s no aesthetic dimension.

(Grau, 2003, pp. 292-313) As he points out, “being enveloped in a cocoon of images imposes profound limitations on the ability for critical detachment.” (Grau, 2003, p. 201)

But what is the nature of this distance? How can we characterize it? Is it possible to measure it? Firstly, we should clarify that the concept of distance is not specific to the aesthetic paradigm of digital arts but, as Theodor Adorno and other theoreticians observe, the conception of distance stems from Kant’s disinterested pleasure:

“(…) Distance is the primary condition for getting close to the content of a work. It is implicit in the Kantian notion of disinterestedness, which demands of the aesthetic stance that it should not seek to grasp the object. (….) Distance is a phenomenon of works of art that transcends their mere existence; their absolute proximity would mean their absolute integration.” (Adorno, 1973, p. 460)

Likewise, Hans Robert Jauss observes that aesthetic experience becomes distinct from mere sensual experience through aesthetic distance, the distance between the subject and the object. (Jauss, 2007, pp. 20-21)

Depending on the authors, we seem to find different names for the same aesthetic phenomenon, the most common being *aesthetic distance*, *reflective distance*, *psychical distance*, *critical distance* or simply *distance*. All these conceptions relate to a certain state of consciousness indispensable for attaining an aesthetic experience. Yet the last conception, “critical distance” also seems to address the function of critique, which is according to Adorno a fundamental aspect of art. Adorno regards art as a gear for critical reflection that could “challenge the instrumental rationality and repressive authority of capitalism.” (Palmer, 2007, p. 3) To fulfil this role, Adorno defends an ascetic art that should deny aesthetic pleasure (*jouissance esthétique*), and instead favor the intellectualization of aesthetic reception. (Jauss, 2007, p. 13) Regarding this *negative dialectics*, Jauss observes that at the beginning of the 1970s, any reference to aesthetic pleasure was associated with philistinism, the desire for consumption or bad taste. (Jauss, 2007, p. 11)

This critical function of art needs to be considered and examined in the recent field of interactive arts. One should ask if this function can coexist with the sensorial, emotional and absorbing nature of interactive art encounters. We will develop and discuss this point further in the last chapter. For now we should concentrate in more detail on the phenomenon of distance.

Despite being a frequent topic in aesthetic discussions, the phenomenon of distance has rarely been described in detail. Pierre Francastel defines *psychical distance* as “the typical imaginary distance that defines, on the one hand, the relationship between the representational objects, and on the other hand the relationship between the object of representation and the spectator.” (Aumont, 2005, p. 78) Interestingly, Adorno criticizes cinema for absorbing the spectator and leaving her with no space for imagination, thus, as Daniel Palmer avers, prohibiting *critical distance*. (Palmer, 2007, p. 4) In a similar way, despite his remarkably positive view of cinema, Walter Benjamin observes that contemplation was not possible in the continuous flux of moving images: “The painting invites the spectator to contemplation; before it the spectator can abandon himself to his associations. Before the movie frame he cannot do so. No sooner has his eye grasped a scene than it is already changed. It cannot be arrested.” (Benjamin, 1992, p. 107)

Despite the usefulness of Francastel’s definition, especially due to his emphasis on imagination, a quality that is strongly foregrounded by interactive art encounters, the description of *psychical distance* by Edward Bullough contains additional valuable details that we should carefully examine.

3.7) The concept of Psychological Distance

In the essay *Psychical distance as a Factor in Art and as an Aesthetic Principle*, Edward Bullough a British psychologist and philosopher introduces a concept of distance that

is neither spatial neither temporal but psychological. Nevertheless, as Bullough avers, both spatial and temporal distances are special forms of psychological distance. (Bullough, 1912, p. 87)

Bullough argues that psychological distance, as a fundamental factor in aesthetic experience, appears when we are able to objectify our situation by “putting the phenomenon, so to speak, out of gear with our practical, actual self; by allowing it to stand outside the context of our personal needs and ends”. This idea is well illustrated by the already classic fog passage:

“Imagine a fog at the sea; for most of people it is an experience of acute unpleasantness. Apart from the physical annoyance and remoter forms of discomfort such as delays, it is apt to produce feelings of peculiar anxiety, fears of invisible dangers, strains of watching and listening for distant and unlocalised signals. The listless movements of the ship and her warning calls soon tell upon the nerves of the passengers; and that special, expectant, tacit anxiety and nervousness, always associated with this experience, make a fog the dreaded terror of the sea (all the more terrifying of its very silence and gentleness) for the expert seafarer no less than the ignorant landsman. Nevertheless, a fog at sea can be a source of intense relish and enjoyment. Abstract from the experience of the sea fog, for the moment, its danger and practical unpleasantness; (...) direct the attention to the features “objectively” constituting the phenomenon – the veil surround you with an opaqueness as of transparent milk, blurring the outline of things and distorting their shapes into weird grotesqueness.” (Bullough, 1912, p. 89)

According to Bullough, distance appears between our *self* and anything that might affect it: sensations, perceptions and emotional states or ideas. With distance, the “objective” features of the experience become emphasized and we interpret our “subjective” affection, “not as modes of *our* being but rather as characteristics of the phenomenon”. (Bullough, 1912, p.89) As such, and as one can realize, this is not our normal way of perceiving things in the world. We are essentially confronted with the practical side of experiences and phenomena, thus through the creation of *anti-environments* art encloses a revealing power, or *aisthesis*³³, that transforms what is normally habitual or transparent, refreshing our modes of perception.

Then, as George Dickie observes, Bullough’s conception of distance relates to a psychological phenomenon, to an aesthetic attitude on the part of the spectator rather than to the whole aesthetic attitude. As he points out, “distance is a necessary and sustaining, but not

³³ *Aisthesis* is according to Hans Robert Jauss an aspect of aesthetic experience that privileges intuitive knowledge rather than conceptual knowledge. (Jauss, 2007, p. 24)

a sufficient, condition of the aesthetic attitude, and hence is actually only part of the aesthetic attitude.” (Dickie, 1961, p. 233) Bullough himself recognizes the same, but instead of using the label “aesthetic attitude” he uses the term “aesthetic consciousness” to describe the mental attitude that unfolds from contemplating an artwork.

Moreover, as the author claims, distance does not entail an “impersonal” or “purely intellectual” involvement with the artwork. Instead, “it describes a personal relation, often highly emotionally coloured, but *of a peculiar character*.” (Bullough, 1912, p. 89) Peculiar, he adds, because the personal character of the relation appears to be filtered.

Bullough’s notion of distance is in this regard a middle ground that allows contemplation, and that happens between being *personally* involved and *impersonally* separated from the object. Although, as the author avers, this distance admits different degrees or states. Bullough also refers to a *Distance-limit* as “that point at which Distance is lost and appreciation either disappears or changes its character”. (Bullough, 1912, p. 94) This point depends not only on the nature of the artistic object that “may impose a greater or smaller degree of Distance”, but also on the spectator’s *distancing power*. (*Ibid.*)

As such, in front of an artwork, one might become *under-distanced* or at the other extreme *over-distanced* in relation to the object. The most commonly observed situation is to become *under-distanced* due to the realistic and “crudely naturalistic” essence of the work. On the other hand, one might lose the distance, becoming *over-distanced* due to the emptiness, absurdity or artificiality conveyed by the artwork.

In this regard, as Gerald C. Cupchik observes, the goal for both viewers and artists is “maximal involvement without excessive self-absorption” or as Bullough puts it: “utmost decrease of Distance without its disappearance.” (Cupchik, 2002, p. 18; Bullough, 1912, p. 94)

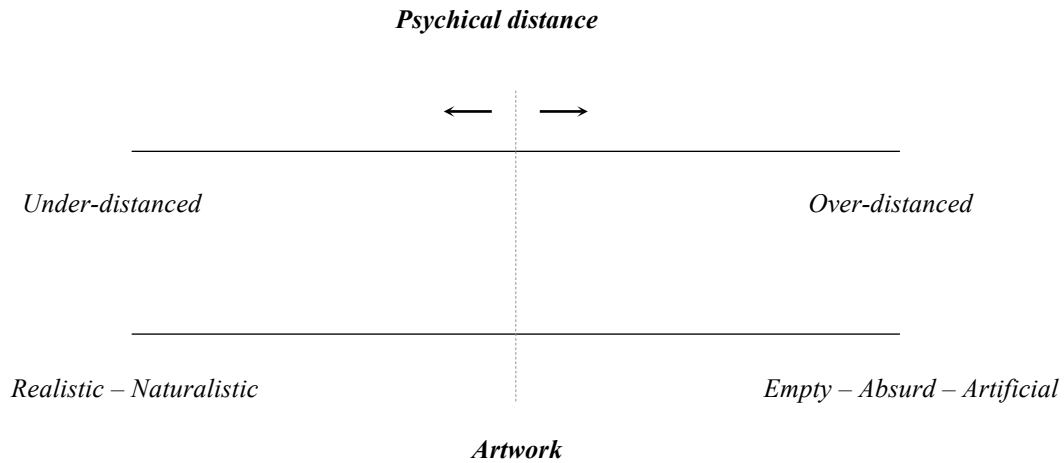


Fig. 19 – The spectrum of Bullough’s psychological distance

Interestingly, Bullough holds that one of the possible reasons for the established “monopoly” of visual and musical arts, and the manifest neglect of other types of art as “culinary arts”, probably stems from the lack of *spatial distance* in the reception of such sensorial forms of art. (Bullough, 1912, p. 95) Some interactive art installations we argue, seem to be experienced under similar conditions, in the absence of spatial distance.

Whereas traditional paintings and sculptures do not require any type of physical manipulation by the spectator, maintaining a certain physical distance between artwork and spectator, in some interactive artworks participant and environment seem to blend together, adapting and affecting each other. Nevertheless, even if some of these propositions tend to radically abolish spatial distance, one can see a gradual reduction of distance throughout the history of interactive and participative art. In other words, the reduction of physical distance is not only a consequence of technological development but, primarily, a reaction to an anti-touch tradition that preserved distance.

In the following section we will analyze and trace the reduction of *spatial distance* from the first interactive artworks to later contemporary creations. Hopefully, this will allow us to understand some of the political and social impacts of such transformations and in

addition contribute to grasping some of the consequences of the absence of physical distance in contemporary interactive arts.

3.8) The transformations of physical distance over time

At the beginning of the twentieth century, works such as *Kinetic Construction no. 1 (Standing wave)* by Naum Gabo and *Rotary Glass Plates (precision optics)* by Marcel Duchamp used simple electric and mechanical systems to produce movement, although, already controlled by the spectator, these objects depended on very simple activation actions, namely On/Off switches. As we saw in the first chapter by analyzing Erkki Huhtamo's account, these first manifestations appear in a very specific artistic and social context. At the beginning of the century, Western world was essentially "tactiloclastic". (Huhtamo, 2007, pp. 75-76)

Unsurprisingly, this first generation of interactive artworks appeared as a reaction to this "tactiloclastic" society, critically exploring touch and distance. However, forty years later, very similar types of devices started to emerge in the field of art. Participative kinetic sculptures by the artists Yaacov Agam, Gianni Colombo, Julio Le Parc and Nicolas Schoffer demanded certain actions in order to be activated and to perform automatically. Yet while the few interactive sculptures at the beginning of the 20th century appeared against the backdrop of a long tactiloclastic tradition, later manifestations during the 1960s were reproached for following the tendencies of a consumerist and industrial society. As Anna Dezeuze observes, art critics often compared interactive kinetic art objects with gadgets:

"La distance entre oeuvre d'art et gadget n'est cependant réellement abolie que lorsque l'oeuvre d'art partage en plus la meme obsession que celle incarnée par le gadget, à savoir l'automatisme. S'exprimant au travers de l'utilisation de moteurs et de techniques sophistiquées, l'automatisme crée l'impression que "tout marche tout seul" et que chacun de nos besoins peut être satisfait par un objet particulier. Ainsi, une participation du spectateur qui se réduirait à appuyer sur un bouton pour actionner un moteur serait susceptible de nourrir cette fascination pour l'automatisme."³⁴ (Dezeuze, 2005, p. 91)

³⁴ The distance between artwork and gadget isn't however really abolished when the artwork shares the same obsession embodied by the gadget, namely the automatism. By using gears and sophisticated techniques, the automatisme creates the sensation that "everything works by itself" and all our needs can be satisfied by a particular object. Thus, spectator

However, as she points out, such objects remain at the intersection between technology and game. In those days, for some art critics and gallery owners, the strong ludic dimension seemed to undervalue such works, reducing them to the category of gadgets and non-serious artworks. (Dezeuze, 2005, p. 91) Yet Dezeuze recognizes this ludic character as an important feature of participative kinetic art. She quotes René Barotte, who regards play as an element that supports the democratization of art, because, “even the postman can enjoy an exhibition”. (*Ibid.*) Moreover, according to Joel Stein, a member of the art group G.R.A.V.³⁵, play has a liberating effect on the spectator, allowing a total engagement that does not rely on the pre-knowledge carried by the spectator but rather on surprise, gesture and provocation. (*Ibid.*)

Of course, when Dezeuze refers to play and to the ludic dimension in participative kinetic art she is not alluding to the simple systems in which one pushes a button to contemplate the automatic movement of the work, but rather to objects and environments that are more open to participation. *Dalles Mouvantes* and *Lunettes pour une vision autre* by Julio Le Parc, *Structure cinétique penetrable* by Jean-Pierre Yvaral, *Pénétrable* by Jesús-Rafael Soto or G.R.A.V.’s *Labyrinthe* are good examples of objects and environments that stimulate playful behavior and bodily exploration. Besides this important feature, in such propositions, the physical distance between participant and artwork is abruptly reduced.

The participant is now inside the artwork, the structure of the environment is designed to receive the participant and to be affected by her actions and movements. Unlike most *automatic participative* works that mainly depend on a single type of action (e.g. ON/OFF button; using a crank to produce movement) to become active and allow contemplation, these

participation which is reduced to pushing a button to put a gear into action, is susceptible of feeding this fascination by the automatism.” (Dezeuze, 2005, p. 91)

³⁵ The group G.R.A.V or *Groupe de Recherche d'Art Visuel* appeared in the 1960s in Paris, presenting ludic and playful interactive works that strongly engaged the audience.

environments afford a more creative and physical engagement. In other words, touch and tactile experience is not reduced to push and pull buttons but is more rich and complex. The participant needs to move around, to literally penetrate the environment as in the examples of *Pénétrable* by Soto and *Structure cinétique penetrable* by Yvaral, to test her bodily skills, her balance, as in *Dalles Mouvantes* by Julio Le Parc.

Thus the aesthetic experience unfolds from a very strong physical bond between artwork and participant, and from the exploration of the unknown terrain that actually also leads to the discovery of our own bodies. As Clay, quoted by Dezeuze, observes, regarding Soto's *Pénétrable*, such an environment is opposed to minimalistic sculpture "that maintains the spectator at a distance, that seeks to impress and to erase him". On the contrary the *Pénétrable* allows "the absorption, the fusion". (Dezeuze, 2005, p. 90; Clay, 1968)

This tendency towards sensorial absorption and fusion has lasted into the present day. Video art installations such as *Interface* by Peter Campus, *Present Continuous Past(s)* by Dan Graham or *Live-taped corridor* by Bruce Nauman also challenge the physical distance between artwork and participant. In such propositions the participant is assimilated inside the picture and the apparatus mirrors the participant's *body-image* and *body-schema*. Despite the absence of touch or any tactile involvement with the artwork, the experience unfolds somatically. Thus, even if a minimum physical distance is maintained between participant and the screen, the experience seems to overwhelm participants, involving them on a very personal level.

Furthermore, this relationship of proximity became more complex with the introduction of sophisticated technologies and computers in the field of art. The virtual reality environments and full-body interaction installations developed during the early 1970s intensified the engagement between apparatus and participant. As Grau claims regarding the "intuitive physical processes" used by *Osmose*, an installation by Char Davies, "the

observer's unconscious connects to the virtual space in a much more intense way than with a joystick or a mouse." (Grau, 2003, p. 194) Most VR environments allow the participant to wander around and navigate inside the "virtual" digital world, yet the participant is only able to read the database, according to her bodily movements, gestures and actions and cannot edit the contents.

However, in many interactive installations like Myron Krueger's early responsive environments, the participant utilizes her entire body to interact with the work, temporarily or permanently modifying its structure and contents. Such propositions share the same desire as the aforementioned (non-computerized) participative installations, yet in some cases present a greater degree of openness. While interacting with the installation *Messa di Voce* by Golan Levin and Zack Lieberman, the participant is given the power not only to modify the structure according to certain variables but, more importantly, to generate an almost infinite number of forms and compositions that adapt to each behavior. Therefore, the fact that one is able to generate and model a certain structure according to her own image and taste inevitably drags the participant into a personal relation with the work. As a consequence of this smooth reactivity, such environments become absorbing places for free-play. Curiously, the participant is able to "touch" the work or, more accurately, to change it; although, in the case of *Messa di Voce*, without any kind of tactile contact with the environment but through gesture and voice. Yet some installations privilege multimodal interaction, requiring the participant to touch, use her voice, blow, gesticulate etc.

Thus, in this regard, spatial distance is not necessarily connected with the degree of personal involvement nor with the openness³⁶ of the artwork. One might touch the artwork to

³⁶ Umberto Eco observes that every artwork is open because each aesthetic encounter can potentially convey endless meanings. However, one can identify different degree of openness. And according to the author, some works such as the compositions of Berio and Stockhausen are open in a less metaphorical sense. These works are "not finished" because they expect the interpreter to re-organize them and, as such, they might appear to the spectator in different ways. Then he also recognizes in his poetics the active participation of the spectator when in the works of Gabo or Lippold. As he observes regarding these works, "the form is defined and constructed in such a way as to be ambiguous and visible from different perspectives." (Eco, 1962)

activate it and be personally distanced from it, yet one might be far away from the stage and be absorbed by the piece. This becomes very clear in the following schemas, which organize different types of participative and interactive forms according to the spatial distance between spectator/participant and artwork, the degree of openness, participation and playfulness (*paidia*). However, there are many exceptions to these schemas. For example, some full-body interactive installations and virtual reality environments also demand tactile contact, thus appearing at a lower level in the schema, side by side with participative kinetic environments.

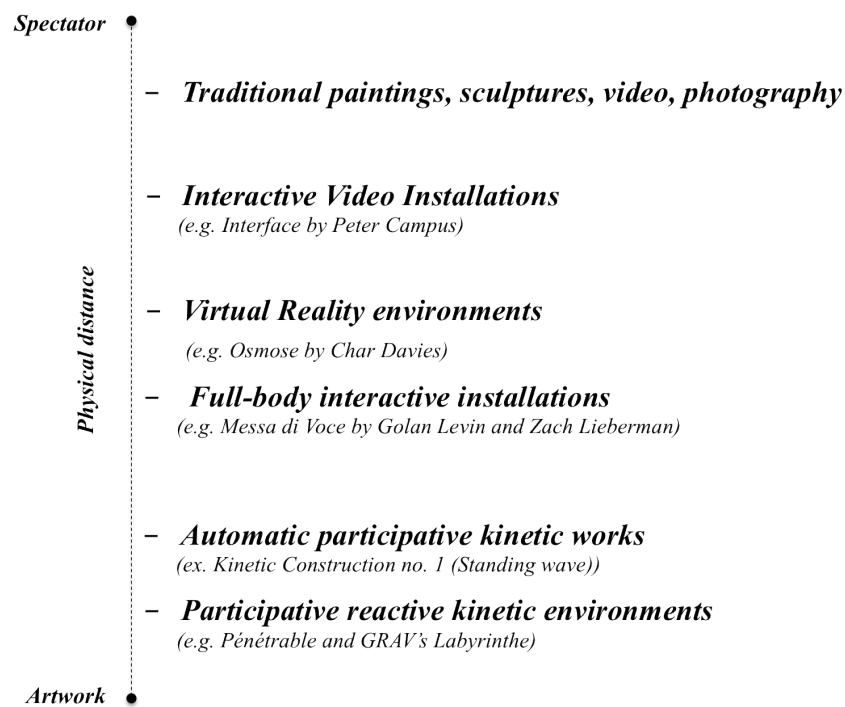


Fig. 20 – Physical distance between artwork and spectator according to different types of artwork



Fig. 21 – Distribution of artwork types according to the degree of openness, participation and potential for *paidia play*.

More importantly, this analysis of spatial distance and these schemas underline some dimensions and conditions of the aesthetic experience that Bullough did not take into account when he defined the concept of *psychical distance*.

With the abrupt reduction of the physical distance between spectator and artwork, the increasing openness of the artwork's structure, the demand for participation and the absorbing playful engagement propelled by interactive art propositions, we need to understand if *psychical distance* is still a valid and appropriate concept in this paradigm.

Finally, we should try to find out if this aesthetic phenomenon still occurs when we are absorbed by technical interface learning or, in other words, distracted by the practical ends of the experience and by personal free-play.

The variety of participative and interactive artworks, the innumerable modalities of reception and all the types of lived and felt experience they generate makes our study very extensive and difficult to conduct within the present timeframe. In light of this, to make our task easier, we will narrow our object of study by focusing on computer-based interactive artworks.

3.9 Machine-based Interactive Arts and *Psychical Distance*

Despite the diversity of works and modalities of interaction under this broad classification, computer-based artworks share some common structural characteristics that might allow us to study the phenomenon of *psychical distance*. We should mention at this point that we are not looking for a negative or positive answer regarding the subsistence of *psychical distance* in such aesthetic experiences. An answer of this kind would lead to a useless generalization that we should try to avoid in favor of a rigorous analysis. Furthermore, we are more interested in understanding and in describing the phenomenon of *psychical distance*. For this task we need to examine which factors might put at risk the emergence of distance.

The immersive experience of virtual reality environments (e.g. *Osmose*) is very different from the experience one has when interacting with screen-based computer works by Jodi collective. While the first promotes interface transparency and real-time as important features of the aesthetic experience, the latter promotes interface opacity and friction.

Nonetheless, despite the differences between traditional artworks and interactive computer-based works, the latter can still be classified as naturalistic, realistic, empty, absurd or artificial, to use the same qualities identified by Bullough.

Besides these qualities, Bullough recognizes different *Distance factors* that artists strategically use in their works to maintain Distance. For example, in drama, Bullough

observes that “the general theatrical *milieu*, the shape and arrangement of the stage, the artificial lighting, the costumes, *mise-en-scene* and make-up, even the language, especially verse”, contribute to create distance. (Bullough, 1912, p. 104) For Cupchik the lack of color, the pedestals that “serve to place a work in a space of its own and remove it from our own viewing space” are Distance factors in sculpture and the two-dimensionality and framing of pictures are important factors in painting. According to the author, style serves to create distance and “to attenuate [the] rush towards familiarity and possible digression away from the work into personal reminiscences.” Additionally, he observes: “a high degree of finish reduces Distance and makes a work more accessible, while salient stylistic qualities remove the work from the everyday world.” (Cupchik, 2002, pp. 19-20)

Similarly, we can also find different *Distance factors* in computer-based interactive artworks: 1) interface complexity/learning; 2) interface transparency; 3) response time (or temporal distance); 4) *openness ratio* – openness to participation; 5) *playfulness ratio*. These factors are actually structural, intrinsic components to any interactive artwork and they are normally observed in varying degrees.

As we observed previously, in virtual reality environments for example, the degree of transparency tends to be high, as does the response time, whereas the interface complexity and learning curve are small. The screen-based works by Jodi collective normally foreground opposed structures. However, we will now describe in more detail each one of these factors and how they might affect psychical distance during aesthetic experience.

3.10 Five distance factors

3.10.1 Naturalization, interface learning and interface transparency

“Technology is gradually becoming a second nature, a territory both external and internalized, and an object of desire. There is no need to make it transparent, no longer, simply because it is not felt to be in contradiction to the “authenticity” of the experience.” (Huhtamo, 1995, p. 150-186)

Everyday life is increasingly mediated by digital technologies, LCD screens, buttons and dials that have slowly infiltrated our routines. We share our time and space in a constant relation with the physical world of atoms, and the digital world of bits and bytes. In the continuous, intertwined relationship between the physical, the digital, the offline and the online, the complex network of media apparatus has become naturalized or, as Erkki Huhtamo observes, it has become a “second nature”. Yet the formulation “second nature” seems to suggest a certain dichotomy. To be more accurate, technology has been blending with the pre-existing landscape, changing it, and influencing our behaviors, our bodies and gestures. As Jean-Louis Weissberg avers, “some command gesture codes have become “natural” to such an extent that, through those very artificial in reality devices, one sometimes feels like his body is actually moving inside that space”. (Amato & Weissberg, 2003, pp. 240-245)

Consequently, this naturalization has given computer art participants intellectual skills. On the one hand, as media users and consumers, they become more acquainted with the challenges presented by the media, thus they are better prepared to decode these artistic propositions. On the other hand, they acquire certain performative skills. In other words, as media users, they bring different practical knowhow that eases interaction and reception of the work. However, this is not the case for all gallery visitors. As Domenico Quaranta stresses, “[even if] much New Media Art can be tackled critically without particular knowledge of the new technologies, many works cannot be properly understood without an in-depth knowledge of the medium and its dynamics, and therefore continues to require a specialized critical approach.” (Quaranta, Online) This specialized approach comprises practical skills that one needs in order to manipulate the artwork but also the conceptual understanding of the work. In fact, the second seems to depend on the first.

In very different situations that we observed during this research, participants were not able to grasp the sense of the proposition because they failed to start the experience. The first contact with the interface is essential to unfold the experience.

According to Jean-Louis Weissberg, “on an operational level, a body we could call “projective acting body”, which means a body capable of acting according to the intervention modalities conferred on it by the interface: it molds and invests itself, slides in the interactivity field. At first, it explores the potentials of influence offered and then it ends up fully employing them.” (Amato & Weissberg, 2003, p. 240-245) Of course the emergence of this *projective acting body* demands a certain engagement, curiosity and readiness that are unusual in the reception of traditional art. The simplest device establishes a distance, a learning period, and demands to be discovered before we can experience it free from practical ends.

Most propositions attempt to erase the medium, to reduce the number of technical operations and the interface’s learning curve so that participants can focus on the contents of the experience. Yet many interfaces remain complex and difficult to operate in the context of an exhibition. In this regard, a complex interface associated with a long learning curve is more likely to cause participants to be *over-distanced*.

According to Oliver Grau, “aesthetic distance always comprises the possibility of attaining an overall view, of understanding organization, structure and function, and achieving a critical appraisal”. (Grau, 2003, p. 202) Accordingly, the impossibility of surpassing the operatory level and thus of being free from practical concerns is at the same time cancelling distance and eventually inhibiting the participant from having an aesthetic experience.

At the other extreme, a very short learning curve and intuitive interface is more likely to hold participants’ attention and, in the presence of other absorbing factors (such as high openness to participation or high playfulness ratio), one can easily become under-distanced.

As Grau also observes regarding the naturalization of interfaces: “The more “natural” the interfaces become, the greater the danger – not only that most of the “technological iceberg” will be inaccessible to the user who is unaware of it – that there will be an illusionary disappearance of boundaries of the data space.” (Grau, 2003, p. 203)

Another interesting aspect found in Huhtamo’s quotation relates to interface transparency. He claims that “there is no need to make [interfaces] transparent, no longer, simply because it is not felt to be in contradiction to the “authenticity” of the experience”. (Huhtamo, 1995, pp. 150-186) The author is right to stress this aspect of media experience even more so if we consider the notion of *hypermediacy*³⁷ as understood by Jay Bolter and Richard Grusin. The authors note that a certain delight seems to emerge from the contemplation of the medium as medium. (Bolter and Grusin, 2000, p. 41)

Additionally, with the naturalization of media technology, interfaces become progressively transparent. In the first encounters with a certain interface or apparatus, for example a mobile phone, its formal structure is prominent and opaque and the interaction is normally rigid and slow. However, with continuous everyday use, this structure simply vanishes from our conscience. The interface slowly moves from being *present-at-hand* to being *ready-to-hand*. The inverse can occur if one is confronted with some kind of error or malfunction. Yet, if media design seeks to increase efficiency by building transparent and

³⁷ Bolter and Grusin characterize the logic of *hypermediacy* as a representation of multiple acts that become visible. They claim that if there’s a desire for *immediacy* it is also obvious the desire for media. They give as examples for *hypermedia* the medieval illuminated manuscripts, Renaissance altarpieces, Dutch paintings, baroque cabinets or photomontage. In relation to Richard Hamilton’s photomontage the authors observe that: “We become hyperconscious of the medium in photomontage, precisely because conventional photography is a medium with such loud historical claims to transparency.” (Bolter and Grusin, 2000, p. 38) If *immediacy* is supposed to hide the medium and *hypermediacy* to render it visible then there seems to be a paradoxical relationship. Bolter and Grusin explain this contradiction using the Phenakistoscope as an illustration: while a logic of *immediacy* is found in the moving images that seek for a realistic effect, we go out of the image to contemplate the mechanics and the working mechanisms of the medium. *Hypermediacy* is not always used to render medium visible but rather it contributes to effective workings of *immediacy* and, despite different types of media in use, the medium becomes transparent. Bolter and Grusin give, as an example, of this use the mix between computer generated images and 35 mm video images in film production and the saturated media environments of TV news that use text, split screens displaying video footage, live video, motion graphics, static computer generated images and photographs to provide a consistent an informative environment that keeps the spectator immersed.

frictionless interfaces that sustain immediacy³⁸, digital arts exhibit interfaces working both as windows and as mirrors that sustain reflectivity. In a strategic oscillating movement between transparency and opacity, the participant “looks *at* the interface rather than *through* it”. (Bolter and Gromala, 2004, p. 56)

The tension between transparency and opacity is much more complex and we expect to return to this discussion in the last chapter. Regarding video games, Gouveia observes that as part of the spectacle, the interface transparency assures both agency and immersion. (Gouveia, 2010, p. 69) Furthermore, by referring to the work of Clais and Roustan, she acknowledges that through complete engagement of the perceptual body with game interfaces, the player’s reflective consciousness tends to diminish after a certain level of experience with the game. (Gouveia, 2010, p. 71) As she puts it regarding games such as *Quake* and *Doom*, “the capacity that the player acquires to do multitasking in the game space, sacrifices their power to reflect their actions.” (Gouveia, 2010, p. 73)

In a similar way, based on our observations, we should underline that in several computer-based artworks the degree of absorption and engagement increases proportionally with the simplicity and transparency of the interface. At a certain point in the experience, participants seem to perform automatically. However, in many situations, even if there is an almost immediate grasping of the functioning mode and interaction grammar, the simplistic and repetitive nature of the work can quickly lead to boredom. In these situations, the participant seems to become *over-distanced*. At the other extreme, a very opaque interface can strongly perturb and frustrate the interaction, thus over-distancing participants.

³⁸ According to Bolter and Grusin, *immediacy* is already detected with the advent of linear perspective, *trompe l’oeil*, the *Camera Obscura* and with photography, since the latter follows the rules of linear perspective, achieving transparency through automatic reproduction. The authors use as contemporary examples of immediacy live TV shows transmitting scenes of war, high-speed pursuits or the cockpit of an F1 car that give the feeling of almost being there. The logic of immediacy aims to give the spectator/user an experience that is “mediumless” or “interfaceless.” The classic *Graphic User Interface* was built following a design of *immediacy*. When we observe popular metaphors like a trashcan, window, file, folder, desktop or mailbox, we realize that these were concepts directly imported from our physical world so we immediately understand how to use them. Today, interactive design research has been struggling to produce even more intuitive and transparent interfaces, mixing digital worlds with physical objects that are not just restricted to trackballs, mice, joysticks or keyboards but include all kinds of objects that can exist on our physical desks, and allow us to empty the trashcan or to accomplish any other task on the virtual desktop.

3.10.2) Temporal Distance

Another important factor in interactive art environments is their response time or *temporal distance*. As some theorists have noted regarding video game play, the system's reaction to players' actions becomes more important than the quality of the graphics. In many situations, due to CPU and memory limitations, players reduce the level of graphics in order to improve the game speed and their performance in the game.

As Gouveia observes, referring to Alexander Galloway, the moment of realism in games is more related to the movement and action than to the image detail. (Gouveia, 2010, p. 63) In a similar way, this quest for real-time, speed, performativity and smooth interactions remains very important in the conception of interactive art environments. Interestingly, we can note a parallel between the evolution of *temporal distance* and *spatial distance*. Technological development has reduced both distances. First computer-based artworks presented some defaults regarding reactivity, thus augmenting the temporal distance between the participant and the environment. In such situations, if one becomes closer to the internal operations or *inoperations* of the system, one is more likely to become frustrated and over-distanced. Inversely, a reaction time free of lag, closer to real-time, allows for more engrossing experiences.

3.10.3) *Openness ratio and playfulness ratio*

While temporal and spatial distances can be roughly measured, one might struggle to measure the openness to participation of an artwork or its playfulness ratio. We should start by noting that despite the use of the term "ratio" we are not actually interested in quantifying in numbers the amount of openness or playfulness in interactive artworks. Such factors only exist as potentials that deeply depend on each participant. Nevertheless, it is still possible to say that some works are more open than others.

For example, the *Golden Calf*'s openness ratio is clearly smaller than *Messa di Voce*'s ratio. While experiencing the latter, participants have more liberty and consequently more power to influence the artwork's structure according to their actions, intentions and personal taste. In the case of *Golden Calf*, participants can explore and examine the digital calf, although they cannot change its shape, color or any other property of the digital system. In this regard, openness seems to be connected with the potential to stimulate creativity, thus we could also speak of a *creativity ratio*. But how does openness relate to aesthetic distance?

According to Umberto Eco, when an artwork becomes improbable, unpredictable and disordered, in other words more open, the information and the ambiguity of the meaning increase. (Eco, 1962, p. 185) In many cases, openness seems to increase personal engagement between participant and artwork. Interactive art installations such as *Messa di Voce*, *Body Movies* and *Re:positioning Fear* by Rafael Lozano-Hemmer maintain an intimate relationship with participants, producing a mirror effect, and working as vessels that sustain personal expression. Such encounters might easily jeopardize aesthetic distance due to the engrossing and appealing nature of the encounter.

Another situation that is often observed consists in the neglect of some aspects of the work provoked by absorbing free-play. Graham Coulter-Smith's analysis of *Body Movies* exposes this problem very clearly:

"The people who evidently read the instructions and/or responded to the audible clicks that rang out across the square in the proper Pavlovian fashion can be seen dutifully maneuvering their bodies to reveal the static photographs of people underneath. But when they have done this they appear to be at a loss with what to do next. The best responses we see on the video is people waving their shadow arms or bobbing their heads up and down in an attempt to instill some animation into the deadly stasis of the photographic image. (...) In his commentary on the work Lozano-Hemmer reveals his intention that people would be able to 'match or "embody" a portrait by walking around the square and changing the scale of their shadow' (Lozano-Hemmer 2001) but in this case the theoretical enchantment of the concept of 'embodiment' is not transmitted into practice. (...) And what is remarkable is that some of these games are highly creative. In other words the installation does work! But not the way the artist intended it." (Coulter-Smith, 2006, p. 275)

The *playfulness ratio* relates to the potential that a certain interactive environment holds to stimulate and sustain playfulness. We observe a close relationship between openness

and playfulness ratios, mainly if we refer to the sustainability/duration of the aesthetic encounter. More open and *personal*³⁹ environments tend to engage participants for a greater amount of time, not only because test and speculative phases are also normally longer but also because they normally trigger a playful behavior. Certain works by Sona Scott Snibe are good examples that apply to this claim.

However, the inverse situation is also observed – a very high *openness ratio* might introduce confusion and disorientation through the absence of clues that help us in the creation of sense, thus over-distancing participants. Finally, works with a low *openness ratio* can be equally capable of stimulating very playful encounters.

As the reader might have noticed, the different factors that affect psychological distance – spatial distance, temporal distance, openness ratio, playfulness ratio, interface transparency and interface learning – appear structurally intertwined in a network of influences. For example, a short learning curve frequently depends on the interface's transparency and temporal distance.

To close this discussion, the following schema displays the ways in which the six factors tend to influence the phenomenon of psychological distance in aesthetic experience. *a)* and *b)* refer to the different states of the phenomenon over time. During the initial period, *a)*, the participant is more distanced, but as they progressively adapt the psychological distance oscillates over time, passing through different *n* positions or states; *b)* is just one of them.

³⁹ More open interfaces that allow participants to reflect their personality.

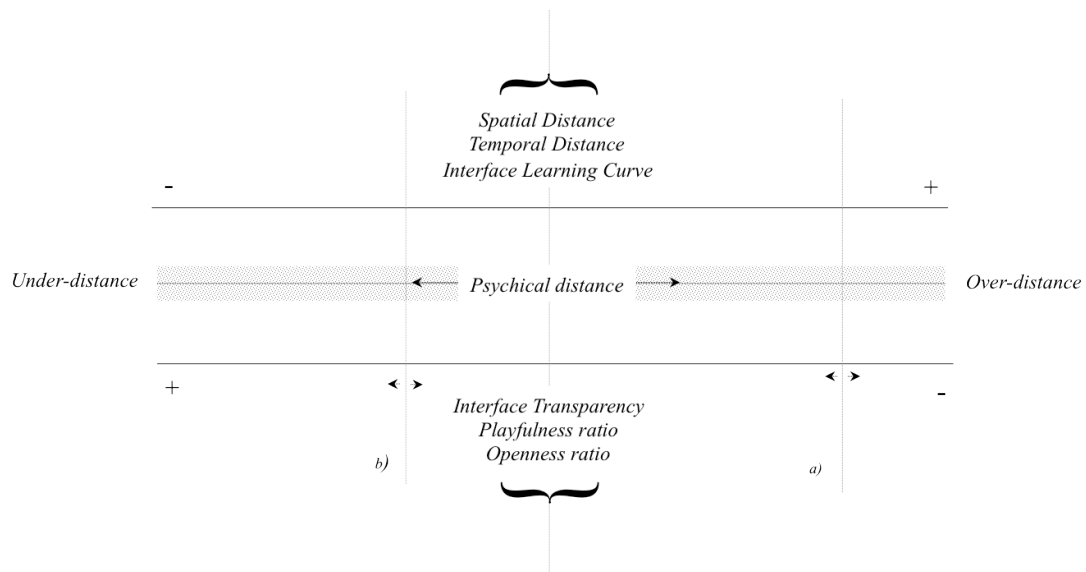


Fig. 22 – Six factors of psychical distance

At this point we should underscore that many exceptions exist to the schema above. Moreover, a schematic view of such a complex phenomenon tends to greatly reduce understanding of it and generate misunderstanding. We believe that the conceptual framing has produced an important starting point. However, psychological distance being an invisible phenomenon so ascribed to the internal world of spectators and participants, it seems inevitable to avoid them.

As Bullough rightly stresses, each individual has her own *distancing power*, and the same applies to each aesthetic proposition. (Bullough, 1912) In this regard, in order to develop this theoretical framework with more rigor and accuracy, the next logical step is the development of qualitative studies to understand the influence of distance and other dimensions of aesthetic experience in different encounters with machine-based artworks.

PART III

Qualitative Studies, *Smooth design* and *Friction design*

Chapter VIII – Cases Studies

4) Guiding questions

At the end of the last chapter we attempted to show the importance of aesthetic distance as a phenomena in art experience. Moreover, we tried to describe the structure of psychological distance by examining the literature available, but as we concluded this analysis is still very superficial and needs more attention. This dimension of aesthetic experience seems to lack the attention of theoreticians in both traditional and digital or new media art theory. We suspect that this gap might partly derive from the methodologies applied to understand the phenomenon. Most studies being developed in the field of aesthetics still rely on a speculative attitude that presents several limitations in the examination of some dimensions of aesthetic experience, particularly with interactive artworks.

One needs to recall that such propositions emphasize a process or relationship rather than the analysis of an object or the interface. The examiner who usually concentrates on the formal qualities and contents of a painting or sculpture needs to develop new methods to study procedural art. In front of most interactive art installations, such qualities and contents are not perceivable in the absence of participants and their actual action. These propositions depend on participants' actions to become "alive". As stated previously, "as an object, interactive art is nothing. If all you do is look at it, as you are used to doing with visual art, it will be a big disappointment. But as action, it is everything." (Mulder, 2011, p. 200)

As such, the examiner only has access to the formal characteristics and contents of a certain proposition when the relationship between work and participant is activated. In this regard, the classic methods applied to study object-based artworks need to be re-thought and

upgraded with new techniques, in particular qualitative methods that include interviews and observation.

The task at hand – understanding the nature and structure of psychological distance – is part of a bigger contribution that aims to describe in detail the nature of aesthetic experience in interactive art encounters. For some time this has been the task of many art theoreticians although, regarding the complexity and breadth of the subject and the diversity of interactive art propositions, we need to focus on certain specificities and dimensions of this experience.

In this regard, this text has already been directing our reader's attention to some of the main threads featured in our study, yet, we expect to learn more from the case studies so that we can develop a more detailed understanding **1) of how free-play affordances affect the overall aesthetic experience and the sense-making process; 2) to identify and describe the structure and dynamics of aesthetic distance in some interactive art environments; 3) and to identify some of the factors that affect psychological distance.**

Up to this point, several questions have been guiding our theoretical examination. Let us recapitulate some of them: 1) How can we describe an aesthetic experience when the artwork has lost its materiality and becomes inaccessible to our eyes and the object of the work is now the spectator's process of perception itself? 2) In what kind of *play* are we involved when we engage with different interactive art environments? 3) Are participants able to distance themselves from the practical and technical operations in order to analyze the experience at hand in a critical way? 4) Does the absorbing nature of play and interactive art environments' affordances leave space for critical detachment and reflection? 5) What is the nature of psychological distance? And how can we characterize it? Is it possible to measure it?

As we have said, some of these questions have prompted and will serve as guidelines for this chapter because speculative approaches have been inadequate or insufficient to answer them. Despite our interest in questions 1) and 2), we will primarily focus our analysis on questions 3), 4) and 5). Nevertheless, the question that we need to answer now is: how can we proceed to answer these questions? Or, which methodology is more appropriate to deal with these questions?

The next section attempts to answer these questions by introducing a research methodology that involves qualitative interviews and internal and external observations. The decisions made were informed by close examination of previous qualitative studies applied in the field of interactive arts and Human Computer Interaction (HCI) but also in broader fields such as clinical psychology.

4.1) Research Methodology

As they are so deeply rooted in our bodies, aesthetic experiences are extremely intimate and personal phenomena, normally inaccessible to others. One might express her joy and pleasure or comment on a certain aspect while contemplating *Garden of Earthly Delights* by Bosch, sharing this moment with someone else, but otherwise this experience tends to remain invisible to any external observer.

Yet interactive art experiences provide many observable clues to the internal states of participants. As Lev Manovich notes, “now, with interactive media, instead of looking at a painting and mentally following our own private associations to other images, memories, ideas, we are asked to click on the image on the screen in order to go to another image on the screen, and so on.” (Manovich, 1996, p. 3)

The externalization of participants' emotions and decision-making processes enables a mode of direct observation in museums and galleries that it is not possible to conduct while studying most traditional art encounters.

However, despite the increasing number of qualitative and empirical studies that aim to understand and improve aesthetic experiences, we have not found any previous investigations or experimental methods interested in developing an in-depth understanding of aesthetic distance. Most qualitative investigations in the field of digital and interactive arts are searching for ways to improve encounters and make them more engaging and immersive (*Cf.* Fels, 2000) or increase the *playfulness ratio*, for example (*Cf.* Costello, 2005).

Nevertheless, as our case studies foreground, digital aesthetics can certainly benefit from the knowledge and techniques found in other fields such as Psychology, HCI, Phenomenology or User Experience Design (UED) in order to create more understanding of certain dimensions of aesthetic experience. Yet, even if these fields use very similar methodologies, they exhibit important differences that one needs to acknowledge before defining the best method.

We are interested in observing and analyzing participants in relation to interactive artworks from an external point of view, yet, even if the information deriving from such observations is very relevant to our study, we also need to access participants' mental processes, which cannot be deduced from direct observation.

A behavioristic approach exclusively based on external observable phenomena would significantly weaken our analysis. As Eric Matthews remarks, it is deeply improbable that one could be capable of identifying some types of thought or reflection simply by analyzing movement or someone's facial expressions. The body language corresponding to the expression of someone feeling rage might also be conveying another kind of feeling. (Matthews, 2006, p. 83) Therefore, since we are mainly interested in understanding the

interpretative and meaning-making processes during the aesthetic encounter, we need to combine the information stemming from external observations with participants' qualitative interviews. Such experiences present a subjective nature and are very difficult to verify in an objective scientific way, thus one needs to trust the person recalling and transmitting her experience. (Csikszentmihalyi & Robinson, 1990, p. xiii)

Other more scientifically sound methods such as eye tracking, electroencephalography (EEG), electromyography (EMG), electrodermal activity (EDA) and positron emission tomography have recently been used to measure certain dimensions of experiences with artworks or digital games (*Cf.* Nacke; Lindley *Affective Ludology*) but these methods are highly intrusive and normally depend on complicated laboratory settings.

As we will see in the first case study, reports of experiences taking place in laboratory settings or, to be more accurate, involving pre-informed participants appear to be strongly biased, jeopardizing the analysis. As such, in order to obtain more accurate responses we should try to conduct our studies under natural conditions. In other words, participants should encounter the artwork in the museum or in the gallery without previous knowledge of our research. Then, at the end of their visit they are invited to answer our qualitative inquiry. Later on we will describe in detail the different methods used for each case study.

Due to the diversity of interaction modes and grammars, it is not simple to define a single method or technique to analyze all machine-based interactive works. Even though our methods include direct unobtrusive observations and qualitative interviews to study the different cases, they follow a specific protocol that presents small but important differences. As such, before starting the fieldwork we should study the different artworks and inspect their formal characteristics in order to prepare and structure the appropriate methodology for each one of them. Besides that, we also need to take into account the goals of the

investigation at hand. As such, the methodology needs to be defined by both constraints, the goals of research and the formal aspects of the artwork.

4.2) For a Phenomenological Art, a Phenomenological Approach

As we concluded during Part I, some interactive art environments are on the one hand very dependent on bodily stimulation and activation, therefore triggering very different pre-reflective and pre-conceptual experiences that acquire meaning in the overall aesthetic experience. On the other hand, they afford symbolic manipulation by requiring the participant to manipulate and interpret different signs, symbols, icons and textual layers.

Through such experiences we become aware of certain perceptual functions, rediscovering our transparent bodily routines, and the phenomenological body emerges, reminding us that we exist embodied in the world. These propositions move towards Husserl's plea against the scientific *natural attitude*⁴⁰, focusing our attention on our own subjective consciousness of lived experiences, "returning to the things as they are" and forgetting all the scientific theories about them. (Matthews, 2006, p. 15)

In order to evaluate and interpret such events, we need to structure a phenomenological methodology that is not empirical and concerned with providing causal explanations for the objective world, but rather is able to provide subjective descriptions about what goes on in our consciousness. Not the consciousness separated from the world but, to use Heidegger's terminology, the analysis of *Dasein*, or the analysis of things as they look and appear to us when we interact with them. (Matthews, 2006, p. 22)

Taking into account Merleau-Ponty, Matthews observes that our verbal, reflective and explicit consciousness is rooted in the implicit, pre-reflective and non-verbal consciousness.

⁴⁰ Husserl refers to the natural attitude regarding the way we exist ordinarily in our everyday lives. According to this view, things we are aware of, have an objective existence. Science and common sense are part of this attitude. (Matthews, 2006, p. 14)

As such, “a phenomenology of consciousness is not only a linguist analysis in a logical positivist sense but the attempt to bring the whole *being-in-the-world* in a certain situation, to our reflective consciousness.” (Matthews, 2006, p. 31) This is precisely what our methodology should enable: access to descriptions of subjective felt and lived experiences during interactive art encounters. Rather than trying to find the causal explanations at the origin of each perceptual experience or event (e.g. the neurological explanation of how we perceive the color of a certain object) as *experimental aesthetics*⁴¹ does, our aim is to understand and make sense of participants’ reports but also to analyze their bodily activity – movements, gestures, facial expressions etc.

However, as Mathews notes, to attain this comprehension we need to be capable of seeing the world from the participant’s point of view; we need to have certain things in common with that person. For example, if someone reports a feeling of fear, to *attain the first meaning*, we need to understand the sense of the word “fear”, then, to attain a second meaning, we also need to be capable of living this sensation. (Matthews, 2006, p. 95)

This pre-reflective dimension is generally hard to translate into words since we do not have enough concepts to describe in detail the complexity of most perceptual phenomena or, in many situations, we are not even conscious of certain dimensions of the experiences we go through. Yet external observations will also help us to build understanding of such experiences. Merleau-Ponty tells us that we cannot separate bodily movements from consciousness as objectivism does. (Merleau-Ponty, 1965, p. 10) As such, when someone moves her body, subjectivity is expressed by the different movements. In other words, subjectivity is embodied. (Matthews, 2006, p. 97) Therefore, external actions can be

⁴¹ Csikszentmihalyi and Robinson (1990) note that the field of experimental aesthetics (Berlyne, 1966 and Child 1968-1969) was mainly dedicated to studying the processes and mechanics of perceptual aspects of aesthetic experience, thus this approach was highly reductive. The authors observe that such experiences are highly complex and, as such, an interesting study should be positioned between speculative philosophy and experimental aesthetics. (Csikszentmihalyi and Robinson, 1990, p. 19)

interpreted as any other language since they carry meaning in the same way that participants' words do.

Finally, regarding the need to prepare a phenomenological analysis to understand in detail participants' lived and felt experiences, we came across a methodology that has been used in different fields of research in order to study subjective experiences. As such, the next section introduces and describes this qualitative approach, named *Interpretative Phenomenological Analysis*, foregrounding its potential to deal with the task at hand.

4.3) Interpretative Phenomenological Analysis (IPA)

As a qualitative approach that aims to describe and interpret the meaning-making of the personal and social world of participants, IPA stems from different fields of research: psychology (Smith, 1996), phenomenology (Giorgi, 1995), hermeneutics and other theories of interpretation (Palmer, 1969) but also symbolic interactionism (Eatough & Smith, 2008). (Shinebourne, 2011, p. 44) This method has been applied to different domains of research such as social and clinical psychology and more recently it has also been used in the fields of music and dance studies.

The phenomenological dimension of IPA is concerned with the detailed description of experiences that participants have in the world. In this regard, it recognizes that every experience or encounter with a certain object is always influenced by participants' previous lived experiences and also by their cultural and social contexts. As Shinebourne, following Jonathan Smith observes, the term *lived experience* is often used "to encompass the embodied, socio-culturally and historically situated person who inhabits an intentionally interpreted and meaningfully lived world" (Shinebourne, 2011, p. 44; Eatough & Smith, 2008, p. 181)

The research starts by providing descriptions about a certain experience, normally first-person reports using everyday language. Linda Finlay observes that even if all phenomenology is descriptive, some researchers distinguish between descriptive phenomenology (Husserl-inspired) and interpretative or hermeneutic phenomenology (Heidegger, Gadamer and Ricoeur). (Finlay, 2009, p. 10-11) Yet, as Smith and Mike Osborn observe, the IPA approach requires the researcher to be active and to have an interpretative attitude in order to become more acquainted with participants' personal world. In the authors' own words, "a two-stage interpretation process, or a double hermeneutic, is involved. Participants are trying to make sense of their world; the researcher is trying to make sense of the participants trying to make sense of their world." (Smith and Osborn, 2008, p. 53)

Indeed, as the authors note, the researcher's subjectivity is on the one hand allowing access to their personal world and on the other complicating it. The researcher needs to deal with a complex chain that includes participants' cognitive, linguistic, affective and physical being. Moreover, in many situations participants have difficulties expressing their thoughts and feelings, thus the researcher needs to interpret both mental and emotional states. (Smith and Osborn, 2008, p. 54)

Curiously, the IPA approach foregrounds several similarities with the cognitive paradigm so predominant in contemporary psychology. However, as the authors argue, even if both grounds share the same interest in analyzing how participants make sense of their experiences, they diverge in the ways they study this information. Mainstream psychology is quantitative whereas IPA is highly qualitative. (Smith and Osborn, 2008, p. 54) IPA also combines emphatic hermeneutics with questioning or critic hermeneutics in order to reach a more complete understanding of participants' experiences. (Shinebourne, p. 48; Smith, 2004)

Moreover, as Smith and Osborn observe, IPA is particularly useful when the research involves complexity, process or novelty. (Smith and Osborn, 2008, p. 55) As such, they

provide different guidelines in order to define the research sampling, to collect data, to structure the interviews (questions, schedule, interviewing mode, etc.) and to record and analyze data. However, as they note, these can be changed and recombined according to the research subject at hand. As Garza also suggests, “the flexibility of phenomenological research and the adaptability of its methods to ever widening arcs of inquiry is one of its greatest strengths.” (Garza, 2007, p. 338)

Before moving on to our first case study, we will briefly focus on some of the guidelines that are essential to structure our study. For more information regarding IPA specificities the reader is invited to consult Smith and Osborn, 2008.

4.3.1) Sample

Regarding the sample size, the authors recommend the choice of small samples because each in-depth analysis is long and besides that, rather than searching for general claims such studies are normally looking to understand in depth a particular group of participants or a specific issue. (Smith and Osborn, 2008, p. 55) In this sense, IPA has an idiographic⁴² mode of inquiry whereas psychology normally uses a nomothetic⁴³ approach. (Smith and Osborn, 2008, p. 56) However, the sample size can vary. The risk of using large samples, as the authors rightly note, is to become overwhelmed by the amount of qualitative data, preventing the researcher from analyzing in sufficient depth. (Smith and Osborn, 2008, p. 57)

⁴² An idiographic study is a detailed analysis of small groups thus, one can state specific things about individuals.

⁴³ This type of study is applied to big groups or populations, only allowing for probabilistic claims about individuals.

4.3.2) Interviews and questions

Another important aspect is the way in which information is collected from participants. The authors regard interviews as the best method, highlighting two different types: *semi-structured* and *structured* interviews.

Structured interviews are better known and most used in traditional psychological analysis. They assure more control, speed and reliability, yet they do not leave as much space for unpredictability and novelty as semi-structured interviews do. Such interviews are more open, leaving more room for dialogue between interviewer and participant, thus creating more empathy. The interviewer can modify questions and create new ones according to the answers obtained. He can also change their order and follow the participant's interests and concerns. On the other hand, they involve more time to carry out and to analyze, due to the amount of data they produce. (Smith and Osborn, 2008, pp. 57-58)

Taking this into account, semi-structured interviews seem to fit our current mission better. Even if we are interested in verifying certain concrete aspects of the experience with interactive art environments, we are very interested by the exception, the novelty and detail of lived experiences with such environments.

Moreover, besides the interviews' structure, Smith and Osborn also provide some guidelines to define the questions used. They note that participants should be encouraged to speak about their experiences, with minimal prompting and interruption from the interviewer.

Additionally, initial questions should be broad and general in order to let the participant speak about the experience without being influenced by specific questions and prompts given by the interviewer. Yet, if the participant is not able to respond or gives a very short answer, other questions that are more specific can be used in order to move to a deeper level. This is related to a technique called *funneling*. As the authors point out, if the interview is conducted in the reverse direction, from specific to broad questions, the

probability of having more biased answers is greatly increased. (Smith and Osborn, 2008, p. 62)

Finally, as the authors note regarding the interview process, the interviewer should have a space for maneuver to decide whether a certain subject introduced by the participant that was not previously predicted in the interview plan deserves to be followed up or not. Of course this is normally time-consuming, but, as the authors stress, these “novel avenues are often the most valuable, precisely because they come unprompted from respondents and, therefore, are likely to be of especial importance for them.” (Smith and Osborn, 2008, p. 64) Moreover, other avenues that are normally inaccessible when using interviews or collecting participants’ feedback seem to emerge from external observations.

4.3.3) External Observation

In many situations it is hard or even impossible to express verbally what one is experiencing or has just experienced, particularly in art experiences that so strongly engage the irrational. As Jill Coffin notes, “art engages something beyond description, beyond vocabulary, beyond language; as such, there will always be a sense in which it cannot be validated.” (Coffin, 2008, p. 3)

Nonetheless, there is a lot one can learn about aesthetic experiences by observing participants interacting with a certain artwork. As previous evaluation studies have recognized, in many cases, observations foreground substantial differences between observers’ reports and participants’ reports.

In their qualitative analysis Ann Morison et al. observe that “when asked, people present idealized accounts of what they do, missing details of what actually happens. The detailed description of activity, which comes from the external perspective of an observer

trying to understand the action as it unfolds, is one of the key strengths of ethnographic study.” (Morrison *et al.*, 2008, p. 6)

Observation can help us grasp some pre-reflective and pre-verbal dimensions of the experience. By analyzing movements, gestures and body language the observer is informed about the different phases of interaction but also about the apparent emotional state of participants. For example, one can recognize the exploratory phase of interactive aesthetic encounters due to the persistence of shy, uncertain and inexact body movements and gestures. Of course, this can also be acknowledged by participants’ verbal feedback, but observation guarantees more details, for example on the duration of this phase during the overall experience. As Morrison *et al.* note:

“Recognition of the movements required in the early stages of “figuring out” this work, then, is easily discarded. It is as though the moment participants “get the work” (figure out mentally and physically how it works) then that earlier time they spent physically gesturing in the space prior to understanding loses all meaning. Thus they retain no active memory of this experimental period.” (Morrison *et al.*, 2008, p. 6)

Moreover, observation follows different protocols according to the object of study. As previously mentioned, we expect to analyze the different artworks in *natural conditions*. This means that observation should be unobtrusive. In other words, the participant should not be aware of the observer’s presence. Additionally, where possible, we should try to record the different encounters in order to have videos available for consultation later on.

Yet more sophisticated video techniques have recently been employed in these kinds of studies, such as video cued-recall method. (*Cf.* Costello *et al.*, 2005, p. 51) This allows the researcher to record participants’ interactions and, afterwards, confront them with their own image. During this process, the video is replayed and participants are asked to try to recall what they were thinking about at a specific moment.

The use of this technique involves a considerable amount of logistics that are difficult to implement when running the analysis under naturalistic conditions. Likewise, this mode presents some weak points. For example, since participants are unaware of the study and they

are only invited to contribute with their feedback before they leave the exhibition, most of them have time constraints; applying the video cue-recall method would be very time-consuming and thus inappropriate in such situations. Furthermore, the observer needs to be careful and discreet in order to avoid any interruption during the aesthetic encounters.

As we have observed during our analysis and *repérage* period in galleries and museums, participants are often affected by the presence of other visitors. In many situations they do not feel comfortable continuing to explore the environment, adopting a more passive attitude – although when visitors are accompanied or in a group, they generally feel freer to explore and play with the apparatus.

4.4) Case Study n° 1 – *The Legible City*

4.4.1) *The Legible City*: the arcade meets the gallery

The end of the 1980s was a very prolific time for creation in the field of digital and virtual art. The search for real-time, fluid and realistic images was on the agenda of many multidisciplinary teams of artists, designers and engineers. By using HMD (Head Mounted Displays), CAVE⁴⁴ environments or cameras and sensors that captured participants' movements, artists created immersive and playful experiences, enveloping the participant's sensorial and intellectual faculties. (Grau, 2003)

The quest for an *interfaceless* or “free of wires” experience seem to have oriented digital and new media artists from the early works developed by Myron Krueger during the 1970s to our “Kinect days”. *The Legible City* subscribes to the search for immersive and ludic experience, although it did not seem to pursue an interfaceless experience. On the

⁴⁴ The CAVE (Cave Automatic Virtual Environment) is a cube which has video projected onto all of its surfaces, creating an interactive immersive environment.

contrary, one of the striking features of this installation is precisely the interface and the modality of interaction imagined by Jeffrey Shaw.

After entering the dark space of the installation we find an ordinary bicycle, standing in front of a large video projection screen displaying big 3D blocks in pale colors. For a while we have the sensation of being inside an arcade room and we are almost automatically intrigued and attracted to explore the relationship between the screen and the bicycle. After sitting on the bike we start to pedal and we immediately grasp the sense of our action.



Fig. 23 –*The Legible City*, by Jeffrey Shaw

By pedalling and turning the handlebar we can move through this digital world. Very soon, we realize that the 3D blocks are actually different linguistic signs, 3D letters that are replacing the buildings in the street. After a while, the bike vanishes from our consciousness, becoming transparent, thus the images on the screen become the center of our attention.

Moreover, our curiosity takes over and we concentrate on trying to find a “challenge”, a certain purpose or a second level of meaning for our actions. By pushing the yellow button

located on the handlebar we can choose between three different maps corresponding to the cities of Amsterdam, Karlsruhe and New York (Manhattan).

Traveling these letter-shaped streets, we become aware that these letters compose words, and eventually we realize that we can read different sentences if we follow a certain path. We meander around, crashing into the letters in anarchic *free-play* mode, and search for the limits of this wide digital space; we try to find a ghost that the little “Pacman” displayed on the small monitor could eat, but there is nothing in these empty cities apart from the memories of those streets inscribed in the form of text.

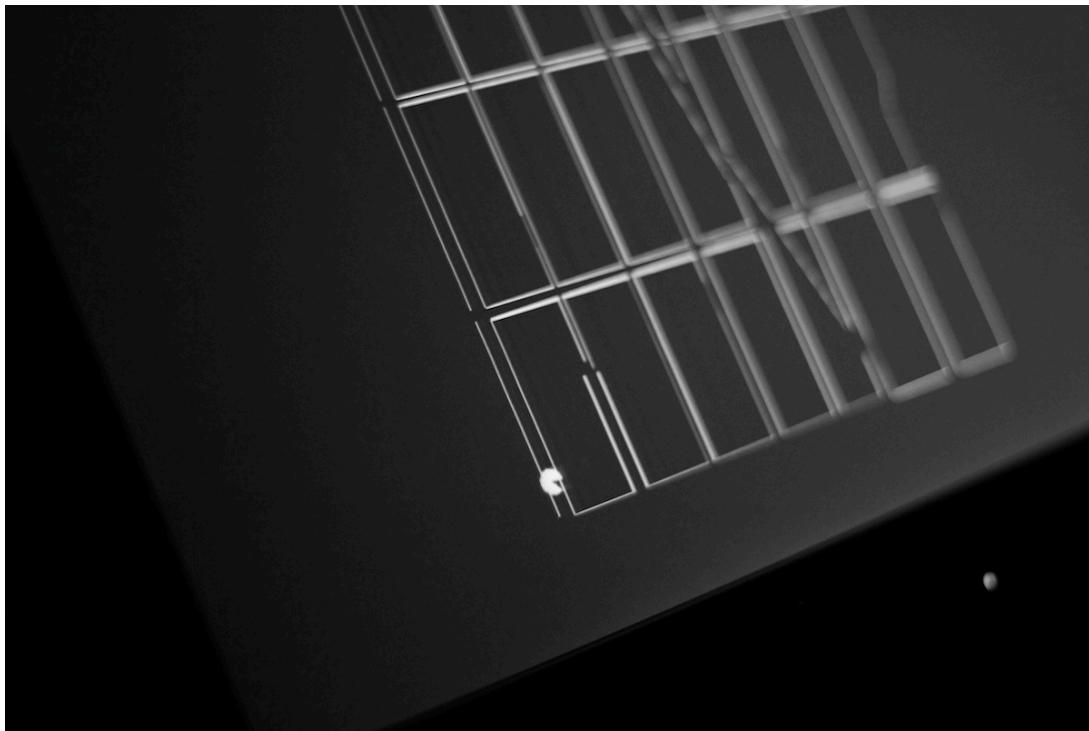


Fig. 24 – Detail of the TFT monitor displaying the map of Manhattan

According to Shaw, in the first version of *The Legible City* (Manhattan Version, 1989) whose virtual size is approximately six square kilometers, one can follow eight different fictional storylines written by Dirk Groeneveld that include monologues by ex-Mayor Koch, Frank Lloyd Wright, Donald Trump, a tour guide, a confidence trickster, an

ambassador and a taxi-driver. (Shaw, n.a., Online)⁴⁵ In order to follow a specific storyline, participants follow the letters with the same color.

Later, Shaw upgraded the installation by adding the maps of Amsterdam (1990) and Karlsruhe (1991). In these maps the texts were taken from archives and are related to events which took place in those streets. (*Ibid.*) Additionally, the colors of the letters also change from map to map. In the first version the colors are uniform, yet in the map of Amsterdam the color of the letters respects the original color of the building. (*Ibid.*)

The work has also changed its interaction mode. In the first iteration of *The Legible City*, the relationship between participant and environment was established through the use of a joystick. The bicycle was introduced later on, in the second iteration of the work.

On the technical level, the bicycle handlebar and pedals are connected to sensors that inform the digital environment, defining the current position, direction and speed of displacement inside the 3D world. The computer is then able to render the correct perspective and traveling speed in real time.

“Additionally, it may be fruitful to consider the pathways that the rider takes in the Legible City as a very physical representation of—or metaphor for—textual analysis, in that the reader moves through the text, makes choices about it, and actually shapes and creates the “meaning” of the text as a result of her action. Quite simply stated, the text of the “Legible City” is created by the actions and decisions of the embodied reader moving through it.” (Swanstrom, 2006, Online)

As Lisa Swanstrom observes, *The Legible City* allows for an interesting mode of reading that involves full body interaction. The text appears to the reader totally dependent on her bodily movements and actions. Following the logic of hypertext, this animated “3D book” allows the *rider-reader* to meander around, opening a discontinuous reading mode that unfolds spontaneous juxtapositions and conjunctions of meaning. (Shaw, n.a., 2013) Each encounter tends to be unique and different from the previous. The reader might try to follow a certain color sequence or sentence or simply ride around, connecting different words, and

⁴⁵ <http://v2.nl/archive/works/the-legible-city> (Accessed September 2013).

thus building her own text. In this regard, this reading apparatus contains *n* potential texts and stories waiting to be discovered.

After this brief description of *The Legible City* we need to concentrate on the different aspects and dimensions of the encounter that we aim to understand in detail. After they have been circumscribed, we will be able to describe the methodology that has been used to explore these dimensions.

The author of *Legible City* notes that “traveling through these cities of words is consequently a journey of reading”, thus, as it is a piece that aims to tell stories to its participants, we are interested to know how they make sense of this encounter. (*Ibid.*)

How do they experience it from a sensorial and intellectual perspective? And how do technical operability and bodily activation influence the construction of meaning? What kind of play emerges during encounters with the work? Can participants make sense of the text, by distancing themselves from the practical ends and merry free-play required and conveyed by the experience? In other words, can reflection stem from these encounters? What kind?

Answering these questions involves the study of participants’ felt and lived experience during the aesthetic encounter. Rather than commenting and reflecting on the artistic qualities of the work, the study will concentrate on the questions above by applying an interpretative phenomenological methodology.

On the one hand, our approach is concerned with the phenomenon characteristics on a sensorial and bodily level, which are more related to the pre-reflective and pre-verbal dimensions of experience. On the other hand we need to examine the reflective and interpretative dimensions of experience.

As we saw in Chapter III, both dimensions are deeply intertwined and we need to understand how they affect each other while the experience is taking place and afterwards. For example, we will try to examine whether free-play and pre-reflective dimensions override the reflective dimensions of the experience or whether on the contrary both appear dynamically intertwined, allowing each other to emerge over time.

In order to study both dimensions and their relationship our methodology is twofold, relying on both external observations and qualitative interviews. In the first phase we will summarize and describe the patterns stemming from external observations. Additionally, in certain cases, this data will be cross-referenced with participants' statements in order to confirm and validate certain aspects of the experience.

The next section describes in detail the methodology that was used to perform our study, but it exclusively refers to the analysis of *The Legible City*.

4.4.2) Methodology

4.4.2.1) Context of exhibition and Protocol

This study was performed during the exhibition *Digital Art Works: The Challenges of Conservation* that took place in 2012 at Ceaac, an art center in Strasbourg, France. The exhibition gathered some well-known, pioneering and recent digital media artworks with the purpose of reflecting on the practices of digital conservation. Different installations were distributed and organized across two floors under low lighting conditions. As we can see on the schema below, on the first floor, the installations and different objects and interfaces were placed side by side. *The Legible City* was installed immediately after the main access (n°3 on the schema) in a small open area without anywhere that allowed us to perform unobtrusive observations.

Our qualitative study took place over three afternoons and 17 visitors contributed to it by answering our semi-structured interviews. When visitors were about to leave the exhibition space, they were informed about our study and asked to answer the questions of the interview.

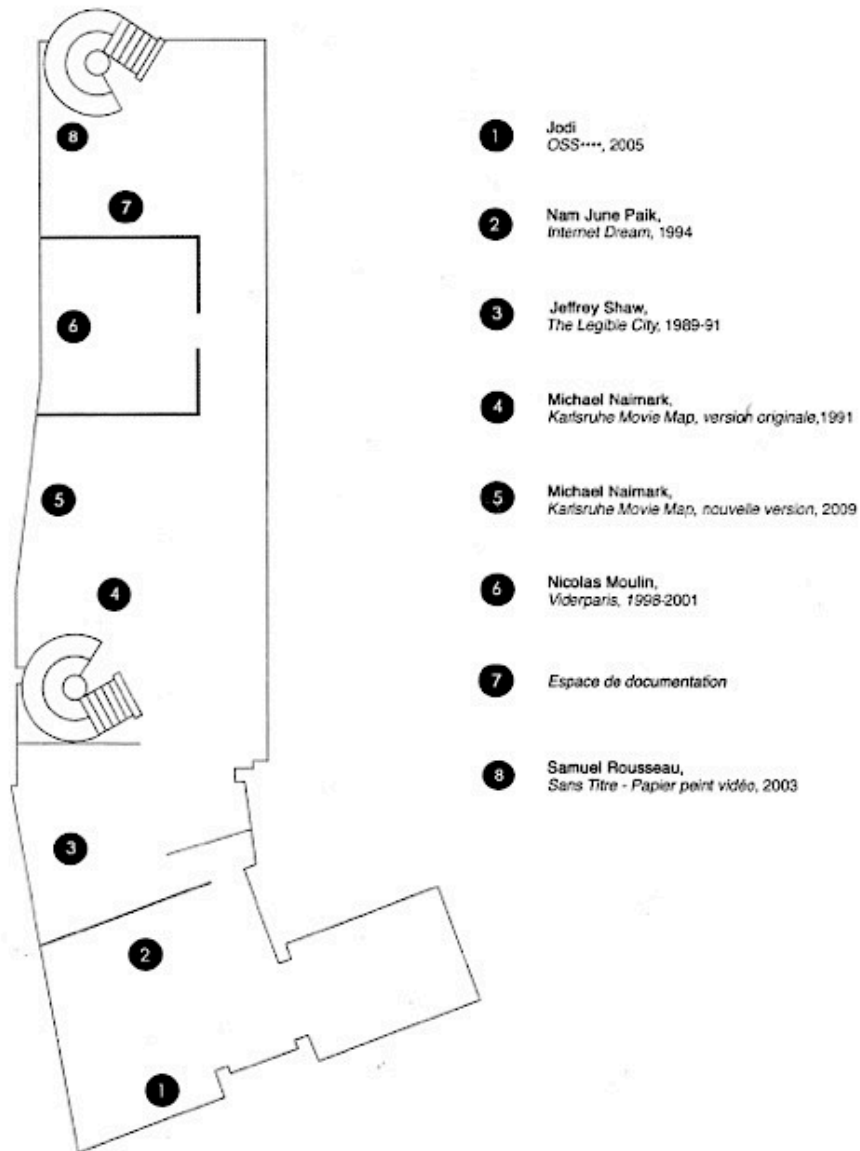


Fig. 25 – Schematic view of the exhibition space

4.4.2.2) Sample

Most psychological qualitative studies normally select a sample with certain characteristics, but our sample was not previously selected because we conducted our study under natural conditions. We expect this sample to capture the diversity of visitors who normally go to exhibitions. Rather than having a sample consisting of pre-selected profiles, for example, experts in art or in technology, we opted for a sample that includes visitors from all kinds of backgrounds and with different types of relationships to art.

The sample was formed randomly by some of the visitors who experienced *The Legible City* and agreed to participate in our study. It includes 17 participants, 8 women and 9 men, aged between 18 and 65 years old. They have heterogeneous backgrounds and very different relationships with the art world. It should be noted here that even though their backgrounds are heterogeneous, most participants have a university qualification and many of them have studied art or related subjects such as design or music.

Additionally, the sample is divided into two parts because 11 visitors were not aware of the study before experiencing the installation while the other 6 had been previously informed and asked to participate. As we will confirm during the data analysis, this can have a determining effect on the way artworks are experienced and consequently on the participants' reports of that experience.

4.4.2.3) Collecting Data – Observation

As the description above shows, observation was not facilitated by the arrangement of the installation. Initially, before arriving on-site, we had planned to use an unobtrusive observation method that included the installation of a small camera to record participants' performances while interacting with the apparatus. However, our plan could not go ahead because we did not have authorization to install the camera. As such, we started our study by

observing the participants directly, by discreetly moving around the open space (between point 3 and point 4). Yet, as we will discuss later on during the data analysis, we had to change our method because most of the encounters seemed to be affected and jeopardized by the presence of the observer. As such, we only observed participants during the first day of our study.

4.4.2.4) Semi-structured interviews

We created a unique interview for all participants and we adopted the logic of semi-structured interviews that allows interviewers to have some flexibility while exploring the personal world of each participant. The interview presents a basic structure in which essential questions were defined in advance. These questions stem directly from the fundamental questions that drive our study; but many of the questions posed during interviews were totally improvised, and emerged according to participants' reports.

The interview starts by collecting data relating to the participants' background: 1) age; 2) activity/job; 3) studies; and 4) previous knowledge regarding the exhibition. Before answering these questions, participants were always informed about the anonymous status and confidentiality of their reports.

After the first phase, the inquiry focuses on participants' encounters, presenting very broad questions that constitute the interview's structure (e.g. What did you experience when you encountered *The Legible City*?). In many cases, the answer was equally broad and very simplistic, thus, when participants could not continue describing their experience, we introduced other questions, improvising according to the context or using our pre-defined questions. We used the already mentioned *funneling* technique, which means that we moved from very broad to more specific and precise questions, which allowed us to smoothly guide the reports towards the focus of interest of our study.

As previously mentioned, the questions used in the interviews were formulated in order to answer the main questions that guide our study and the questions specifically addressing the understanding of the experience of *The Legible City*.

Despite our interest in understanding the overall experience of the encounter, we should make clear that this is a very complex and time-consuming task. Mapping and characterizing in detail all the aspects of such aesthetic experiences is beyond the scope of our study. As said, we are interested specifically in understanding in more detail the phenomenon of psychical or aesthetic distance. Nevertheless, in order to do so, we need to examine different dimensions of the experience: sensorial, emotional, social and intellectual. The point here is not so much to grasp all these dimensions and processes in depth as to analyze how they appear dynamically intertwined over time and affect the emergence or disappearance of distance. As such, the first group of specific questions relates to the structure of the interactive encounter.

During our previous observations in the *repérage* phase, we remarked at least three distinct phases that appear intertwined during interactive encounters. The first consists in a practical speculative phase in which, spectators become participants and start to explore the environment. This phase is obviously intertwined with a second one in which participants become acquainted with the environment's interaction grammar and learn to operate it by doing and by trial and error.

During these initial phases, participants' movements and gestures are normally timid and lack precision. After this, during the third phase, the interface or the practical ends of the experience tend to become transparent, thus participants can finally control the environment and potentially reflect on their experience from a symbolic perspective.

This structure has also been recognized by other theoreticians (*Cf.* Hudelot, 2008) yet one cannot really tell if the sequence is the same for all encounters.

The first group, named *encounter's structure*, is thus concerned with: 1) mapping participants' concentration focus before performing any action to activate or to operate the apparatus and while engaging with the apparatus; 2) first and second actions – this includes the descriptions of movements, gestures and any other bodily actions as felt from the inside and also the intentions and decisions at the origin of these actions; 3) decision to interrupt or stop the experience – what motivates someone to end the encounter, or what does not motivate someone to continue the experience; 4) internal perception of time – the approximate length of the encounter as perceived by the participant.

When the first group is completed, we will normally be able to build an image of the interactive encounter structure for a certain participant. We become informed about what someone did and why. However, we need to have access to thoughts and mental representations provoked by the actions and not only to those that support them or make them possible. In other words, we need to distinguish between command thoughts subjacent to our actions and movements and mental representations that result from our interactions with the environment and with our previous knowledge. For example, memories and other kinds of thoughts might emerge when one pedals and reads the text “inside” the digital city of Amsterdam.

We are interested to know what kinds of thoughts emerge from these experiences and, additionally, how participants live and feel the encounter from a sensorial and bodily perspective. From a personal perspective, while experiencing *The Legible City*, we became aware that a very important dimension of aesthetic experience stems from the physical pleasure that one feels while manipulating and pedalling around.

Then, as we will be able to verify during the analysis, bodily sensations change from person to person. We found unexpected reactions to the apparatus that jeopardize and put at risk the entire aesthetic experience.

Finally, the third group aims to find out if participants were able to create a meaningful relationship with the apparatus and, more specifically, if they were able to read the text and make sense of it.

As we observed previously, in most cases the sense of the artwork emerges not only from the textual or visual layer but also from the actions, gestures and movements applied to manipulate signs. Thus meaning is encoded in this close coupling. With this in mind, we also aim to understand if participants found any meaningful relationship between their actions and the signs and symbols they manipulate. The relationship between the actions we perform to pedal and the movement of the 3D world in the video screen seems to be obvious for every participant, but are there any symbolic connections between pedalling and reading? Or, between the textual contents and the bicycle ride inside the digital cities? Is there a sense or implicit reason to discover the text in this way or is *The Legible City* just another eccentric interface to navigate digital space?

Before moving on to the data analysis, we would like to detail some additional aspects regarding the interviewing process. As Smith and Osborn note, semi-structured interviews normally need a considerable amount of time (about one hour) to be completed. (Smith and Osborn, 2008, p. 63) Yet, during our study, interviews rarely took more than 25 minutes.

As we observed previously, in natural conditions there is a clear problem relating to the availability of participants. Even though most visitors agreed to participate in our study, most of them did not have a lot of free time and this clearly affected the interviewing process. Aware of this limitation, we tried to focus participants on the questions, preventing the conversation from moving too far away from the subject of interest.

Moreover, to gain some time and depth in data collection we chose to ask for participants' permission to record the interviews.

4.4.3) How to analyze and organize data

IPA interviews and observations normally yield a vast amount of data that is difficult and time-consuming to analyze, particularly when we have a large sample as is the case here. For the present study we carried out a total of five observations, and 17 interviews. The interviews recorded are smaller than the average IPA interviews regarding the method used but there is still a lot of information encoded in each transcript that needs to be deciphered. In order to make sense of personal lived and felt experiences, one needs to understand the sense of each sentence reported by participants. These texts are full of incomplete sentences, hesitations and other expressions that are also meaningful even if they do not immediately provide us with clear information about the experience. As Smith and Osborn observe, this kind of analysis involves a close interpretative relationship with the text. (Smith and Osborn, 2008, p. 66) The interpreter has a subjective relationship with the text although, one might ask, what are the limits of this interpretation? Or, in other words, doesn't the interpreter's subjectivity possibly contaminate and jeopardize the analysis of the phenomenon?

For Linda Finlay, researchers' subjectivity is fundamental to phenomenological research; she claims, "it is precisely the realization of the intersubjective interconnectedness between researcher and researched that characterizes phenomenology." (Finlay, 2009, p. 11) The author then quotes Giorgi, who recognizes objectivity as an achievement of subjectivity:

"(...) nothing can be accomplished without subjectivity, so its elimination is not the solution. Rather how the subject is present is what matters, and objectivity itself is an achievement of subjectivity" (Finlay, 2009, p. 12)

However, as Finlay notes, while some researchers try to bracket their previous lived experiences and knowledge for the sake of a neutral and fresh understanding of the phenomenon, others reject the idea that one can bracket this background experience. As such, relating to the latter, Finlay avers that interpreters need to bring "critical self-awareness of

their own subjectivity, vested interests, predilections and assumptions and to be conscious of how these might impact on the research process and findings” (Finlay, 2009, p. 17)

The methodology applied during the interviewing process and data analysis relates to this concern evoked by Finlay, involving researcher’s self-reflexivity, by “being open to the other while recognizing biases”. (Finlay, 2009, p. 12; *Cf.* also Gadamer, 1975) Yet, as Finlay notes, such a process contains some dangers such as the displacement of attention from the researched to the researcher’s experience. (Finlay, 2009, p. 13) As such, despite the focus on our previous knowledge regarding the experience, we avoided focusing attention on our internal states, emotions or feelings.

Regarding the analysis of the transcripts, Smith and Osborn, recommend several readings and the annotation of interesting or significant passages of the text. They aver that, each reading contains a potential for new insights and the notes allow the researcher to grasp some “similarities, differences, echoes, amplifications and contradictions” in the report. (Smith and Osborn, 2008, p. 67) As such, patterns or themes can be found through this process and later be connected with each other in order to facilitate our analysis. In our study, the four different groups that structure interviews (1 – main structure of the encounters; 2 – physical / sensorial experience; 3 – memories / intellectual experience; 4 – interpretative process / semiosis) facilitate the organization of information, yet the textual content of some groups often refers to other groups, so we still need to pay attention in order to track and cross-reference this information. With this in mind, we use the annotation technique suggested by Smith and Osborn that allows us to track common information within the same interview but also between interviews.

We aim to detect the common points and main patterns found in participants’ encounters but also the particularities specific to each encounter. Thus the first phase of our analysis includes reading, interpretation and transcript annotation; the second phase includes

information cross-referencing and theme- or pattern-finding; then, during the third phase, based on the information from the second phase, we attempt to construct a general description of the structure of the encounter but also to describe bodily, sensorial, intellectual and interpretative experiences. Finally, in the fourth phase, we expect to analyze the descriptions from the previous phase and answer the questions that were previously presented during the first section of the case study.

The first two phases consist of background work that will feed the third and fourth phases. To avoid the risk of overwhelming the reader with the vast amount of transcript data that we collected and processed, we will often quote participants and use interview excerpts to support a certain idea, but we will not transcribe the interviews entirely. Finally, in order to facilitate the process of quotation, and maintain participants' anonymity, we will attribute pseudonyms to each person interviewed.

4.4.4) Data Analysis: The structure of the encounter

Experiences are always lived and felt from a personal perspective, presenting a strong subjective character that strongly depends on previous lived experiences, social background and the context of reception. With this in mind, one might ask: is it possible to describe the structure of an aesthetic experience, given that each experience is personal and thus unique?

While studying *The Legible City* we became aware that it is possible to trace and describe a general overview that includes the prominent phases of the encounter with this interactive environment. Observations and participants' reports foreground some patterns that facilitate this process. Indeed, all the experiences exhibit particularities that make each encounter unique, validating the pragmatist view which recognizes the importance of previous experiences in the construction of new experiences. From all the data available we can distinguish and validate four distinct moments that appear in most of the encounters

analyzed. Three of these phases were previously detected during the *repérage* process, but the information coming from participants' reports supports the descriptions and confirms the existence of these phases, shedding some light on their dynamic relationship and revealing the existence of one final phase of the encounter.

The four different phases that structure most encounters are: 1) Exploratory / Speculative phase n°1; 2) Physical engagement – Exploratory / Speculative phase n° 2; 3) Controlled exploratory / playful phase and 4) *Décrochage*. During the following sections, we will describe in detail each one of these phases using the data collected. The interview reports regarding the *interaction flow* description allow us to have an immediate perception of the different phases that characterize the encounter. Describing these phases in detail is important not only to validate the proposed structure but also to better understand its dynamics and to support one of our main goals – understanding the phenomenon of aesthetic distance in *Legible City* and in interactive art encounters.

4.4.4.1) *Exploratory / Speculative phase n°1*

The encounter starts when visitors establish visual contact with the environment, in this case with the bicycle and the projection screen. The exploratory play begins precisely there, at the moment in which visitors start to speculate and ask themselves about what is happening there or what is supposed to happen. Despite visitors' movements around the installation space, this play normally remains more mental than physical. During this brief phase, the observations made show us that participants normally stop for a while in front of the apparatus – the bicycle and the screen – in an attempt to grasp the ensemble and to understand the relationship between the two components. The reports confirm these observations. Most participants said that before any interaction with the work they were first focusing on the screen, because the light and the 3D shapes immediately captured their

attention. They only spotted the stationary bicycle afterwards. However, some participants such as Wilfred instantly concentrated on the bike and felt surprised to see it standing there, immediately suspecting the relationship between screen and bike. Juliette for example said that she asked herself: “Does the bike work like a “real” one?” (Juliette, 2012)

Moreover, during this first phase we observed that the duration of mental speculation, or the moment in which the visitor is still a “passive” spectator, varies from person to person and also depends on whether the visitor is alone or has company. Some visitors moved almost automatically towards the bicycle in order to test the apparatus while others stayed longer in a state of contemplation that is more commonly observed in traditional arts. Two visitors asked us if the bicycle was supposed to be used but also if there was any relationship between it and the screen. The visitors who were aware of our study are part of the first group since they immediately began testing the bicycle, thus moving very quickly from spectator to participant. With more or less hesitation, most visitors became physically engaged with the apparatus. However, some stared momentarily at the apparatus and then left the space without trying it.

Finally, this first engagement phase normally occurs very quickly, and according to most participants’ reports, they were “immediately attracted” or “felt the need” to try the apparatus in order to “create understanding about the work”. (Jonathan, Marie, 2012) This takes us to the second phase of the encounter, where spectators become participants and start to explore the apparatus by physically interacting with it.

4.4.4.2) Physical engagement – Exploratory / Speculative phase n°2

Unlike many other interactive artworks supported by complex and exotic interfaces that require a considerable amount of time to be understood and even more to be mastered, *The Legible City* can be almost immediately grasped by visitors or, to use Heideggerian

terminology, it becomes quickly *ready-to-hand*. The presence of the bicycle eases the engagement, providing an interaction affordance that is already familiar to all visitors. As Aurelien observes, “I was almost sure that we were supposed to ride the bike to affect the image but still, I needed to check what that movement would carry with it.” (Aurelien, CEAC, 2012) Moreover, as Julie reported, “I could immediately meander around the virtual space, forgetting the bike and concentrating on the virtual landscape”. (Julie, CEAC, 2012)

As this statement clearly shows, most participants very quickly concentrated on the projected image, because they were already familiar with the workings of a bicycle. This is also supported by the observations made. After sitting on the bicycle, participants started pedalling, verifying at the same time that by turning the handlebar they could freely navigate the digital landscape. At the beginning the direction and the path followed were generally random because participants were still becoming familiar with the surroundings and trying to recognize them, thus the movement was often very chaotic. Instead of following the streets defined by the aligned letters, participants frequently crashed into the letters and moved in circles in order to test the apparatus. This movement was also intertwined with the action *map switch*⁴⁶ that was activated by pushing the yellow button located on the bicycle’s handlebar. At first, most participants did not understand what happened when they pushed the button. This became clear due to repetitive, quick and slightly random button-pushing actions. Yet this became progressively clearer during the interaction. As Julie states, “at first I didn’t understand what was happening when I pushed the yellow button but after a while, I could finally see the difference between the three maps.” (Julie, CEAC, 2012)

Besides the observations, the reports provide us with some interesting extra information. For example, in two cases, participants explained that they could not go on with the experience because they felt an unpleasant physical sensation: “(...) after I started

⁴⁶ Allow participants to change the digital city they are currently navigating by pushing the yellow button located on the bicycle’s handlebar. Three maps are available: Manhattan, Karlsruhe and Amsterdam.

pedaling I felt like I was losing my balance when I was turning right or left.” (Fabien, CEAC, 2012) Moreover, some participants stated that as soon as they started pedaling, they understood that the 3D letters were supposed to be buildings in a city. Others were still more concerned about the characteristics of the system. In other words, they spent this first phase testing the playability of the interface (e.g. the speed, turning accuracy and other possibilities). Boris reported that:

“I verified how the system reacted to my movements, to the speed of the pedaling action, then I've realize that all the buildings were letters. The small pac-man on the screen called my attention and I checked if there was no phantoms somewhere... or things to catch.” (Boris, CEAC, 2012)

When Boris refers to the *Pacman* he is describing something that more commonly appears during the third phase of the encounter. In most reports, the concentration on interface details like graphics, signs or symbols appears later, after participants learn how to operate the interface. During the second phase participants learn and adapt to the mechanics of the interface. The gestures and body movements are still erratic and insecure, as is the speed and accuracy of the actions. Most participants had some difficulties turning on the street corners and they often crashed against the letters. However, after some practice they were able to control the speed and to ride according to their personal intentions. When this moment came, participants stopped worrying about the practical aspects of the experience, or in other words how to operate the apparatus. The bicycle and the technical interface become transparent and participants' attention is now redirected to the interface “contents”, the letters, that compose the text and, according to the reports, the contemplative and interpretative attitudes seem to be stronger.

4.4.4.3) *Controlled exploratory and playful phase*

As in the first and second phases, the third phase unfolds very quickly from the second, although the transition is almost invisible to the eyes of the observer. From the first

to the second phase there is a clear transition from spectator to participant, yet from the second to the third phase the passage is progressive and difficult to track. One becomes aware of this phase by analyzing bodily movements, gestures and actions. Both movements and gestures become more coordinated, less random and insecure. Participants' actions also become more structured and accurate, reflecting their intentions and to some extent parts of their thought and mental activity. The nervous and uncontrolled maneuvers that characterize this phase of the encounter give place to smoother movements that are gradually mastered by participants. Crashing into letters becomes a choice for most participants since they are now able to control the speed, the direction and other options that include *map switch*.

Most participants observed that it was easy to master the interface, but many initial references essentially addressed the workings and characteristics of the apparatus. For example, for Wilfred, "(...) the bicycle's steering wasn't precise, making it difficult to ride, making me fail the turns very often." (Wilfred, CEAC, 2012) For Aurelien "the bike's seat was rigid, preventing me from being completely immersed in the 3D world." (Aurelien, CEAC, 2012)

Moreover, some participants did not notice the existence of the yellow button because they were more concentrated on the screen than on the bike, and others saw it but did not use it. Despite these and other minor remarks, the observation and the reports suggest that the beginning of the third phase was very quickly attained for most participants. Of course, this does not include the two of them who felt a sensation of vertigo and loss of balance after the first attempts at riding the bicycle. We regard the beginning of the third phase as the moment in which participants are acquainted with the basic functions of the interface and are able to operate it without significant effort. After a quick adaptation phase, participants seem to "dive" into the screen, focusing in detail on the exploration of the virtual environment and on its visual contents. If the observations made suggest a phase of physical engagement and

concentration that involves accurate and detailed movements and actions, the reports clearly suggest a phase of exploration, goal-searching and free-play intertwined that includes a phase of contemplation. When asked about what they were doing after the first engagement actions, some participants declared that they were “simply meandering around the letters.” (Julie, CEAC, 2012) Others found out that there were more than letters replacing buildings, these letters were actually composing words, so they were “trying to read the text” (Justine, CEAC, 2012) Moreover, for some participants, meandering around was connected to some kind of goal search. In other words, some participants more influenced by gaming experiences were searching for some kind of challenge, something to do or to accomplish beyond the ride and the reading activity. Boris’s declarations are a good example of that: “The small *Pacman* on the screen drew my attention and I checked if there were any phantoms anywhere... or things to catch.” (Boris, CEAC, 2012) However, the free-play, the non-competitive character of the encounter was often experienced and acknowledged by participants: “we don’t think, we play”; “we relax while pedaling around”; “It’s funny, and inventive, we don’t care so much about the letters and words.” (Julie, CEAC, 2012) Others declared that they had fun while crashing into the 3D letters and exploring the visual glitches on the screen: “More than riding along the streets I found it very amusing when I was crashing into the letters and while exploring the limits of the map.” (Fabien, CEAC, 2012)

Another participant told us he tried to concentrate on reading the text for some time, following the streets and making an effort to keep on reading. However, after some time he was attracted by the small cavities in the intervals between the letters so he meandered around, crashing into the 3D letters, searching in the background, in the small alleys and taking shortcuts through roads without a precise destination. (David, CEAC, 2012) These findings denote a contemplative attitude regarding the shapes and participants’ movements

inside the virtual world that prevails over the reading of the text. Nevertheless, we will focus on this aspect again during the next sections.

4.4.4.4) *Décrochage*

Even though we failed to observe most of the encounters we could still count the time that participants took while experiencing the installation simply because pedalling produces a sound that could be perceived from the exterior (see point 2 on the schema). As such, according to our calculations, the average duration of the encounters was 4 minutes and 20 seconds. Yet one should note here that some encounters, particularly when guests were invited to try the installation, had a longer duration than the average. However, in many cases, the encounters were very ephemeral. Participants seemed to be only interested by the operational level of the experience. In other words, they tested the apparatus, understood how it worked and left without exploring the city or trying to read the text. Some participants declared they did not realize that the building-letters composed different words. According to some reports, this difficulty was augmented by the linguistic barriers felt by participants since the texts were written in foreign languages: English in the map of Manhattan, Dutch in Amsterdam and German in Karlsruhe.

Yet linguistic barriers were not the only causes of *décrochage*. Participants reported different reasons for the lack of attention and interest in the installation. The extent of the different maps was often identified as a cause for participants' boredom and exhaustion: "I didn't go to the end. I found the map very big and we would need to pedal for a long time to get to the end." (Wilfred, CEAC, 2012) Juliette reported her frustration with the experience regarding the reading process: "It was a bit frustrating because the sentences are too long so you can only read the smaller ones." (Juliette, CEAC, 2012) Moreover, regarding other similar commentaries, we might deduce that this aspect frequently influenced the short

duration of most encounters. Other participants affirmed that they decided to stop and abandoned the installation space as soon as they grasped the concept of the proposition. (Justine, CEAC, 2012) Others admitted to becoming bored after some time, without specifying the reasons. Yet, for this last group of people, the overall experience was not clearly positive or amusing. They often described it as “amusing but absurd and pointless.” (Aurelien, Annabelle, CEAC, 2012)

4.4.5) Bodily, sensorial and intellectual experience

As we observed during the Part I, mind and body are deeply intertwined and while experiencing certain interactive installations one becomes aware of these intimate relationships that are normally transparent during our everyday routines. In other words, our perception processes come to the surface and become visible. But is that happening while experiencing *The Legible City*? This experience depends on physical actions that are not normally required in traditional art encounters, but these actions are familiar for most participants, so how do these actions affect the overall encounter and the sense-making process? This section focuses specifically on the way in which participants make sense of bodily and perceptive activity during the encounter. The questions posed during the second part of the interview asked participants to remember the kind of bodily sensations they felt while experiencing the installation but also to reflect on how these sensations were related to their thoughts. The reports very clearly showed us that reflections about the body mainly emerged during the interviews. Despite the unusual mode of interaction, participants were rarely concentrated on bodily activity.

As the reports suggests, this activity becomes transparent very fast or is immediately transparent and the interface *ready-to-hand*. As such, during the encounter, consciousness of the body and physical actions remains very weak unless one feels some kind of discomfort or

annoyance, like Aurelien: “the bike’s seat was rigid, preventing me from being completely immersed in the virtual city.” (Aurelien, CEAC, 2012) Or, as Fabien and other two participants reported: “After I started pedalling I lost balance when I was turning right or left.” (Fabien, CEAC, 2012) Ana reported the same sensation but more intense than Fabien: “The experience was perturbed by the apparatus when I was turning around, giving me a headache.” (Ana, CEAC, 2012) Because Fabien was part of the gallery staff, he told us that visitors frequently reported this kind of sensation after trying the installation. (Fabien, CEAC, 2012) Other participants described their bodily experience as involving some effort but as an enjoyable sensation.

Finally, the majority of participants reported a pleasant, cheerful and effortless bodily experience. They described the ride and the exploration of the different maps as a source of bodily pleasure that was engaging, involving a smooth free movement that demanded no reflection or bodily resistance. Additionally, as we can deduce from Julie’s report, the experience is relaxing, provoking a distortion of time:

“We forget the time while crossing this 3D world that finally is flat and when we understand that we are in control of the bike we just look and concentrate straight ahead because the surroundings don’t exist as in a “real” road. We relax...” “We let ourselves go”; we pedal, we pedal in reverse we go from left to right.” (Julie, CEAC, 2012)

Despite our persistence in trying to trace the experience from a physical and bodily perspective, as the reports demonstrate, participants had some difficulties when describing the aspects related to bodily posture, gesture and sensations. Thus we can conclude that despite the physical involvement required to activate the experience, the body is not the focus of participants’ attention but a way to trigger the experience, which essentially remains transparent during the encounter. Nevertheless, as we saw, the source of engagement with the work seems to unfold from the pleasure that one feels while riding the bike, thus the pleasure rooted in bodily movements and actions is essential for the experience. However, the reports indicate that participants were essentially focusing their attention on the projection screen and

on the graphical elements available there. As the previous sections show, participants focus almost immediately on the screen, on the letter-shaped buildings, on the dark suburbs or city-limits, on the empty interiors of the buildings, on the colors and textures of the landscape or even on the small *Pacman* that displays our current position in the map. Most participants have a descriptive relation with these graphical components. In other words, they described them as they are, without trying to make any interpretation of how they appear to them. In this regard, participants were asked to remember any kind of thoughts or past memories triggered by the experience with the apparatus or by any sign displayed on the interface. For most participants, it was hard to locate the precise moment when thoughts or memories unfolded. Thus most of them described a cloudy and “ephemeral” mental image that shadowed the experience. Hesitations like this: “Humm... nothing concrete” support the previous claim. (Justine, CEAC, 2012) Different participants reported their memories of experiences with old computer games. (Wilfred; Juliette; Boris, CEAC, 2012) Wilfred added that the pale colors reminded him of a Soviet scenario. (Wilfred, CEAC, 2012) Other participants declared that the encounter made them remember previous experiences they had had while visiting those cities, although without going into detail. (Justine; Boris; Marie, CEAC, 2012) Childhood play and free bike ride experiences were also commonly evoked. But other thoughts were also conveyed by the experience. Aurelien, for example, told us that he thought about how ridiculous he was feeling while pedalling. (Aurelien, CEAC, 2012)

Curiously, none of the reports clearly denoted any attempt to interpret the meaning of the experience proposed by *The Legible City*. The questions regarding thoughts and memories were prepared with the aim of understanding if participants tried to make sense of the encounter while experiencing the apparatus. Yet, regarding this failure, the last part of our interviews focused specifically on the textual layer and asked questions directly regarding the interpretation of the overall experience.

4.4.6) Textual layer and Interpretative process

The textual layer of *Legible City* is one of the most prominent features of the work. Most VR artworks produced during the 1980s were more focused on trying to build photorealistic landscapes that could immerse participants. Yet Jeffrey Shaw decided to build a 3D world that is deliberately non-photorealistic. This fact was noticed and foregrounded in several reports. Consequently, most participants are almost immediately able to recognize the textual layer, by recognizing the letter-shaped buildings. However, this study shows that few were able to remember any words from that text. Justine for example was able to read them but could not retain any word in her memory: “I could read them but I don't remember any words.” (Justine, CEAC, 2012). Roberto could not work out if the letters were composing meaningful words, claiming that the reading process was difficult due to the text arrangement and bicycle's speed: “I had difficulty reading the text. The position of the text and the speed of the bike would make it difficult to read. I couldn't work out if it was just an assemblage of letters or if it was a complete text. I didn't try to go the distance to read all that.” (Roberto, CEAC, 2012) Like Roberto, Julie perceived the letters but she didn't understand if they had a sense: “I remember seeing letters. Big letters. But I don't know... We don't think... We play...I didn't take the time to read, I was in a rush to see the other works!” (Julie, CEAC, 2012) Fabien also criticized the size of the letters, declaring that instead of reading, he had more fun moving around and crashing into the letters in anarchic free-play style: “The fact that the letters present different sizes makes the reading difficult. I preferred to crash into the letters and it's true that I wasn't really reading them.” (Fabien, CEAC, 2012)

Additionally, the language barrier was a difficulty highlighted by different participants: “I focused on Manhattan only because of the language, apart from French, I can only speak and read English.” (Boris, CEAC, 2012) Moreover, some participants who were less acquainted with the use of new technologies told us that reading, pedalling and exploring the

environment at the same time was a difficult experience to embrace:

“It was difficult to read the text. It's in English and then we can't do everything at the same time. Pedalling, driving... I didn't give attention to the text. I've seen two or three words in English but I wasn't interested and I haven't tried to search for a meaning.” (Wilfred, CEAC, 2012)

Twelve participants involved were unable to remember any words even if the majority noticed that there were letters in the place of buildings. From the group of five people who could remember at least one word, three of them knew about our study before experiencing the installation. Indeed, the six participants who had previous knowledge of our study spent more time experiencing the apparatus and thus trying to concentrate on all the aspects presented by the installation. One of them, Boris, told us he could read some of the sentences despite the technical and design problems of the apparatus: “At the beginning I was riding very fast to test the apparatus but then, in order to read the sentences, I had to slow down and tried to find the right angle, but it was not easy. (...) It was difficult to read the letters. We need to make an effort to create distance. But I could read some sentences. They seem to have a meta-sense.” (Boris, CEAC, 2012) However, despite the hesitations, only the exhibition guide was able to remember and to report some sentences she read:

“Because I'm normally making the guided visits, I knew about the words and the text. I remember some sentences: “You will loose me” “I would like you to make the trip with me.” Besides reporting the sentences, Juliette tried to make sense of their meaning, speculating about their possible origin: “It sounds for me like sentences that might have been said by a couple. The artist might have been there with his girlfriend and remind what they said to each other.” (Juliette, CEAC, 2012)

As this analysis and these statements clearly show, the design of the apparatus does not afford the reading of the text and despite the strong presence of this textual layer in the experience of each participant, most of them could not make sense of the text. As one of the participants observed, “the building becomes an abstraction but then, we don't pay attention to the text. The letter becomes an object.” (Aurelien, CEAC, 2012) This statement is actually very interesting as it describes to some extent the abstract, non-concrete and superficial image that participants seem to retain from their experience with the installation. Moreover,

as some participants declared, more than reading, the apparatus affords a disinterested, effortless free-play which is sustained by the bodily pleasure of the ride but also by the curiosity to find any challenge, goal or clue that keeps the experience going. Yet this dominates the overall experience, distracting participants from reading and making sense of the text.

In the next section, we expect to re-interpret the previous data analysis in order to answer a few questions situated at the origin of this first case study. We will make sense of the data available in order to describe and summarize the experience with *The Legible City*. As such we expect to answer the following questions: How is *The Legible City* experienced from a bodily and intellectual perspective? What kind of play emerges during the encounters with the work? How do technical operationality and bodily engagement influence the construction of meaning? Can participants make sense of the text, by distancing themselves from the practical ends and merry free-play required and conveyed by the experience? In other words, can reflection emerge during these encounters? What kind?

4.4.7) Discussion

The phenomenological study conducted foregrounds some common aspects that seem to emerge in most encounters with *The Legible City*. Additionally, the observations and interviewing techniques confirmed to us that despite the common aspects, each encounter is unique and has specific dimensions that need to be taken into account. As such, we are now able to draw an outline of the experience with the installation.

As we saw before, bodily experience overrides participants' intellectual involvement while interacting with the installation. Nonetheless, this does not mean that participants become deprived of their mental faculties. On the contrary, most of them reported several thoughts and memories that were allegedly triggered by the encounter. Yet we could not

exactly grasp whether these thoughts had their origin during the encounter and were remembered by participants during the interviews, or if they were somehow “artificially” produced by our questions.

According to most participants and to our own memories of the experience with the apparatus, very soon, the screen becomes the focus of our concentration, yet the system’s design does not engage participants in text reading or in critical thinking. Several design problems have been pointed out by participants regarding the difficulty found in reading the text: the size of the letters, their organization and position and the speed of the bike.

The interviews denote that participants were searching for a goal, a challenge or something to accomplish but also that they clearly overlooked the challenging task of reading the text. The engaging factor stems essentially from the pleasure of riding freely, from crashing into the letter-shaped buildings, and from discovering the different areas of the “virtual” cities. This free movement highly resembles the descriptions of *paidia* play made in Chapter VI. *Paidia* is according to Caillois a force characterized by liberty, improvisation, joy, a need for relaxation and distraction and it appears as the spontaneous instinct of game. (Caillois, 2009 [1958], p. 75-77) This definition fits most descriptions and observations made exactly. The anarchic movement observed at the beginning of each encounter becomes more structured, evolving into some kind of *ludus* whereby participants try to control the speed of the ride so they are capable of turning without crashing against the letters. Nevertheless, in most situations, this progression to *ludus* only happens temporarily before returning to the anarchic play that distinguishes *paidia*. This state seems to prevail during the entire encounter.

Moreover, the type of play found in *The Legible City* matches our description of *free-play* during the chapter VI. First of all, the experience with the installation is voluntary. It does not depend on specific rules apart from the operational formalities that one is required to

understand in order to activate the experience. The interaction is thus devoid of rules, engaging participants in spontaneous and improvised play. Despite the possibility of creating small textual narratives, most encounters are devoid of any coherent narrative, even if some moments appear more structured and organized than others. The experience is open-ended because there are no specific goals/objectives to accomplish and non-competitive as there's nothing to win either. This kind of play presents an uncertain character since many outcomes are possible. As such, regarding the size of the maps and the number of letters, one encounter with *The Legible City* will hardly equal the previous. Moreover, experiencing the installation can be described as *funktionslust*, which means that one plays for the sake of playing, the pleasure stems directly from play and not from attaining a goal or by winning something. Additionally, the experience is circumscribed to a certain time and space. Unlike most video games the experience with the apparatus doesn't have a defined duration. The participant can experience the apparatus for as long as she wants. In this case, the bicycle is the sensitive area that affects the "virtual" world projected onto the screen in a reciprocal relationship. As such, the experience is actually happening between the physical world of the bicycle and the "virtual" world of the 3D city.

Finally, as the interviews support, this playful experience is meaningful. Even if most participants are not able to make sense of the text and don't spend much time thinking about the sense of the work during and after the encounter, they are still able to create meaning regarding that experience. Indeed, the exception goes for those who couldn't engage with the installation due to some physical perturbations felt when turning around.

Participants of *The Legible City* can be classified as *achievers* or *explorers*, which according to Bartle's taxonomy refer to those players who are "always looking for where things are and what to do."

Additionally, the analysis also denotes participants who have a *speculative* attitude

towards the experience by “looking at the engineering behind the functions of the work and thinking about what else might be possible and/or which other works approach things in a similar fashion.” (Morrison et al., 2011, p. 4) Some participants suggested different features that could enhance the experience of *The Legible City*. For example, to add a music/sound track (Julie, CEAC, 2012), to equip the bicycle with a more comfortable seat (Aurelien, CEAC, 2012) or to make the bicycle’s steering more accurate. (Wilfred, CEAC, 2012)

Moreover, an important part of their reflection on the experience adopted technical terms to describe the functioning of the apparatus. Even if they weren’t asked about that, most interviews clearly foreground a technical interest and fascination, also showing that the first phase of the encounter was essentially focused on interface speculation and operational learning. Thus, even if the interface is quickly absorbed by participants, it occupies an important place in participants’ reflection.

The interface learning and technical operations are in this sense an end for a considerable number of participants. Some of them even declared that they left the installation space as soon as they understood how it worked. This was clearly verified during the observation period. The average duration of the encounters also supports this view in which participants test the interface, verify how it works and abandon the installation as soon as they make sense of the interface’s *modus operandi*. As a consequence, the sense creation appears to be jeopardized by the operational level of the work. This does not mean that sense is not created. On the contrary, experiences are meaningful, yet instead of going beyond the interface the interpretation stays at the surface, reflecting on the interface and its mechanics.

Besides the technical aspects, there’s also another factor that potentially affects the sense-making process. The pleasure stemming from physical manipulation and body movements and the interface’s affordances for free movement and the absorbing free-play don’t invite participants to reflect on the experience and even less to read the text that shapes

the city.

In fact, participants are able to distance themselves from the practical ends enacted by the apparatus although, as the observations and interviews clearly denote, the reading of the text is mainly prevented by the absorbing free-play that dominates each encounter.

As we have previously remarked, the text becomes an abstraction, a part of the landscape that has the potential for meaningful reading. Yet, unlike Jeffrey Shaw stated⁴⁷, most journeys are not reading journeys but actually frictionless, relaxed, unworried and contemplative rides guided by the pleasure of the physical action and by the pleasure of discovery. However, this contemplation is a distracted one because it neglects the text, which is in our view an important dimension of this proposition.

Likewise, in front of all this information the participant becomes somehow lost and instead of being able to reflect on the experience at hand, she becomes distracted and continues the ride, searching for something until she becomes bored or physically tired.

The only thoughts we could glean from participants' interviews were already mentioned during the two previous sections and they are essentially related to their memories while riding around, to the technical aspects of the apparatus and also to their desire to discover new things and find goals or things to do. The continuous, frictionless drift afforded by the apparatus doesn't leave a lot of room for reflection or critical thought, and thus the experience stems essentially from the pleasure of effortless merry play.

4.5) Qualitative study of *Please Empty Your Pockets* and *Interactive Plant Growing*

This section reassembles the studies made with two different interactive artworks that were exhibited at ZKM in Karlsruhe in Germany. The first installation is *Please Empty your pockets* by Rafael Lozano Hemmer and the second is *The Interactive Plant Growing*, by

⁴⁷ "Traveling through these cities of words is consequently a journey of reading" (Shaw, 2013)

Crista Sommerer and Laurent Mignonneau. We present these case studies because both works have a different interaction mode, involving full body participation. Indeed, as has been said, this study is not quantitative, yet for the sake of diversity and in order to validate our analysis we should examine the sense-making process with different works that present different kinds of interaction grammars.

As in the previous case study, we are interested in understanding the dynamics of the sense-making process. More specifically, how action, operation and symbolic manipulation influence the creation of sense. Is there still some space for reflecting on the experience, on the sense conveyed by our actions and on the transformations they produce? Are we able to reflect beyond the practical ends and the surface of the work?

We'll start by describing the formal characteristics and the interaction mode of each work, according to our own experience with them but also using the texts made available by the artists. Following this we will describe the methodology used in our study, and finally we will reveal and analyze the data collected.

4.5.1) *Please Empty Your Pockets*, by Rafael Lozano Hemmer

Installed in one of the open spaces on the second floor of ZKM, this apparatus, created by Rafael Lozano-Hemmer in 2010, immediately reminds us of a typical airport X-ray scanner in which passengers are asked to place their personal belongings. Yet the environment is more relaxed and there are no airport security guards around asking us to empty our pockets.

As soon as we approach the device, we try to figure out what's going on and what we are supposed to do there. At first, the white conveyor belt seems static, yet we confirm its subtle movement by touching it. Then it becomes clear what is happening there. One is

supposed to place any small objects on the belt before the black box and wait to see what happens.

While we were visiting this installation for the first time, the exhibition assistant saw our hesitation and approached us, smiling. While murmuring some words in German he placed his Swiss knife on the conveyor belt and waited attentively on the other side of the black box. As soon as the Swiss knife passed through the box, the assistant removed it from the belt, revealing a projected image of the same Swiss knife that moved as if carried by the belt. Afterwards, some other projected images of scanned ID cards, cell phones, sunglasses and keys followed the image of the Swiss knife. After the assistant's demonstration we also tried to test the apparatus by placing different objects on the belt: a cell phone, car keys, a wallet and spectacles. As we can see in the picture below, these objects/images were frequently assembled with archived images organized in a different way each time an object was placed there. We waited for a while to see if the scanned images showing our objects would eventually appear, accompanying other participants, objects but this did not occur.

Moreover, the same archived images were often observed composing these dynamic visual assemblages.

We couldn't make sense of the description accompanying the work since it was only available in German, but later, with some extra information from the artist's website, we were informed that the apparatus can memorize up to 600,000 images. Additionally, we became aware that the creation of the work was influenced by Adolfo Bioy Casares's 1940 novel "La Invención de Morel". According to Lozano-Hemmer, the work "intends to blend presence and absence", a subject described in Casares's novel. (Lozano-Hemmer, n.a., Online)

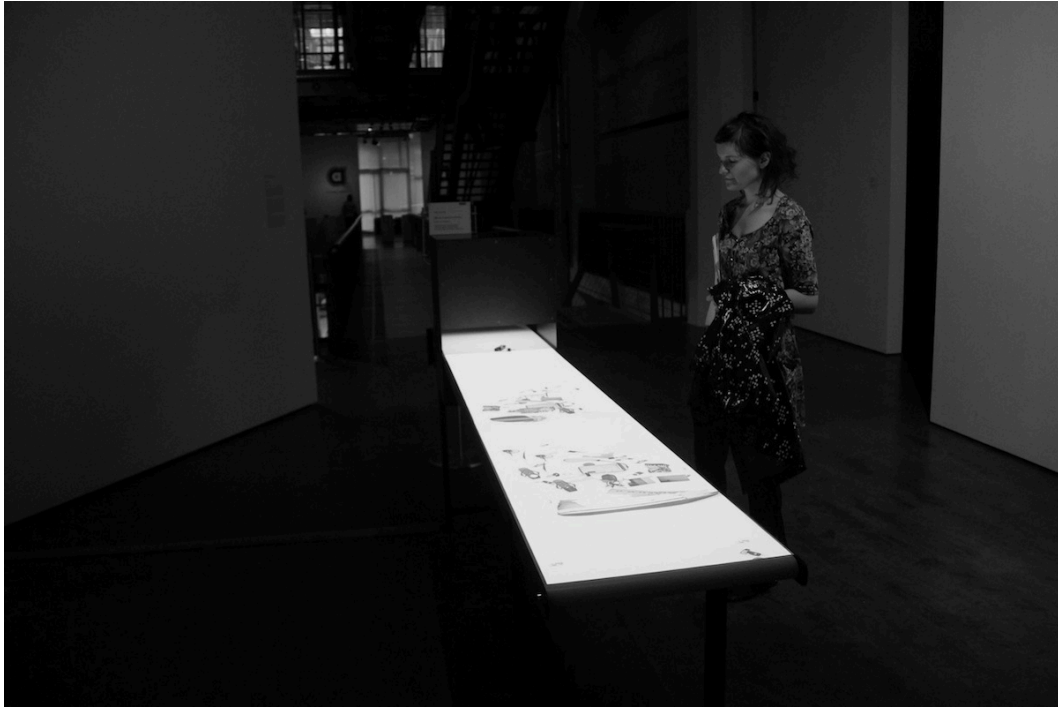


Fig. 26 – View from the installation *Please Empty your Pockets* at ZKM

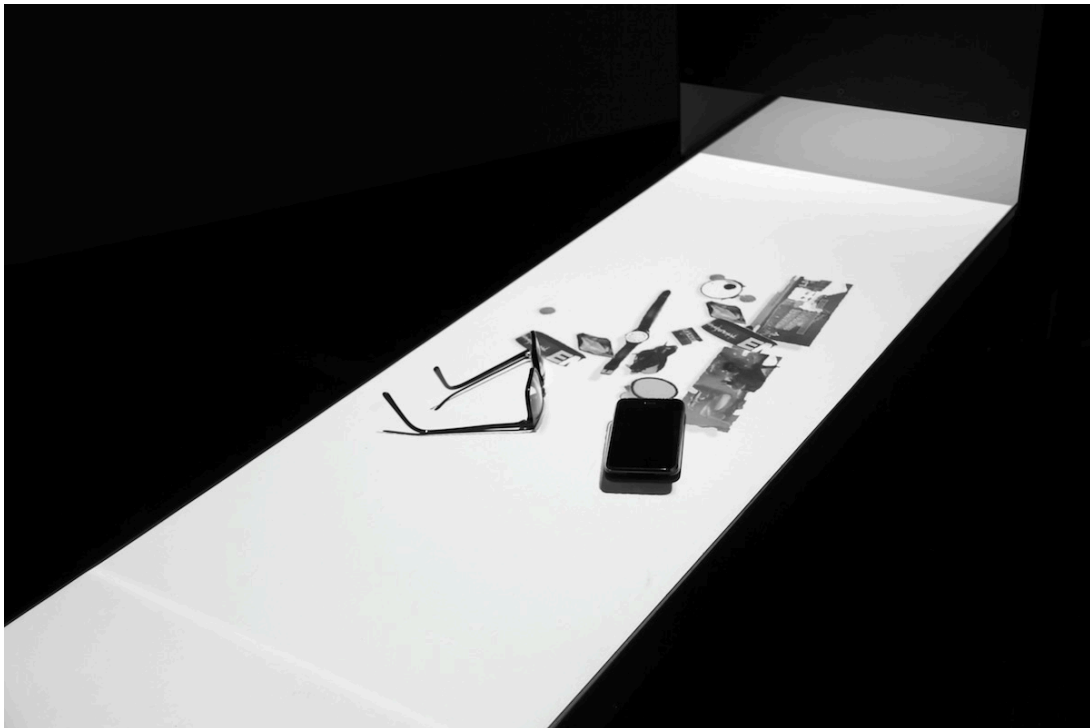


Fig. 27 – Some objects used during our experience with the installation

4.5.2) *The Interactive Plant Growing*, by Crista Sommerer and Laurent Mignonneau

Inside a dark room at ZKM visitors face a dualistic space consisting on one side of different plants standing on top of individual plinths and on the other of a projection screen displaying an assemblage of plants with different colors. The plants are illuminated by individual light projectors so our attention is concentrated directly on the plants or on the video screen while the rest of the room remains in darkness. Before entering the room participants are warned by a sign saying: “Please, touch the plants carefully”, thus they are immediately aware of what is going on there.

By touching the plants, they can control the rate of growth and the size of the virtual plants, direct their rotation, modify their appearance, change their colors and control new positions for the same type of plant. (Sommerer and Mignonneau, n.a., Online) Touching the cactus will not produce any effect, yet if the screen is already filled, displaying some images, then by pressing the top-center of the cactus one can erase the screen’s contents. Additionally, each plant can actually cause different virtual plant species to grow.

The installation presents a significant potential for group participation by allowing several participants to communicate with each other through collective action and touch. The screen is in this sense the center of attention on which participants observe the influence of their actions. Moreover, beyond these social and playful aspects, there is according to the authors another important aspect which relates to the ethics of the project: “Since it takes some time for the viewer to discover the different levels for modulating and building the virtual plants, he will develop a higher sensitivity and awareness for real plants.” (Sommerer & Mignonneau, n.a., 2013)



Fig. 28 – *Interactive plant Growing* at ZKM

4.5.2) Methodology

4.5.2.1) Context of exhibition and Protocol

Our study took place during one entire afternoon at the ZKM during the month of August of 2013. The protocol used in these two case studies differs slightly from the previous study with *The Legible City* simply because all participants were previously selected. Thus, during their experiences with the works, they knew they would be observed and later interviewed. This decision was motivated by different reasons. First, we wanted to be sure that participants were more available and more focused during both encounters and interviews. Secondly, this was a way to observe the encounters more comfortably. And thirdly, this allowed us to compare the results with those obtained in the previous study in order to verify the best methodology to study these kinds of experiences.

Participants were asked to experience the two installations individually or in groups. We guided each participant and a group of three participants to the installation spaces and,

despite their knowledge of our observation process, we avoided being too close to them while they were experiencing the works.

After the experiencing phase, we went to a quiet place near ZKM where interviews were conducted and recorded using a Dictaphone.

4.5.2.2 Sample

Eight participants, five women and three men aged between 22 and 32 years old, make up our sample. Four of them are related to the art world since they are fine art students and the other four have more heterogeneous backgrounds. They study or have studied at university in the fields of economy, psychology and sport. Most of them have an interest in art and have seen more than five art exhibitions in the previous 12 months.

Regarding the previous study, this sample is remarkably smaller, but this was a deliberate decision. During the last study we noticed how hard and time-consuming it can be to analyze all the data coming from observations and interviews. More importantly, we also concluded that using a big sample is not so relevant as the experiences don't change so much from one participant to the other. Every experience is indeed unique and features a lot of particularities, yet its fundamental structure is very similar from case to case.

4.5.2.3) Collecting and analyzing Data

The methods used to collect and analyze data are the same as previously described in section 4.4.2. However, this time we observed all of the participants while they were interacting with the installations. We performed unobtrusive observations using strategic locations from which we could watch the encounter without disrupting it. Additionally we used a Dictaphone to record the development of each encounter.

Apart from this exception regarding the observations, the interviews' structure and the data analysis follow the same guidelines applied to the study of *The Legible City*.

4.5.3) Data Analysis

As in the last case study, we'll describe the structure of the experience with both installations. Of course, as highlighted by the reports and observations, each one of the eight participants lived and felt the experience with the works from a personal perspective, with many particularities that we will also try to analyze during this study, yet we need to understand what is common to those experiences by interpreting all the data available. With this in mind, this section reports our attempts to make sense of participants making sense of their encounters with *Please Empty Your Pockets* and *Interactive Plant Growing*.

Observations and interview analysis underline some patterns in participants' actions and behavior, allowing us to sketch a structure for both encounters. As in the previous case study, we noticed different phases during the encounter, yet the third phase, *controlled exploratory* phase was not observed in the experience of *Please Empty Your Pockets*. We observed three different phases: 1) Exploratory / Speculative phase n°1; 2) Physical engagement – Exploratory / Speculative phase n° 2 and 3) *Décrochage*. Although these phases are clearly identified, they appear more intertwined during the experiences with both artworks. Despite the simplicity of both propositions, they require experimentation and the test phase is normally long. As such, participants test the apparatus, then stop doing and become observers, eventually reflecting on the situation. Likewise, certain common thoughts, memories and sensations were triggered during the encounters. We'll describe these findings for each installation and we'll discuss them in more detail so we can answer a few questions before the chapter ends.

4.5.3.1) *Please Empty Your Pockets*

Before starting to describe the different phases of the encounter with *Please Empty Your Pockets* we should note here that four of the participants read the description that stands next to the work. Obviously, this had an impact on the learning curve and possibly on the overall experience with the work. We assumed that participants who read the description were more able to reflect on the conceptual aspects of the experience, yet as we will see, this was not the case for all of them.

4.5.3.1.1) *Exploratory / Speculative phase n°1*

For most participants who experienced *Please Empty Your Pockets*, the exploration and learning phase started before reading the description of the work. The apparatus' spatial arrangement invited group participation but also contemplation from bystanders. In most cases, when participants first saw the apparatus, someone was already there trying it, so they learned by watching others.

During this first phase, spectators focused their attention on different things: the apparatus or some parts of the apparatus like the conveyor belt – “I kept my attention on the object because it was very bright, very white” (Karl, ZKM, 2013); the scanned objects (iconic signs) projected onto the conveyor belt, the actions performed by other visitors, the objects placed by other visitors on the belt and also the descriptive text (linguistic signs). This phase was very clearly noticed in both observations and interviews. Participants were often observed moving around the apparatus and around the other visitors or simply standing there motionless, following the actions of other visitors and the movement of objects on the conveyor belt. The group consisting of three participants was seen discussing, pointing and gesticulating as if they were trying to make sense of or speculating about the working of the apparatus. This was later confirmed during the interviews. All participants reported this

phase, foregrounding their state of questioning and curiosity but also the desire to move into action. Most participants declared they could understand what was going on just by watching others engaging with the work, although they felt the need to try it themselves and use their own objects. Moreover, the apparatus's iconic nature was often recognized and mentioned by participants during the first contact with the artwork: "The first image I had in my mind when I saw the apparatus was the X-ray machines found in all airports." (Barbara, ZKM, 2012)

The second phase of the encounter was in most cases followed by a moment of observation and waiting. While waiting their turn to place the objects on the conveyor belt, participants were checking what they had inside their pockets or their bags. As such, they were somehow standing in the line as we typically do in airport security areas.

4.5.3.1.2) *Physical engagement – Exploratory / Speculative phase n°2*

The second phase of the experience begins when participants start interacting with the apparatus, placing the different objects they are carrying with them on the belt. Most participants started by placing one single object, a cell phone, an exhibition ticket, a wallet, a lighter or an air clip. The action is very simple and effortless so they could immediately concentrate on the result after their belongings left the black box. They followed the movement of the object as it was carried along the belt. Participants could finally confirm what they had seen before with other visitors' objects. While inside the black box, objects are scanned, and thus new iconic signs (the scanned digital images) are created and projected onto the conveyor belt. As we can see in Fig. 27, the "real" objects are accompanied by other iconic signs that represent other objects scanned from previous interactions and archived in the computer's memory. As some interviews imply, during this phase, while following their objects, participants concentrate their attention and try to make sense of other iconic signs

that suggest the presence of other visitors. After that, a speculative and playful phase is observed and suggested by almost every interview:

“I verified what else I had in my pockets; I was placing everything together at once; I've noticed that the computer chose similar things or things from before I'm not sure. And then I started to arrange my keys in a nice shape to see what happened, and I did that three times, then I've tried with Hannah's coat but it didn't work.” (Bernard, ZKM, 2012)

Instead of experiencing the apparatus in a more controlled way, as in the case of *The Legible City* participants started experimenting again by searching and using new objects and arranging them in particular ways. They were trying to use clothes or parts of their bodies (e.g. the arm, the hands and the fingers) but failed to scan them. These moments were followed by laughter and by some commentaries in German; likewise, participants' facial expressions denoted some fun and amusement. Moreover, these moments reveal participants' motivation to leave something original in the archive, something that could be distinguished from all the objects there. It also denotes, as some reports do, that most participants recognize a certain repetition regarding the type of iconic signs projected onto the belt. The declarations made by Hannah express this idea and resonate with other reports: “After some time spent trying things it was boring, it was not interesting what was lying on the belt, the same things appeared again and again, and I couldn't see anything new coming.” (Hannah, ZKM, 2013) Boredom and other reasons were frequently presented as justifications for abandoning the installation. Nevertheless, most experiences lasted for at least four minutes.

4.5.3.1.3) *Décrochage*

The duration of the experience was mostly dependent on how many objects participants had at hand with which to try the apparatus. Some abandoned the experience very fast because they had nothing else to place on the conveyor belt, while others like Hannah became bored due to the repetitive character of the experience. In the case of Vanessa and Bernard, they left the installation as soon as they understood how it worked and

what was going on there. Most participants tested the apparatus, understood the operational level and the interaction mode but didn't focus so much on the archived images that were displayed on the conveyor belt. Barbara, for example, stayed until she "exhausted all the possibilities of the installation." (Barbara, ZKM, 2013) Yet this was not really possible because she could not see all the scanned images that were archived by the system. Additionally, she only introduced three objects that she had with her. Therefore, regarding the number of objects archived and the number of objects we can potentially scan and introduce into the system, it is probably impossible to exhaust the apparatus. Anyway, do we really need to exhaust the possibilities of the system in the previous sense to have a meaningful experience with it? We believe the answer is negative, although we should try to understand how these participants made sense of their interactions with the apparatus. Now that we've traced the outline of the encounter with *Please Empty Your Pockets*, we should focus our analysis on the information that relates to bodily, sensorial and intellectual experience and, after that, concentrate on participants' interpretative process.

4.5.3.1.4) Bodily, sensorial and intellectual experience

Observations support the idea that participants' bodies are often in action and movement during the encounter. They walk around the apparatus to observe and examine its structure, they approach and touch the conveyor belt, they search for objects in their pockets and bags, placing them on the belt etc. Nevertheless, any references to bodily activity are simply absent from interviews. Participants are conscious of the actions they perform but the body is completely transparent and goes unnoticed during the entire encounter. The banality of the physical task involved doesn't seem to provoke any reflection or even any perceptible bodily sensation. So, when asked about the kind of sensations they had during the encounter, most participants had some trouble answering, beginning their answer by stating: "nothing, I

felt nothing” (Bernard, ZKM, 2013) Some started by giving a similar answer, but later on admitted to having had a sensation of pleasure and fun while exploring the installation.

Participants were also asked about the kinds of thoughts and memories that were triggered during the encounter. The answers were not very diverse. For most of them, the experience didn’t provoke any kind of memory or thought; they were essentially interested in doing and in learning how to work with the apparatus: “We didn't actually think about anything, we just wanted to experience the machine and see how it worked” (Simon, ZKM, 2013) Nancy told us she was busy thinking about how the system worked from a technical point of view, and she was also impressed by the high definition of the images displayed on the belt. (Nancy, ZKM, 2013) Hannah suggested that she wasn’t “pushed” to think about something because all the iconic signs displayed on the belt were somehow convenient. In her own words, they weren’t “out of place” or unusual enough to occupy her attention and thoughts. (Hannah, ZKM, 2013) Additionally, Hannah forced herself to think about something during the interview when she declared: “Now I remember how when I flew to London, they didn’t find the scissors I had in my bag. But during the interaction I wasn't really thinking about the airport. The environment wasn't really appropriate, it was too relaxed.” (Hannah, ZKM, 2013) Yet, with the exception of Hannah, the other participants frequently made reference to the X-ray machines in airports’ security check areas.

4.5.3.1.5) Interpretative process

During interviews participants try to create meaning relating to their lived and felt experience. However, despite all the questions and attempts made to understand in detail such experiences, it’s always hard to grasp whether participants were able to reflect on and interpret their experience during the encounter. The last point already denotes that such an encounter doesn’t stimulate so much intellectual activity or imagination beyond the mental

activities involved in order to understand the working mechanisms and to explore the apparatus through different actions.

As such, before the end of the interview, participants were directly asked if they were able to interpret and reflect on the meaning of the experience with the apparatus at some point during the encounter. Within the diversity of answers, there was a common point mentioned in every interview, which clearly denotes the absence of interpretation or any concrete attempt to search for meaning during the encounter. Karl's declarations summarize this idea very well:

"I don't know what the work is about; I was speaking to other people and we agree in this point, I don't know what this exhibition should bring me. I was just watching it, saw how it works but I didn't try to interpret or search for a meaning." (Karl, ZKM, 2013)

Moreover, in some cases this process wasn't even possible or happened with some difficulties when participants tried to search for a sense or for the "artist's intentions" while they were being interviewed. Bernard declared that: "I wasn't thinking about meaning, not even now. It's very familiar from the airport so I was thinking about that but then it ends in nothingness." (Bernard, ZKM, 2013) On the contrary, for Barbara the interview helped her to reflect beyond the operational level of the work:

"The interview is good because when you're out there interacting, you don't think about a lot of things; it's quite funny I haven't seen so many mobile phones as I was expecting and we are always carrying them around with us. I haven't left mine on the locker for example. For me it was more about playing. So in the museum I wasn't thinking about the sense or the purpose of the artwork. In a museum where you only see paintings for example it's much more probable that you get thinking about the sense of those works." (Barbara, ZKM, 2013)

Interestingly, besides reflecting on her own behavior and expectations, Barbara also reflected on the interpretative process itself, conveying that reception of paintings is more likely to provoke a contemplative and interpretative attitude. Simon's statements also suggest that reflection took place during the interview rather than during the encounter:

"Our discussion was more about how it works than about the intention of the artist. So the interpretation of the work happens right now. We've tried to create new forms, new images on the band! Actually it's really funny because we haven't thought about what we were doing so it was much more like a game than something serious." (Simon, ZKM, 2013)

Furthermore, the reports made by Simon and Nancy foreground an important aspect that is related to the description of the work. Both participants read the description of the work before starting to interact with it and as a consequence, Nancy observes, her interpretation seemed to have been influenced by this lecture:

“Maybe there's a thought beyond this apparatus. But I wasn't really thinking a lot. I was thinking about different things like terrorism, privacy and other ideas but I wasn't really concentrated while I was interacting, it was just there in the background. And then I believe there's the influence of the description, everything is there, all their intentions so you read all that. You don't have space to think by yourself, it was just given. But maybe I've some kind of preconception regarding these kinds of artworks and I'm probably not doing an effort to be affected by them. (Nancy, ZKM, 2013)

Finally, two participants commented on the conceptual inconsistency conveyed by the installation. According to Clara, the work fails conceptually because the objects that we place inside the apparatus are not really private: “we don't actually show our private objects, we show what we want, it's us who decide what to show.” (Clara, ZKM, 2013) Hannah presented the same argument, adding that “at the same time you still have some space [to reflect], because the actions are simple, yet the experience does not trigger so many thoughts.” (Hannah, ZKM, 2013)

4.5.3.1.6) Discussion

The observations and interviews conducted confirm certain thoughts that initially unfolded from our personal experience with *Please Empty Your Pockets*. During our first encounter we were essentially interested in understanding what we were supposed to do or to perform and we were also curious about the mechanisms beyond the apparatus, yet we were not particularly stimulated to reflect on the sense of that experience. During our second encounter our attention was more focused on the images projected on the conveyor belt while we tried to reflect on their relationship with our personal belongings but also on the meaning of our performance.

The data analysis highlights a certain pattern regarding participants' interpretative process, which coincides with our own experience with the installation. Participants were most engrossed in understanding what to do, in exploring the different possibilities and in trying to understand the mechanism beyond the apparatus. The mental activity conveyed by the apparatus is essentially triggered by the processes involved in the comprehension and manipulation of the apparatus. Very soon participants interpret and understand the iconic signs and the dynamic spatial syntagms involved in the interaction with the apparatus. However, despite the simple interaction grammar and the small learning curve, instead of opening up a space for reflection and contemplation, the apparatus essentially affords and stimulates a speculative and playful behavior. In other words, the curiosity and the pleasure stemming from trying the apparatus with new objects surpass any possible interpretative attitude that attempts to find the meaning of the ongoing performance.

The type of play observed fits the description of free-play that was presented in the previous chapter. The proposition does not allow for a lot of improvisation or rule creation, yet participants try to explore the boundaries of the apparatus by placing "out of format" objects or parts of their bodies on the belt. Moreover, the experience is essentially non-narrative because the iconic signs "assembled" with participants' belongings are randomly selected by the system. There are no clear goals or challenges to pursue, and as such play is open-ended and non-competitive since there's nothing to be gained beyond the pleasure and satisfaction of the act of playing and discovery. In this regard, the experience is autotelic. Play happens around the apparatus but it doesn't have a specific duration. In other words, no minimum or maximum period of time of engagement is defined or required. The duration of the encounter depends essentially on participants' motivation. Finally, play is meaningful.

Through their performances, participants create meaning and discover different meaningful aspects encoded by the proposition. Testing the device with different belongings

and unexpected objects is part of this play, which is not only meaningful but also a creative act for most participants.

4.5.3.2) *Interactive Plant Growing*

The observations and interviews made informed us about the different phases of interaction during the encounters with the installation but also about bodily experience, mental/intellectual activity and sense-making process.

We detected at least four distinct encounter phases that were dynamically intertwined over time: 1) Exploratory / Speculative phase n°1; 2) Physical engagement – Exploratory / Speculative phase n°2; 3) Controlled exploratory and playful phase and 4) *Décrochage*.

The description of the work was available at the entrance before participants could see the installation space. According to the interviews, at least five participants read the description before entering the room.

4.5.3.2.1) *Exploratory / Speculative phase n°1*

Before entering the room, participants found a sign where they could read: “Please, touch the plants carefully”; as such, the experience begins at that moment. Participants become aware that they’ll find plants, that they need to touch them in order to activate the experience and that they should be careful with them while doing so.

Most reports clearly show that participants first looked at and focused their attention on the plants and secondly the projection screen. Bernard and Clara told us they focused on the plants first because of their interest in and fondness for them. Moreover, they also revealed their preoccupation with the plants’ wellbeing:

“At first I was focusing on the plants because I like plants and I have a lot at home. I was a little worried about them. I was wondering if they were dying so I was checking if they had specific light so they can live. And then I saw one of the lights was broken.”
(Bernard, ZKM, 2013)

In some cases, the projection screen was completely empty when participants entered the space, thus their attention was directly absorbed by the four illuminated points in the room – the plants. In other situations, when participants entered the installation room they found other visitors already engaging with the environment, so they first observed what was going on, learning from others' actions and the system's responses.

Despite a very brief period of contemplation that is noticed and confirmed by the interviews, this first phase is more or less imperceptible because as soon as they entered the installation room, most participants moved directly towards the plants in order to touch them.

4.5.3.2.2) *Physical engagement – Exploratory / Speculative phase n°2*

Participants started by touching the plants carefully, observing the result of their actions on the projection screen. This phase was well described during interviews, although, even if the majority understood the immediate relationship between touch and image development, some participants were confused by it: “there were three of us touching the plants so the screen became full very quickly and we didn't understand who was doing what.” (Simon, ZKM, 2013) Others noticed the immediate reaction on the screen but didn't understand how to control its development.

During this phase, we observed participants interacting with other visitors or friends, speculating verbally about the interaction modes and trying to decipher the specificities of the interface by analyzing and testing the different plants. The cactus was the hardest to grasp. Participants touched the spines and the spaces between the spines but nothing happened, thus most of them turned their attention towards the other plants.

4.5.3.2.3) *Controlled exploratory and playful phase*

This phase didn't occur during most of the encounters we studied. In several cases participants abandoned the space after a few random interactions defined by inaccurate movement and contact with the plants, thus even if they understood the real-time correlation between touch and image synthesis they were only testing the different functions of the interface. This was clearly evident when contrasted with some interactions that were more controlled.

Some participants were calculating the duration of the touch or touching different plants at different times in order to achieve a certain visual composition: "we were interested in filling the screen so it would be cleared and we could start all over again. Then we started to understand who was doing what and we could compose different screens with different colors." (Simon, ZKM, 2013) Simon's group was clearly using the interface to communicate and to create different visual compositions in a playful way. Their physical actions and performance followed a certain intention, an emergent sensitivity or an implicit sense that was decided in real time by the different elements of the group.

Despite the spontaneous nature of their interaction, during this second phase it becomes clear that participants master the interface even if, as they declared, not all the functionalities of the work were clear.

4.5.3.2.4) *Décrochage*

Participants left the installation room motivated by different reasons. Some interrupted the encounter and left the room because other visitors entered the room: "(...) you want to be polite and give some space to the others so you just go away." (Bernard, ZKM, 2013) Others didn't feel comfortable interacting with the work in the presence of strangers: "I tried to be alone. There were often many visitors." (Clara, ZKM, 2013)

In other situations, it was personal taste and interest that influenced the duration of the encounter. In the case of Nancy, the proposition didn't satisfy her so she felt bored and decided to leave the room. Others stayed longer because they felt challenged to understand the interaction mode and also the technique behind the apparatus – although, as some revealed, as soon as they understood it they left the installation space.

Furthermore, according to some participants' declarations they appeared to be frustrated due to certain malfunctions or "limitations" of the system: "I wanted to fill the whole projection screen but it didn't work as well as I was expecting" (Nancy, ZKM, 2013); "I tried other plants but the image seemed to appear randomly without me even touching the plants" (Vanessa, ZKM, 2013); "When I first touched the plants gently I thought they would grow up in a particular way but nothing happened." (Nancy, ZKM, 2013) Certainly, these and other factors together were responsible for a premature décrochage.

4.5.3.2.5) Bodily, sensorial and intellectual experience

Most participants qualified the interaction mode as being simple and intuitive. Moreover, the tactile dimension involved in the experience didn't create any awareness of their bodily activity or their mode of perception. The action of touching the plants is essentially transparent and ordinary so it doesn't retain participants' attention or provoke any unusual physical sensations like the ones reported in the case studies of *The Legible City*.

Due to the low lighting conditions in the installation space, we couldn't correctly observe participants' facial expressions while they were interacting with the apparatus, yet when Simon's group was experiencing the work we could hear them laughing while playing with the plants. As such we could deduce that this group had a pleasant experience.

Furthermore, during the interviews, participants described their experiences regarding their emotions, reinforcing the information yielded by the observations. Some declared that

they felt a certain pleasure while touching the plants and observing the reaction on the projection screen. Yet most of them described the resulting image as being unpleasant and boring. For Simon “the images were not very pleasant, but the experience was fascinating because of the technique.” (Simon, ZKM, 2013) As such, pleasure stems more from doing, from playful action, than from the resulting image. The declarations made by Nancy foreground the pleasure that emerges from the correspondence between touch and image synthesis, although she was more critical when analyzing the action of touching plants:

“It wasn't really pleasant; you have a certain satisfaction from observing the correspondence between your actions and what happens on the screen but it's not really pleasant... I was feeling neutral; it wasn't unbearable but it wasn't amazing or interesting or exciting. I was just using the plants to achieve the effect on the projection screen. So I felt like I was misbehaving with them because I wasn't touching them very gently as I was completely focused on the screen. So I didn't feel good about that.” (Nancy, ZKM, 2013)

Nancy's declarations foreground a certain mental state that was also reported by other participants when asked about the thoughts they had during the encounter.

Rather than having positive emotions, some participants reported a certain apprehension regarding the plants' health. Vanessa, for example, thought the plants were artificial but then realized they were natural and became worried about the conditions they were in. (Vanessa, ZKM, 2013)

Others were thinking about old video games they played when they were children: “I was reminded of the Jurassic Park video game” (Bernard, ZKM, 2013) And others thought about the technical aspects that made the interaction possible. Hannah reflected on the erasing function that is attributed to the cactus: “then there was this cactus that was destroying the plants... Like, it could have been made more nicely...Why is the cactus destroying everything?” (Hannah, ZKM, 2013)

4.5.3.2.6) Interpretative process

During interviews participants are constantly trying to interpret their lived and felt experience, but at this point we are more concerned with how they interpret their interaction

during the encounter. Firstly, as the previous sections describe, it seems clear that participants were able to grasp the essential aspects of the interaction grammar. Most of them immediately perceived the consequences of touching the plants by observing the emergence of new iconic signs on the screen – the different species of digital plants. However, they neglected some grammatical functions (such as the control of the plants’ rotation, color and appearance) which, according to the authors of the work, should be discovered during interaction.

The dynamic spatial syntagms between real plants and digital plants are fundamentally understood at the very beginning of the experience, during the second speculative phase: “You can make something grow by means of touch” (Clara, ZKM, 2013) Moreover, during the last interviewing phase, participants were asked if they had some “space” to reflect on the meaning of this dynamic relationship while interacting with the apparatus. In other words, what did it mean for them to generate digital iconic signs (different types of plants) by touching real living plants? What was the meaning of this performance? Most of them answered negatively to this question, claiming that they had not had a suitable moment to reflect on the meaning of the encounter. The answer given by Vanessa echoes and summarizes most of the reactions: “I wasn't thinking about the meaning of the work, I was more concerned about the plants. Thinking about what happens after the exhibition closes, maybe they put them outside...? I was much more occupied by doing than by thinking about the meaning. Too much doing!” (Vanessa, ZKM, 2013)

Most participants recognized that they were unable to reflect on the meaning of the proposition during the encounter, yet they tried to interpret it during the interview. Once more, Simon made reference to the technological aspects of the apparatus, although he added that the work foregrounds the failure of technology while trying to reproduce nature: “I didn't get beyond the technique. The technique was quite fascinating. I like this idea that technology

tries to reproduce nature but actually fails to do so.” (Simon, ZKM, 2013) Somewhat similarly to Simon, Barbara referred the dualistic character of the proposition, claiming that the work was about “the machine against nature”. (Barbara, ZKM, 2013) For Hannah the work emphasizes our insensitive relationship with nature: “It was a little disgusting; it showed the way people deal with nature; in the cities we put plants in the street, the artificiality around us.” (Hannah, ZKM, 2013)

4.5.3.2.7) Discussion

As in the previous studies some patterns were highlighted by our data analysis. We were able to sketch an outline of the structure of the encounter by analyzing eight different experiences. Moreover, it became clear that despite the demand for physical action, participants didn't focus on bodily activity and intellectual activity was mainly stimulated by the operational level of the work and by concern for the plants' condition.

All the eight participants immediately understood the relationship between touch and the emergence of digital forms on the screen. However, they didn't try to question why the same living plant was “giving birth” to different kinds of digital plants at different times when touched by them. Moreover, no effort was made to interpret the creative gesture they were responsible for when touching the plants from a symbolic point of view.

As the data analysis clearly shows, participants were once more interested in understanding how to activate the experience and in playing with the plants. Most of them admitted that interpretation did not occur during the interaction, yet tried to create a sense for the encounter during the interviews.

What is striking about most of the interviews is the way they make explicit that even if participants didn't have the space to reflect on meaning, most of them were thinking about the plants' environment and were concerned about their condition. In this sense the

experience seems to move beyond the operational level, provoking some common thoughts in different participants. Yet these thoughts don't necessarily stem from the actions performed by them. Some participants reported the concerns even before touching the plants, as soon as they entered the installation space. So, if we are supposed to increase our awareness of the living plants, what is the meaningful relationship with the new digital plants projected on the screen?

From this perspective, the work seems to carry different levels of meaning. Yet during the encounters participants were essentially reflecting on one of them, the plants' condition. Furthermore, the experience was often characterized with the words "unpleasant" or "boring". Yet the data available supports the idea that the group had a pleasant experience.

The observations describe some playful behavior that initially resembles *paidia* due to its chaotic and anarchic structure; participants touch the plants randomly and as time passes the actions become more precise, evolving into a form of *ludus*. Play and the interaction between the three elements becomes more structured and organized. This form of play is structurally very similar to the free-play also observed in *The Legible City*. It is voluntary, uncertain, devoid of explicit rules, non-competitive, open-ended, infinite, autotelic and meaningful. These remarks support the social character of the installation. Collective interaction appears to be more engrossing, engaging participants in dialogue and free-play.

4.6) Conclusions

The three case studies analyzed during this chapter confirm and reveal several important dimensions of our experiences with interactive artworks. At the core of this study, we are fundamentally interested in understanding the relationship between play and the sense-making process. To this end, we studied three interactive installations that present a potential for playful behavior. This potential was confirmed in most participants' experiences.

The type of play found in most of these encounters perfectly fits the description of free-play that was presented in the last chapter. Play is free and voluntary, it does not depend on explicit rules, and it is spontaneous and improvised. It is non-narrative, yet micro-narratives might unfold during interaction. It is open-ended, without precise goals to attain. It is uncertain, thus multiple outcomes are possible. It is non-competitive so there is nothing to win and it is essentially autotelic. Moreover, play is circumscribed to a particular space (physical and/or digital) but no minimum or maximum period of time of engagement is defined or required. Finally, play is meaningful. By physically performing and through symbolic manipulation, participants create sense and discover the different meaning(s) encoded in propositions. Indeed, as we have confirmed, propositions hold different types and levels of comprehension and meaning.

Most reports and observations clearly foreground a first phase in which participants try to understand how to activate the apparatus by doing or by observing other visitors who are already physically engaged with it. When we asked participants to describe their experience with the different apparatus, most of them started to describe the way they acted in order to activate the apparatus. In other words, they described the physical and mental processes involved in the comprehension of the interaction grammar. The quest for meaning is obvious during this phase. Participants want to know how it works. Our observations

clearly support this claim by showing that most participants' actions are still insecure or imprecise. Despite some minor differences, the sense-making process during this phase is reported by participants in a very similar way.

Participants who spent more time experiencing the apparatus are normally more aware of the different functions or affordances available, although basic comprehension of the different working modes was seen in every encounter with the exception of the two participants who were physically perturbed at the beginning of the experience with *The Legible City*. However, this is not so clear when it comes to comprehension of the symbolic dimensions of the work.

Firstly, one should note that participants rarely referred to any attempt at interpreting such dimensions. Moreover, when descriptions were made, they differed from one participant to another. Thoughts and interpretations regarding the meaning of the experience very often appear related to participants' background and previous lived experiences, thus differing considerably from each other. Nonetheless, in most encounters this interpretative phase doesn't occur. Our data analysis shows us that most participants abandon the experience after they make sense of the interaction grammar, after they know how to operate the apparatus.

Additionally, our study shows that in many situations the pleasure stemming from free movement and absorbing free-play also precludes the interpretative process. This is clearly noticeable in most encounters with *The Legible City* but also, even if less obvious, with the other two installations. One is constantly making sense of the different signs found during the encounter while playing, yet, as most participants acknowledged, it is hard to reflect on the actions and performances from a symbolic perspective, even if the interaction grammar and actions required to activate the apparatus are normally simple and easy to learn.

Most participants recognized that they weren't stimulated to reflect on the meaning of the experience during the encounter. According to some participants the moment for detached

reflection was the interview itself. Therefore, the most elaborated thoughts and interpretations emerged during our conversations.

We've already answered a few of the questions which triggered this study, yet we expect to continue this discussion during the next chapter by focusing in particular on some aspects that have so far been left untouched. We aim to extend the discussion about aesthetic distance and the five distancing factors by using the data and the conclusions provided by these case studies.

Chapter IX – Reflections on *Distance, Flow design, Smooth design and Friction design*

5) Distance(s) and Distancing Factors

In Chapter VII we discussed Bullough's notion of *psychical distance* and presented some *distance factors* that influence the dynamics of *psychical distance* in machine-based aesthetic encounters. Chapter VIII taught us a number of different things regarding the dynamics and nature of aesthetic experiences with interactive artworks. There, we were particularly interested in exploring in detail the structure and the characteristics of *aesthetic/psychical distance*. The qualitative studies confirmed a number of aspects that initially emerged from speculations based on theoretical research and observations in galleries and museums. We studied three interactive artworks that present different interaction grammars, openness and playfulness ratios, although the analysis of the different encounters highlights a pattern that allows us to better understand the phenomenon of *aesthetic distance*. Moreover, our investigations clearly show that each proposal has a different *distance-limit* and each participant a different *distancing power*.

One can clearly observe that *Please Empty Your Pockets* by Rafael Lozano Hemmer imposes a greater degree of spatial distance than *The Legible City* or *Interactive Plant Growing*. The first installation is more limited in terms of action/operation, and presents a smaller playfulness ratio than the other two. Nevertheless, even if observations show that participants have a more contemplative attitude, spending more time immobile looking at the apparatus, the experience is not more thoughtful than in the other two installations. Both observations and interviews show that the test phase is more extended than in the other two installations, yet the critical appraisal is very rare or nonexistent.

Most participants attained an understanding of the operational/functional level and structure of the artwork, yet they could not distance themselves from the practical aspects of

the experience to interpret the symbolic dimension of their performance. Even if they could interpret the different visual signs and syntagms conveyed by their relation with the apparatus, they failed to recognize their performance as a sign, as an action that encodes a certain meaning that should normally be interpreted.

Some participants told us that they were searching for a meaning while engaging with the work but in the end they said that they had no idea about the meaning(s) encoded there. This supports the supposition that some participants have a stronger *distancing power* than others, in most cases art students or those with an art-related background. Yet when asked about their thoughts and interpretative attitude, these participants criticized the artwork's *distancing limit*, claiming that the experience was too "convenient" and too "compliant" to lead to any kind of critical thought. They found no resistance or any kind of friction that would produce any thoughtful experience. Hannah told us that despite the simplicity of the actions afforded by the apparatus, there was no trigger for thought beyond the operational aspects. (Hannah, ZKM, 2013)

These findings suggest that *aesthetic distance* doesn't emerge not because participants are in action, physically manipulating signs and symbols, but due to some other aspects of the work that include its frictionless nature.

As our data conveys, participants were primarily interested in grasping the overall structure and workings, searching for goals and exhausting all the possibilities of the apparatus, but most of the encounters ended there without affording a critical reflection. In this sense, for many participants, the artwork appears more as a gadget or as an object with a certain function that one is supposed to discover without necessarily reading the instructions. This is supported by several descriptions of the encounters which employed expressions like: "There we could do..."; "when I was doing that, this would happen"; "I tried to use"; "I saw how it works." In most cases, participants were only describing the operational level and the

functional aspects of the apparatus. Likewise, such descriptions don't really differ from the experience of someone trying a new vacuum cleaner or any kitchen appliance.

Despite this evident concentration on and interest in the operational level of the encounter, participants are not overloaded by action, at least while experiencing *Please Empty Your Pockets*. In short, the participant is not disconnected from her intellectual faculties while interacting with these installations.

So why is *aesthetic distance* so rarely observed or simply nonexistent during the encounters studied? Were participants *under-distanced* or rather *over-distanced* during these encounters? Can we understand and describe the dynamics of the phenomenon as well as the influence of the five *distance factors* through the data available?

5.1) Distance factors and their influence on aesthetic distance

We will start to answer these questions by analyzing the last one in first place. The five *distance factors* proposed during Chapter VII – interface complexity/learning, interface transparency, response time (or temporal distance), *openness ratio* or openness to participation and *playfulness ratio* – cannot certainly be measured by our survey, yet we now possess supplementary information that can no doubt help us to better understand their influence on *aesthetic distance*.

The three installations present a very short learning curve, thus the adaptation phase is brief due to the simplicity of the interface. According to the data available, the most complex interface and the hardest to grasp is *Interactive Plant Growing*, but its basic interaction grammar is grasped very quickly. Most participants try to understand all the functionalities of that interface, but they normally give up or end up playing with the basic interaction grammar without trying to comprehend it on a deeper level. In that sense, all the interfaces become transparent very fast. In other words, the interface is still present but the interaction mode is

assimilated very fast so that participants are very quickly able to focus on the consequences of their actions, and on the contents available – the letter-shaped buildings, the digital plants, the different scanned objects on the conveyor belt etc. Interfaces are designed in such a way as to allow a smooth and effortless interaction.

Our survey revealed no difficulties or frictions in the learning process from a usability perspective, even for participants who have little contact or no experience with this kind of artwork, or who lack a technological background.

The low latency level is obviously a factor that contributes to smooth interaction and consequently to augmenting interface transparency. The response time is very close to real-time for all three apparatus, even if we cannot measure that in the same way across the different installations.

The two *distance factors*, interface complexity/learning curve and response time, clearly contribute to maintaining interface transparency during the encounter. However, one thing should be noted here: even if the basic mechanisms that support interaction become transparent, most participants stay at the surface of the experience fundamentally because they spend a large part of the encounter testing and exploring the different possibilities allowed by the interface. In this regard, it becomes somehow contradictory to speak about *interface transparency* when all the encounters are actually interface-centered experiences.

The fourth *distance factor*, *openness ratio*, undoubtedly has a strong influence on the experience and is directly connected with the complexity of the interface. If we compare the three installations, we can see that they are open to participants' influence, but only to a certain degree. *The Legible City* allows participants to meander around the 3D cities, explore the limits of the maps and the interior of the 3D letters. But despite being able to choose their point of view, participants cannot transform any aspects of the 3D world – for example, change the shape of the letters, their color or position. On the contrary, *Please Empty Your*

Pockets and *Interactive Plant Growing* allow for more control over the output. In other words, the power of the participant to temporarily or permanently influence the environment is greater. With the former, participants can scan and “introduce” into the system any type of object at hand, place them several times in different positions, assemble and arrange different objects. This manipulation will permanently affect the installation since images are stored in the system’s memory and can be randomly retrieved and appear later during other encounters. In the case of *Interactive Plant Growing*, participants can compose different images on the screen by controlling the plants’ rate of growth and other properties like their color. However, this manipulation is more ephemeral, leaving a trace that disappears after the screen is completely filled with digital plants or when someone pushes the cactus to reset the screen. Even if the *openness ratio* is smaller in *The Legible City*, our analysis shows us that participants weren’t more involved in critical reflection during the encounters because of that. In other words, the emergence of *aesthetic distance* was not facilitated by a small *openness ratio* but rather was affected by the *playfulness ratio*. Compared with the other two installations, participants spent more time playing (*free-playing*) than testing the apparatus. We should recall that the test phase of *Please Empty Your Pockets* was the longest, with a small playful phase in which participants tried to scan parts of their bodies or “out of format” objects. Furthermore, despite *Interactive Plant Growing*’s *openness ratio*, most participants didn’t try to understand or to exhaust all the possibilities of the interaction grammar. As previously stated, participants learned the basic grammar and then left the room or in some cases played with the apparatus. When play emerged, we saw that both the second phase (speculative/test) and the third phase (playful) had almost the same duration, showing that both factors are equal. Yet we also concluded that this installation reaches its full potential when group interaction unfolds.

This analysis shows that the different *distance factors* are identical for all three installations. As previously mentioned, one can't accurately measure the degree of transparency or opacity of a certain interface or the installation's *playfulness ratio*, but the data available and the possibility of comparing the results of each installation allowed us to obtain a rough picture.

To summarize, the interface's complexity/learning, transparency and response time are approximately at the same level, but the complexity/learning factor is slightly greater in the case of *Interactive Plant Growing*. Regarding the *openness ratio*, *The Legible City's* is slightly below that of the other two installations while its *playfulness ratio* is clearly higher than that of the other two.

Considering this "picture" one immediately agrees that participants were *under-distanced* during the encounters with the three installations. However, considering our interviews, it's not so linear and we can't really verify the previous conclusion. We would be creating a meaningless generalization if we concluded that all participants were *under-distanced*. In fact, some participants reported some boredom and lack of interest regarding the experiences proposed, thus in some cases we can clearly state that participants were *over-distanced*. This deduction is also supported by the duration of the encounters that reported *over-distancing* signs. Normally, such encounters ended much earlier than the average. Participants tested the interaction grammar and abandoned the experience immediately afterwards.

The methodology used allow us to evaluate the overall experience so that we can verify if participants were more *under-distanced* or *over-distanced*, yet it presents some limitations in understanding how *aesthetic distance* varies over time. The interviews reveal that most participants reflected on their experience between periods of action and above all during the interview. In some cases, this also happened during the period of observation

before participants physically engaged with the apparatus. This was noticed in a few interviews regarding in particular the experience with *Please Empty Your Pockets*.

Of course it would be interesting to examine in more detail the moments when distance emerges so that we could understand if they were related to the artwork's *distancing power* or to the participant's distancing faculties. In other words, which characteristics or events induce the participant to step back and to reflect on the experience? Although we have some clues and indications yielded by the reports, this was not really explained in depth.

Moreover, some participants who revealed a stronger *distancing-power* indirectly mentioned a "non-resistant" nature that characterizes the installations. This might in fact be at the origin of the absence of *aesthetic distance* in most of the encounters studied. Nevertheless, it's important to note that even if most participants did not reflected on the symbolic aspects of their experience, some reports confirm the emergence of mental activity, memories and different types of emotions during the encounters. It wasn't clear for us if the memories and certain thoughts reported to us unfolded during the encounter or rather if they were artificially produced in order to answer our questions during the interviews.

Nonetheless, the reports corresponding to the emotional dimensions lived during the encounter were more consistent from one participant to another and also with the data resulting from our observations. Taking this into account, we might claim that participants were conscious of their emotional states but also of the fact that these were provoked by the situation they were living.

Finally, our analysis clearly demonstrates that in most encounters with each installation, the emotional dimension is more prominent than the reflective, critical dimension. Furthermore, the emotional side of these experiences is mainly triggered by playful behavior. The exception is observed in the experiences lived by participants who have

a strong *distancing-power* or for those who already have a more intellectual/interpretative relationship with artworks.

In a previous research study that examines experiences with different screen-based interactive artworks, Mok Mi Hudelot came to interesting conclusions that deserve some attention in this context. The author set up a qualitative study in laboratory conditions that allowed her to examine the experience of eight participants with four different artworks – *Portrait n°1* by Luc Courchesne, *Impalpability* by Masaki Fujihata, *Moment de Jean-Jacques Rousseau* by Jean-Louis Boissier and *Cinopoly* by Atsuko Uda.

As in our investigation, participants were observed while interacting with different works and responded to an interview at the end. Despite the author’s cognitive approach, her conclusions resonate with our findings, reinforcing them.

Hudelot declares that the different interaction grammars were understood by all participants in a similar way. On the contrary, the symbolic understanding of the experience is very diverse and unique to each spectator. (Hudelot, 2008, p. 272) Moreover, the author compared participants’ interpretations with the intentions of the artists, concluding that they were rarely coincident but also very different. (*Ibid.*) According to Hudelot, this happens because participants fail to see the interaction mode as part of the artwork, regarding it as a way to interact that enables them to explore and access the “contents” of the work. In her words, “for them, the interpretation of the artwork doesn’t unfold from the interaction – from the interactive relation – but from the contents of the image.” (*Ibid.*)

During our research we weren’t so concerned with understanding and comparing the artistic intentions, but rather with the subjective interpretative experience of each participant. We tried to access the interpretative process as it occurred during the encounter but, as we saw, our findings were clearly different from those obtained by Hudelot.

In many cases the descriptions regarding symbolic interpretations were simply nonexistent and when descriptions were made, participants' actions and performance were rarely taken into account. In the same way as foregrounded by Hudelot's analysis, we confirmed that participants were mostly describing the elements of the image rather than reflecting on the symbolic relationship with it. Their gestures and physical actions appear mostly out of participant's consciousness and don't have any symbolic weight when they try to decode the meaning of their experience.

Moreover, comparing both studies foregrounds the dissonance observed between the sense-making process in screen-based artworks and installations that demand participants to be more physically and playfully engaged. In the first group of works, researched by Hudelot, participants stand in front of a computer screen and interact with the work essentially by using the mouse and the keyboard. As such, most of them are already acquainted with the interaction mode, so they can focus more on the images than on the way in which they interact with them. On the contrary, in the second group – the works we studied – the interaction modes demand more physical engagement but also more attention because they are not familiar to participants. That's why their experiences and consequently the reports appear so centered on the interface.

Unlike Hudelot's findings, the participants we interviewed didn't have so many difficulties accepting the interaction mode as an important aspect of the artwork, even if most of them failed to interpret its symbolic dimension. It's interesting to note that while participants in Hudelot's analysis weren't able to make sense of the experience because they neglected the interaction mode, in our case, participants were too focused on the interface, interaction mode and free-play. They often described the functioning of the installation, the actions performed to activate the apparatus and the playful behavior, yet they rarely referred to the thoughts and reflections that unfolded during the encounter. In many declarations made

by participants in Hudelot's analysis, descriptions of the functioning and literal descriptions of what they have seen also clearly appear without any attempt to grasp the symbolic meaning of the experience. However, regarding some reports, we can verify that some works have a greater *distancing-power* than others. According to the author the reports showed that *Moments de Jean-Jacques Rousseau* and *Cinepoly* were less understood from a symbolic perspective than the other two works analyzed. (Hudelot, 2008, pp. 226-228)

Furthermore, Hudelot's analysis contains more declarations that refer to the symbolic understanding of the experiences than our study does. In our view, this can be explained by the fact that the three propositions we studied allow for a playful behavior that's not encouraged by the screen-based works analyzed by Hudelot.

Our case studies and others provided by different authors such as Hudelot introduced to us a considerable amount of information that can be further explored, yet one common aspect seems to emerge in all the projects analyzed. We are referring here to the non-resistant and non-provocative dimension that characterizes these propositions. They afford an experience that allows participants to explore the apparatus with different degrees of difficulty, yet most of the interfaces are designed to work smoothly and to be intuitive. In some situations, the experience seems to attain a state that resembles the optimal experience as described by Csikszentmihalyi. This aspect deserves more attention, thus the next section examines in more detail the notion of flow in interactive art experiences.

5.2) *Flow design and Smooth design*

In Chapter VI we briefly introduced the concept of *flow* or optimal experience developed by Mihaly Csikszentmihalyi. According to the author, during certain activities we might attain a state of optimal experience or *flow* that is characterized by a feeling of deep concentration and absorption. (Csikszentmihalyi, 2008)

For Csikszentmihalyi we often engage in certain unproductive activities such as game play or art encounters not to achieve a reward or any material benefit, but for the sake of the experience itself. (Csikszentmihalyi & Robinson 1990, p. 7) This is what he means by *autotelic experience*, a fundamental dimension that characterizes *flow* states. (Csikszentmihalyi, 2008, p. 67) Nevertheless, as he claims, one can even experience *flow* while working. (Csikszentmihalyi, 2008, p. 143) Therefore, it comes as no surprise that contemporary design seeks to improve the quality of the experiences and augment the coefficient of *flow*.

The concept of *flow* has recently been applied to many fields of research such as computer science, HCI, experience and game design, art and aesthetics, becoming an omnipresent aspect and an essential point of departure in design guidelines. This is very clear in the field of game design. For game designers Salen and Zimmerman, “the heightened enjoyment and engagement of the flow state is exactly what game designers seek to establish for their players.” (Salen and Zimmerman, 2004, p. 336) Moreover, in *Technology As Experience*, John McCarthy and Peter Wright show us that technology we live with attempts to do the same:

“Very often (...) children are so absorbed in the game that they cannot hear or see anything else around them. They are completely attentive, engrossed, intensely concentrated, and immersed or lost in an activity. Benson (1993) sees this kind of absorption as one of the pivotal characteristics of an aesthetic experience in which there seems to be a breaking down of barriers between self and object, even an outpouring of self into object.” (McCarthy and Wright, 2004, p. 82)

This desire to blend self and object is strongly observed in the design of recent interfaces around us. From mobile phones’ operating systems to online social networks’ interfaces, there’s an evident quest for transparency, for immersion and *flow*-like experiences. Designers are seeking a flawless, frictionless, continuous and absorbing encounter that keeps the experience going indefinitely. A “perfect” design should be able to give users instantaneous access to the contents without the sense of being mediated.

Our first observations and readings concerning the experience with some interactive artworks highlighted some aspects that support a *flow-design* approach to many interactive artworks. In one piece of research conducted by Morrison et al., the authors report the emergence of *lila play* in all three works. According to Nachmanovitch, *lila play* is a state of “divine play” and according to Morrison et al., “[it] achieves highly optimized states, similar to *flow* states with loss of conscious awareness of self and/ or time/ circumstances.” (Nachmanovitch, 1991; Morrison *et al*, 2011, p. 4) Still, the authors provide little information about this state, only indicating that it arose in states of “heightened play”. (Morrison et al, 2011)

Moreover, in a study carried out by Sidney Fels, the author avers that aesthetic experience unfolds from an intimate relationship between the participant and the object and from the skillful manipulation of objects. (Fels, 2000) He avers that: “if there’s no intimacy, the effectiveness of communication is poor. A typical case where intimacy is very low is when a person first uses a new software package.” He goes on to claim that,

“From the perspective of interactive artworks, it is interesting to explore our intimacy with our machines. In *Iamascope*⁴⁸, we begin to see intimacy forming between the machine and the participant very quickly. Within a few minutes, a person is completely unaware of the machine and is intimately linked to the images they are creating.” (Fels, 2000, p. 14)

Fels regards the aesthetic encounter between participant and object as a moment for effective communication where the ultimate goal is to embody the object and to become embodied by it, in order to achieve a state of *Belonging*. He compares this to the relationship users have with software in which the ultimate goal is to accomplish a function (e.g. creating a drawing) with a high degree of expression. (*Ibid.*)

Regarding participant’s experience with the *Iamascope*, Fels observes that as soon as participants assimilate the mechanisms of interaction, they become focused on the expression

⁴⁸ *Iamascope* is an interactive kaleidoscope that creates images triggered by the participant’s movements in front of a video camera. The kaleidoscopic image reflects back an abstracted portrait of the participant. The speed and frequency of the participant’s movement also produces musical notes, creating a sonic accompaniment to the flow of images. (Costello *et al.*, 2005)

potential of their movements and actions. (*Ibid.*) The initial moment of *paidia* play, characterized by exploratory, unstructured movements and actions become more structured, evolving into a form of *ludus*. A feeling of control arises and, as Csikszentmihalyi observes, one might lose the freedom to determine the content of consciousness. (Csikszentmihalyi, 2008) In *Iamascope*'s evaluation, Costello *et al.* observed that one of the participants experienced a loss of self-consciousness after gaining control and mastering the work: "I noticed a few times how mesmerizing [it is], you get lost a bit in there so you are not as conscious of what you are physically doing. Taking the lead I guess a bit from the screen." (Costello *et al.*, 2005, p. 54) Costello *et al.* observe that this was the only participant who experienced a state of *Belonging* – "a state where the participants feel the work is controlling them" – because she spent a long time interacting with it, thus developing a more intimate relationship with it. (Costello *et al.*, 2005)

The observations preceding our qualitative analyses of *The Legible City* have strongly suggested that some participants might have experienced similar *Belonging* states or *flow* states in Csikszentmihalyi's sense. As such, these first findings oriented our research towards the notion of *flow* in art experience. We became interested in understanding whether art experiences were able to generate *flow* states but also in analyzing what kind of influence they had in the construction of meaning.

Yet, while the different dimensions of *flow* described by Csikszentmihalyi⁴⁹ perfectly fit an activity such as a tennis match, it is not so clear how they relate to art experience.

Regarding a tennis match, for example, the player needs to be fully concentrated in order to return the balls hit by her opponent; secondly, the goal is to win the game by landing the ball in the field of the opponent; thirdly, she needs to have and to develop physical skills

⁴⁹ 1) A challenging activity that requires skills; 2) The merging of action and awareness; 3) Clear Goals; 4) Clear Feedback; 5) Concentration on the task at hand; 6) Paradox of Control; 7) Loss of Self-Consciousness; 8) Transformation of Time; 9) Autotelic Experience.

and psychological strategies so she is able to beat the opponent; fourth, the location of the ball, her racket and the opponent's position give her constant, clear feedback; fifth, depending on her experience and skills she will feel more or less in control; sixth, the skills are in equilibrium and evolve over time, avoiding boredom or anxiety; seventh, the player might lose self-consciousness; eighth, time might be distorted; ninth, if it is not a professional match, then the player is normally doing it for the sake of the activity itself, without expecting any reward other than the pleasure afforded by the process itself, thus it is autotelic.

This description helps us to verify that the nine dimensions of flow perfectly fit sports and probably other activities as games or religious rituals, but can they also fit aesthetic experiences, for example when someone looks at a painting or a sculpture? What are the skills one is required to have when confronted with an open-ended experience? Are paintings and sculptures able to give clear feedback to the beholder?

Aesthetic experience is mostly known for being an enjoyable activity in which beholders are stimulated and delighted by the colors and forms of paintings and sculptures; however, can one experience a flow state in front of an artwork?

Csikszentmihalyi observes that an "activity" is not necessarily a physical activity in which one needs physical and motor skills to meet the challenges involved. He takes the experience of reading a book as an example of an activity that requires a minimum physical effort yet a considerable amount of symbolic information manipulation skills. (Csikszentmihalyi, 2008) The same applies to the experience of looking at a painting or sculpture. The physical skills involved in such operations are basically of the same kind as those one applies in everyday life although, as Csikszentmihalyi puts it, "seeing is most often used simply as a distant sensing system" emphasizing the need to develop the sense of seeing in order to face the challenges of art. (Csikszentmihalyi & Robinson, 1990)

Moreover, in the *The Art of Seeing: An Interpretation of the Aesthetic Encounter*, Csikszentmihalyi and Robinson focus on the analysis of aesthetic experience and *flow*, underlining the “invisible” and thus unperceivable character of traditional aesthetic experiences:

“The most important, for our purposes, is the fact that while many of the skills involved in skiing manifest themselves in directly observable actions, most of those required for art perception do not. The novice skier crosses his skis and falls down; the novice art perceiver looks pretty much like everyone else in the gallery. His successes and failures are hidden. This means that if we are to get at what goes on in the minds of novice and expert art perceivers we will have to rely to some degree upon their own testimony.” (Robinson and Csikszentmihalyi, 1990, p. XI)

The authors also make the noteworthy observation that the way in which philosophers describe aesthetic experience and psychologists describe *flow* experience are essentially depicting the same state of mind. (Robinson & Csikszentmihalyi, 1990, p. 8) The table below compares the different aspects that define aesthetic experience according to Monroe Beardsley’s account with the different criteria for *flow* experience.

| CRITERIA FOR THE AESTHETIC EXPERIENCE ^a | CRITERIA FOR THE FLOW EXPERIENCE ^b |
|---|--|
| OBJECT FOCUS: Attention fixed on intentional field | MERGING OF ACTION AND AWARENESS: Attention centered on activity |
| FELT FREEDOM: Release from concerns about past and future | LIMITATION OF STIMULUS FIELD: No awareness of past and future |
| DETACHED AFFECT: Objects of interest set at a distance emotionally | LOSS OF EGO: Loss of self-consciousness and transcendence of ego boundaries |
| ACTIVE DISCOVERY: Active exercise of powers to meet environmental challenges | CONTROL OF ACTIONS: Skills adequate to overcome challenges |
| WHOLENESS: A sense of personal integration and self-expansion | CLEAR GOALS, CLEAR FEEDBACK |
| | AUTOTELIC NATURE: Does not need external rewards, intrinsically satisfying |

^aBeardsley 1982, 288–289.

^bCsikszentmihalyi 1975, 38–48.

Table 1 – Comparison of Criteria Defining the Aesthetic Experience and the Flow Experience

This study, the observations and the speculations we had previously made led us to develop a qualitative methodology that allows us to evaluate the experience of *flow* in interactive art installations. The next section describes the process and the results of our study.

5.3) Evaluation of *flow* while experiencing *The Legible City*

“(…) While a climber faces new configurations of available holds, pitch, and obstacles with every move, someone standing before a painting or sculpture is confronted with an object that physically does not change. Yet many times and in many ways, these museum professionals have talked about “seeing new things” or “reaching new understandings” in their encounters with works of art.” (Robinson and Csikszentmihalyi, 1990, p. 133)

As we’ve clearly noted in this text, experiences with traditional artworks like paintings and sculptures differ in many ways from experiences with interactive artworks. Interactive installations literally change, react and adapt to participants’ actions, thus understanding unfolds and evolves during exploration. Additionally, unlike during traditional art encounters, an external observer can partly perceive this sense-making process unfolding. Yet, even if we have access to a greater number of dimensions of such experiences, we still need participants’ testimonies to understand the particularities of *flow* experience.

For Csikszentmihalyi, *flow* states always include *enjoyment* and *focused attention*. (Csikszentmihalyi and Robinson, 1990) While emotions can be directly observable, their mental representations – the feelings – remain concealed and reserved to participants. As such, a proper methodology is required to analyze participants’ enjoyment. (Kivikangas, 2006, p. 10)

With this in mind, we’ve examined the different methods of detecting and measuring *flow* experience in previous studies related to aesthetic experience. However, apart from the study

carried out by Robinson and Csikszentmihalyi, most of this research is related to the fields of human computer interaction, essentially using ad hoc questionnaires (e.g. Chen et al., 1999; Skadberg & Kimmel, 2004), game design using questionnaires and psychophysiological methods (e.g. Kiili, 2006; Kivikangas, 2006) and sport (e.g. Marsh and Jackson, 1999).

One of the problems commonly highlighted by some of these studies is the impossibility of analyzing participants' states while the experience is taking place. Any questions or interruptions can easily jeopardize the experience and disrupt the *flow* state. In light of this some qualitative studies have been considering the use of psychophysiological methods in order to gather some extra data that questionnaires and interviews can't access.

In *Psychophysiology of flow experience: An explorative study*, J Matias Kivikangas uses different methods to record the physiological activity (facial EMG measures and skin conductance measures) of digital game players, associating this data with self-rated Flow State Scale questionnaires. The author concludes that digital games are elicitors of flow and such methods provide interesting results for exploring the emotions and other processes relevant to flow. (Kivikangas, 2006, pp. 20 – 24)

While preparing our study, we contemplated the possibility of using similar methods to study *flow* while interacting with *The Legible City*, yet a number of obstacles cropped up in our path. Taking into account the interaction mode, the installation settings at the museum and the need to preserve the naturalistic conditions of the experience, it was technically impossible to measure physiological indices. As such, we decided to use *Flow State Scale* inquiries, a psychometrically valid scale method developed by Jackson and Marsh to assess the experience of *flow* in sport and physical activity. (Jackson and Marsh, 1996)

The FSS consists of a 36-item questionnaire with nine sub-scales that contain four items. Each sub-scale corresponds to one of the nine dimensions of flow as described by Csikszentmihalyi (#1 Challenge-skills balance; #2 Action-awareness merging; #3 Clear

Goals; #4 Unambiguous Feedback; #5 Concentration on the task at hand; #6 Sense of Control; #7 Loss of Self-consciousness; #8 Transformation of Time; #9 Autotelic Experience). Moreover, the sub-scale items are rated using a 5-point Likert-type response format (1 = *strongly disagree* to 5 = *strongly agree*). (Jackson and Marsh, 1996, p. 23) For more detailed information the reader can consult the questionnaire in the annexes.

This inquiry took place during our qualitative study of *The Legible City* at CEAC in Strasbourg. After each IPA interview, we asked participants to recall a moment of optimal experience during the encounter or “one where you were totally absorbed in what you were doing, and which was very enjoyable” and afterwards, they completed the FSS questionnaire. (Jackson and Marsh, 1996, p. 22) As Jackson and Marsh suggest, both methods, qualitative (IPA interviews) and quantitative (FSS inquiries), allow us to combine and cross-reference data in order to obtain a more complete picture regarding the experience of flow. Yet they recognize that any attempt to investigate *flow* experience presents difficulties and limitations. (Jackson and Marsh, 1996, p. 31) Following Csikszentmihalyi’s statements, they claim that it’s not possible to fully understand *flow* through questionnaires or even in-depth interviews. We reached the same conclusions during our examination and while analyzing the results. We were essentially trying to understand whether Shaw’s installation could act as an elicitor of *flow*. Moreover, if the answer was positive, we were interested to know what characterizes those experiences and how flow states affect the sense-making process.

5.3.1) Analysis of results

Of the 17 questionnaires collected, we set aside two that were clearly jeopardized by an abnormal experience caused by physical instability that led participants to abandon the experience a few moments after they started pedalling. In light of this, we considered the

answers given by 15 participants and, despite the relatively low number for a quantitative study, the results confirm some aspects of our previous qualitative study.

We'll examine the results by analyzing the nine different dimensions of *flow* individually and by considering the calculated Likert value mean for each dimension.

1) A challenging activity that requires skills

The Legible City presents challenges at different levels therefore requiring different types of skills. During the first phase of the encounter, participants are mostly challenged to grasp the installation's functioning mode. Those who physically engage with the apparatus quickly overcome this challenge. Moreover, most of them had some previous experiences riding ordinary bicycles so, as we analyzed before, in most cases the physical action and the control of the interface became transparent very fast. As such, this is not really recognized as a challenge by most participants.

As soon as one starts riding the bicycle, other challenges emerge. We are referring here to the symbolic manipulation of linguistic signs. Participants now focus on the screen's contents, trying to understand what is happening there, and what they are supposed to do. In most cases, they understand that the letter-shaped buildings constitute sentences, yet this linguistic layer is often neglected in favor of free-play or due to design problems. In other situations, participants told us that they weren't capable of reading the text because it was written in foreign languages (English, Dutch and German). As such, besides the clear lack of symbolic manipulation skills testified by certain participants, the aforementioned design problems augmented the challenge's difficulties. Both studies (qualitative and quantitative) show that *The Legible City* wasn't challenging for most participants but at the same time, they were unsure if their skills could meet the challenge. This sense of inadequacy might be explained by a certain incomprehension or by the sense of incompleteness foregrounded by several

reports. That is to say, most participants neglected the textual layer of the work, thus this might have produced a sense of an unfinished experience.

Additionally, regarding skills involved in aesthetic experiences, theoreticians Robinson and Csikszentmihalyi claim that skills appear compartmentalized. In the authors' own words, "one can develop a greater emotional sensitivity to works (...) without necessarily honing one's perceptual, intellectual or communicative skills in the process." (Robinson and Csikszentmihalyi, 1990, p. 124) This is actually also highlighted by our studies. Participants' reports note a greater emotional sensitivity and involvement while interacting with the installation. Different emotional responses have been foregrounded by reports: positive emotions such as joy, fun, amusement, surprise and relaxation but also some negative emotions such as frustration, confusion and boredom. Intellectual, perceptual and communicative skills were clearly understimulated by the installation. Nevertheless, such dimensions weren't completely nonexistent during the encounters. They were only less stimulated and consequently less prominent in participants' reports.

2) The merging of action and awareness

The skills acquired during the encounter open up new areas of challenge. (Robinson and Csikszentmihalyi, 1990, p. 119) In this case, motor and physical skills give access to the linguistic layer, the legible city; and new skills are needed again to decode it. The authors argue that this spiral facilitates the merging of attention and awareness. Moreover, they claim: "attention will be fully focused only when the challenges and skills are in balance. And completing the cycle, but at a higher level, this very focusing of attention develops new skills." (Robinson and Csikszentmihalyi, 1990, p. 119)

Observations, qualitative interviews and the values of our FSS support this dimension of the experience, which is according to Csikszentmihalyi one of the most distinctive feature of

flow. He describes this dimension as the moment when people become absorbed by the activity at hand, the involvement becomes spontaneous and almost automatic and the actions performed become transparent. (Csikszentmihalyi, 2008, p. 53) Most participants reported a similar state, in which they felt an almost involuntary involvement with the work. They observed that interaction was effortless without requiring them to think in order to ride the bicycle and to move through the legible cities.

3) Clear Goals and Feedback

Csikszentmihalyi avers that if *flow* emerges during experience then the goals of the activity have to be clear and participants need immediate feedback from their actions. The goals in most aesthetic encounters are not as clear as while playing ping-pong or during a chess match. Looking at a painting involves goals that are open and ambiguous and depend very much on each person's interests and past experience. In the case of *The Legible City*, participants had some trouble in discerning the goals proposed by the installation. This is supported not only by the FSS questionnaires but also by the interviews. Very often participants told us they were looking for something to do, for the aim or the sense of their actions, yet most of them failed to recognize what was going on there, beyond the "virtual" ride. Some were looking for a certain challenge, a mission to accomplish, a hidden place that could take them to another level, imagining the installation as a video game, yet nothing was there beyond the letter-shaped buildings and the empty streets. On the contrary, the feedback provided by *The Legible City* was very clear. The installation's structure evolves dynamically according to participant's movements and actions. The small response time of the system allows for a fluid communication and clear feedback that facilitated comprehension of the interaction mode, clearly supporting the merging of action and awareness. Yet, as we have already noted, the reading process was not that smooth and most participants struggled to

read the sentences or even the words due to the arrangement of the letters. As a consequence, while the operational layer provides clear feedback, the symbolic layer provides more friction, in some cases leading to a total neglect of the text. For Robinson and Csikszentmihalyi, the focus of attention on the artwork is prolonged when clear goals and clear feedback meet. (Robinson and Csikszentmihalyi, 1990, p. 123) Of course, attention and concentration are also related to and intertwined with participants' skills and objects' challenges.

4) Concentration on the task at hand

According to Csikszentmihalyi, to experience a *flow* state is to be highly concentrated on the task at hand. Moreover, he explains that while experiencing it, participants are so focused that they can even forget the unpleasant aspects of their lives. (Csikszentmihalyi, 2008, p. 58) Beardsley refers to this dimension of experience as object directness, considering it one of the central aspects of aesthetic experience. (Robinson and Csikszentmihalyi, 1990, p. 119) Qualitative and quantitative analysis confirm the emergence of several moments of deep concentration during each encounter with *The Legible City*. Some participants reported moments in which they felt relaxed, playing and riding effortlessly without thinking. Furthermore, some reports also foreground the awareness of a special state of concentration in which participants felt a sensation of absorption while exploring and discovering the cities. During that moment, rather than thinking about their concerns and affairs, participants' thoughts were more related to past memories or lived situations that resonated with the experience at hand. The values obtained in FSS inquiries support the findings of both observations and the qualitative reports.

5) Paradox of Control

“The flow experience is typically described as involving a sense of control – or, more precisely, as lacking the sense of worry about losing control that is typical in many situations of normal life.” (Csikszentmihalyi, 2008, p. 59)

What Csikszentmihalyi means by paradox of control is explicit in the previous passage. While playing a video game, for example, we might have a sense of being in control, yet we are not worried about losing control. Regarding the encounters with the *Legible City*, the sensation of control felt by most participants is very striking. Even if they had some difficulties reading and decoding the symbolic aspects of this proposition, they very quickly mastered the operational aspects of the apparatus. This is supported by observations and reports as well as by the values of the FSS inquiries. Yet some participants reported a sensation of confusion, claiming that for a few moments they felt lost while meandering around the digital cities. Nevertheless, it's not easy to grasp the paradox pointed out by Csikszentmihalyi. At least, the qualitative methods didn't provide us with any understanding of the subject. The only aspect that might support this view stems from the observations made. Participants were often observed riding into the letters, without being concerned about losing control, misusing the apparatus or “misplaying” it. Likewise, reports also foreground a carefree experience in most encounters.

6) Loss of Self-Consciousness

Csikszentmihalyi observes that when someone is totally engrossed in a certain activity, their concern with the self might eventually disappear. Yet he explains that we do not lose our self or our consciousness, but, instead, the consciousness of the self is temporarily suspended:

“The absence of the self from consciousness does not mean that a person in flow has given up control of his psychic energy, or that she is unaware of what happens in her body or in her mind. (...) So loss of self-consciousness does not involve a loss of self, and certainly not a loss of consciousness, but rather, only a loss

of consciousness of the self. What slips below the threshold of awareness is the concept of self, the information we use to represent to ourselves who we are.” (Csikszentmihalyi, 2008, p. 64)

This dimension of flow is according to the author a very rare experience. Yet in the study developed by Robinson and Csikszentmihalyi, they noticed that more than a quarter of those interviewed experienced some kind of loss of ego. (Robinson and Csikszentmihalyi, 1990, p. 122) Our interviews rarely foregrounded this type of occurrence, probably due to the short duration of most encounters. However, two participants who experienced the apparatus for a greater amount of time reported a feeling of being absorbed, of “going with the flow”, that was unusual to them. Surprisingly, the results provided by FSS inquiries reveal very high values regarding this dimension of flow.

7) Transformation of Time

The inquiries made by Csikszentmihalyi in order to understand the phenomenon of *flow* frequently reported a transformation or distortion of time. In other words, the objective time did not fit the subjective time as lived by participants but rather seemed to pass much faster, or much slower. (Csikszentmihalyi, 2008, p. 66) We tried to understand this dimension during our qualitative studies by measuring the duration of each encounter and comparing it with participants’ subjective perception of the time taken. Yet the results were not very conclusive. We only noticed a considerable discrepancy regarding the passage of time with two participants – one of them being someone who also reported the experience of losing her self-consciousness. Both had the impression of spending less time experiencing the work than they objectively did. FSS inquiries coincide with our qualitative findings. Once again, these results might be a consequence of the small amount of time spent by most participants engaging with the installation.

8) Autotelic Experience

Csikszentmihalyi defines autotelic experiences as those “self-contained” activities in which one is acting “not with the expectation of some future benefit, but simply because the doing is itself the reward.” (Csikszentmihalyi, 2008, p. 67) The end is the pleasure gained from doing such an activity and attention is focused on the activity itself rather than on its results.

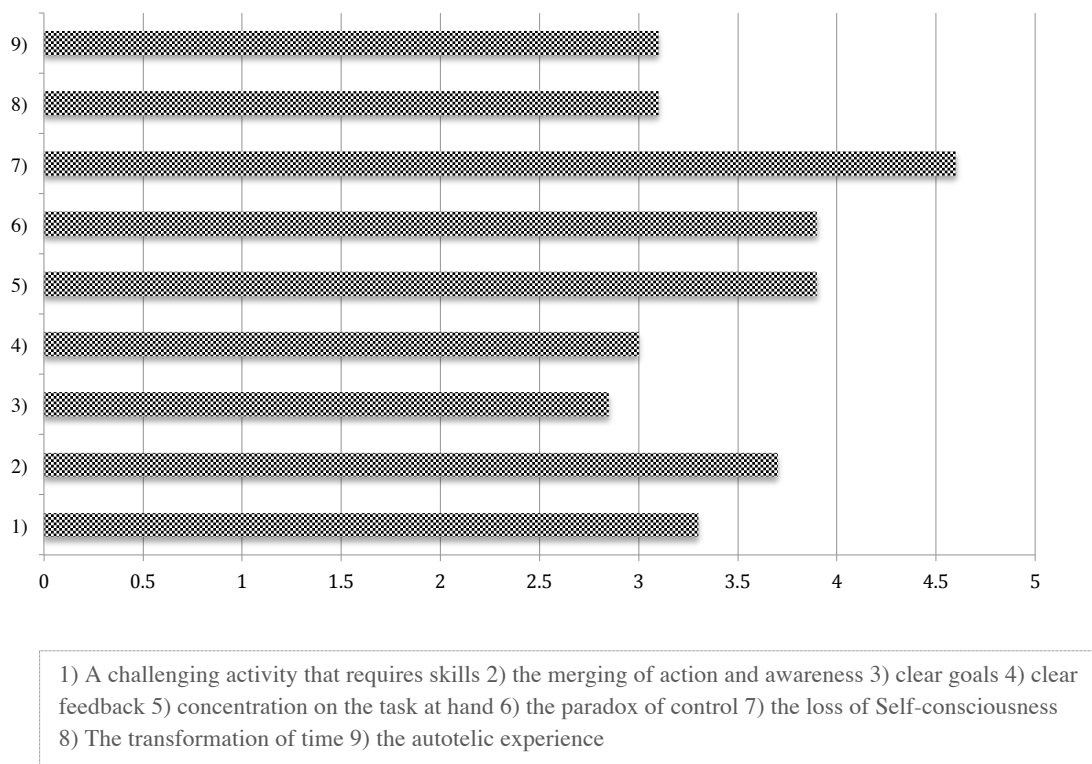
This dimension is according to the author one of the main features of optimal experiences, and we agree that the same applies to the experience of interactive arts. In most interactive art encounters, the process of discovery is central to aesthetic experience. This process unfolds from participants’ actions that are many times described as a source of pleasure and in this sense as a self-contained, or *funktionslust*, activity. But while some reports clearly refer to the enjoyable and cheerful aspects of the experience, in many cases we noticed that participants were focusing more on the goals of the proposition. Yet a paradox stems from these observations. Most of them weren’t concerned about the symbolic purposes but more about what they would have to do in order to achieve something. This probably unfolded due to the strong formal resemblance between *The Legible City* and video games that most participants have played before. This comparison was actually often referred to in different reports, revealing the goal-oriented and competitive nature of most video games. Furthermore, the results presented by our FSS inquiries don’t support the autotelic dimension of flow, presenting a low Likert value.

5.3.2) Discussion

Both qualitative and quantitative analyses suggest that most participants did not experience a *flow* state. Some dimensions of *flow* analyzed present high values and were also

confirmed by our qualitative interviews and observations. The graphic below displays the results obtained by calculating the Likert value mean relative to each FSS dimension.

The dimensions 2), 5) 6) and 7) present high values and with the exception of 7), all the others were also confirmed by our qualitative interviews and observations. Nevertheless, the other five dimensions 1), 3), 4), 8) and 9) not only present low values on the FSS inquiries but were also poorly represented by our qualitative methods.



Graphic nº 1 – Likert value mean regarding each dimension of FSS

These results and analysis seem to suggest that the experience with *The Legible City* is not a *flow* elicitor for most participants. Yet this might be explained due to the short duration of most encounters. As a counter-example, one participant who interacted with it for a longer period of time described an experience that strongly resonates with Csikszentmihalyi’s description of *flow*. Additionally, the results provided by her inquiry also supported her reports. Unlike most participants, her FSS inquiry and interview confirm the

autotelic experience and in one of the cases the transformation of time that was rarely remarked in other encounters. Moreover, all the other dimensions were also confirmed. Julie described her experience as a source of pleasure and relaxation that didn't require her to think; instead, she felt like "going with the flow." In her own words she stated: "we lose track of time while navigating this 3D world", "we let ourselves go." (Julie, CEAC, 2012) Moreover, she added that she wasn't very concerned with reading, with finding the meaning or decoding the symbolic aspects of the work. In this sense, she wasn't looking for any concrete goals but rather was looking to enjoy the possibilities she found along her way. In our view this clearly confirms the autotelic character of her experience. Interestingly, she told us that at the beginning of the encounter, she wasn't very comfortable because she felt observed by other visitors in the gallery. However, after some time, she said that she felt absorbed in play and forgot this initial concern, thus supporting the dimension that describes a loss of self-consciousness. The observations also seem to suggest a strong *paradox of control*, since she was clearly in control of the apparatus, yet she did not seem worried about losing control. More than any other participant, she took the time to explore the different possibilities and the limits of the apparatus, crossing through the digital letters, going until the limits of the city, spending time in the "dark", pedaling backwards and trying the different cities. Nevertheless, this seemed to be the only case reporting an encounter that resembles Csikszentmihalyi's optimal experience. Most encounters were very ephemeral and participants very often described feelings of boredom and frustration that would make them abandon the experience as soon as they grasped its functioning mode.

Once more, the results provided by our analyses demonstrate that there's a potential to experience *flow* states while interacting with *The Legible City*. Of the 15 participants studied, one might have experienced a state of *flow*. During our study we noticed how hard it would be to examine this phenomenon solely with access to FSS inquiries. It was extremely

helpful to compare both qualitative interviews and quantitative results. Yet, regarding the results, it becomes difficult to examine in more detail the structure of flow experience and to understand how it affects the sense-making process. We can only speculate and try to reach some conclusions relying on the experience lived by Julie, yet one cannot make generalizations about it. Her reports show a clear disregard for the textual layer or any attempt to reflect on the potential meaning or symbolic aspects of the encounter. When she says “we let ourselves go”, she describes very well what her experience was – a moment of pleasure without concerns, cheerful free-play, devoid of any kind of friction that would bring her to any critical reflection. Other participants reported this sensation, although not as strongly, perhaps because they abandoned the installation sooner. In conclusion, we might say that the experience is not meaningless for Julie, but on the contrary it’s a cheerful moment of relaxation outside of everyday life, that is nevertheless uninterested in the symbolic dimensions of the proposition.

Despite its potential to activate *flow* states in participants, if we take a look at the results obtained we cannot really consider the *The Legible City* as a flow elicitor, and thus using the definition *flow-design* to describe this type of work might give rise to certain misunderstandings. To avoid this, the next section introduces the notion of *smooth design* that seems more suitable to describe this kind of artistic propositions.

5.4) *Smooth design*

Interactive art propositions display a variety of strategies and designs that vary from artist to artist, from work to work. In our view, despite the diversity of interface designs, we can distinguish two main approaches. On the one hand we find propositions that follow a

*Technological Correctness*⁵⁰ model, commonly adopted by everyday interface design, and on the other hand we find a place for critical and more subversive propositions that somehow extend avant-garde approaches to interactivity. The first approach is normally interested in creating fluid, fast and engaging interfaces that allow for an intimate relationship between participants and environment. Very often, technology appears as a source of fascination, as a kind of magic or, as Rafael Lozano-Hemmer puts it, as a phenomenon of “*effect*” *effect*:

“Art itself is becoming TC. In fact, media art is frequently cited to vindicate the TC trend. We are invited to marvel at computers' improved capabilities and resolution and to be seduced by their evolutionary speed. Typically, the user of the artwork by mapping his or her actions to causal effects in the environment thus, TC art cannot be divorced from the desire to police the user by offering some kind of token control. The special effects themselves become the object of the artwork and the main incentive for its contemplation – a phenomenon we might call the “effect” effect.”⁵¹ (Lozano-Hammer, n.a., Online)

Interactive arts' interfaces allow participants to become almost immediately gain control of the images and sounds by means of bodily movements, gestures and other physical actions. Such experiences follow an undeniable contemporary desire for control and personal customization. Yet this control is apparently limited and illusory.

As Boris Groys observes, inside the installation space participants enter the space of sovereign, authoritarian control determined by the artist. (Groys, 2010, p. 59) The artist sets the interaction grammar, calculating the type of behavior or response from participants thus; they are always constrained and limited to artists' choices and decisions.

Nevertheless, as we learned from our case studies, even if interfaces become quickly transparent, at a certain point of the encounter, in many propositions they are a very important aspect of the aesthetic encounter that holds participants' attention. This is not so much due to their unworkability as to their mysterious and unusual formal qualities, which contrast with the ordinary appearance of computer screens and video projections. Artists ask us to ride a bicycle⁵², to blow into small fans that have an effect in digital worlds⁵³, to scream

⁵⁰ The term "Technological Correctness" is cited as originating with art critic Lorne Falk.

⁵¹ Last Online Access, December 2013 <http://www.leonardo.info/gallery/gallery291/curator.html>

⁵² *The Legible City* by Jeffrey Shaw, 1989.

in order to provoke small-scale earthquakes under our feet⁵⁴, to move physical objects with our brainwaves⁵⁵ etc. These aesthetic encounters seem to call our attention to the interface's external and internal mechanisms although this initial reflectivity quickly vanishes when we start to use them. They become almost frictionless interfaces that are not so much obstacles but instead windows and vessels that absorb spectators' attention.

In this regard, Jay Bolter and Dianne Gromala claim that transparency, as the only strategy for design is not a good solution, maintaining that good interface design should "oscillate in a controlled way between transparency and reflectivity." (Bolter and Gromala, 2003, p. 68) The authors state: "[*Wooden Mirrors*, *Nosce Te Ipsum* and *Text Rain*] are not simply "art"; they are also "demos," which we expect to find in a computer conference. They demonstrate how the interface can be made visible to us as a vital part of the experience." (*Ibid.*)

Learning from several objects coming from the field of digital arts, the authors give a few examples that support the importance of a reflective interface.

However, this view of *reflectivity* emphasizes efficiency, engagement and immersion rather than critical and detached aesthetic experience. This was clearly foregrounded by our case studies. The oscillatory movement they refer to was observed in several encounters with different installations although, as previously stated, the experience was essentially centered on the interface potentials and interaction grammar.

Furthermore, the authors observe that when we are operating a GUI, each time one changes from one window to another, transparency is broken because we focus on the interface: "For a moment, she must look at the interface, at the stack of windows, and select one, and in that moment the window is no longer transparent." (*Ibid.*) Yet, from our personal experience, when switching between windows, opening a program in the task bar or emptying the *recycle bin*, we're doing it automatically and our attention is not focused on the

⁵³ As an example consult the installation *Les Pissenlits* by *Edmond Couchot & Michel Bret*, 2005.

⁵⁴ As an example consult the installation *Infravoice* by *Atsuno Bukohira*, 2009.

⁵⁵ As an example consult the installation *Terrain* by *Ulrike Gabriel*, 1994.

workings of the interface but rather on what we'll do next. Just as when we drive a car, we don't think when we use the clutch pedal or the accelerator pedal because these actions have become transparent. According to Shklovsky, as they integrate into our routines and habits, actions become part of our unconsciously automatic (Shklovsky, 1965). Media is no exception to this, immersing users and leaving them no opportunity for a distanced view, which shows their relationship with the media.



Fig. 29 – *Wooden Mirror*, 1999 by Daniel Rozin

“Digital artists suggest not that we look through the experience to a world beyond, but rather that we look right at the surface.” (Bolter and Gromala, 2003, p. 72)

The authors use the window as a metaphor for transparency and the mirror for reflectivity. (*Ibid.*) These metaphors seem to adequately fit some interactive art installations in which attention appears to be essentially directed to learning and testing the interface, preventing a deeper, critical experience that goes beyond the surface.

These findings resonate with Andrew Darley's observations regarding our contemporary visual culture. For Darley, a certain fascination with the mechanisms and techniques seem to have replaced the interest in meaning and the symbolic aspects of the image. (Darley, 2000, p.114)

The term *smooth-design* embodies the group of interactive artworks that are designed to provide an experience that is essentially "technologically correct". Or, in other words, an experience that is functional and smooth, oscillating between transparency and reflectivity. The term *smooth* is actually used here to refer to a type of design that doesn't generate friction in usability and, more importantly, one that does not afford critical reflection beyond the interface settings and operations.

The three works we studied are good examples of *smooth-design*. Firstly, they present small learning curves that allow participants to adapt and engage very quickly with the interface. Then, our analysis shows us that interface transparency and reflectivity oscillate continuously. Sometimes, participants' attention moves from the interface margins (medium/mechanisms) to the center (contents) and then back again. Yet, in most cases, no critical reflections unfold from this movement. Participants make sense of the interface's working modes by thinking about them, but they hardly reflect beyond the interface and practical ends of the experience. As the three installations examined demonstrate, a *smooth-design* normally presents a low *distancing power*. Moreover, a *smooth-design* very often foregrounds the physical interaction and the relationship with the apparatus. In many cases this dimension seems to override reflection on the symbolic aspects of the experience for the sake of physical movement and free-play. Many interactive art forms that have been produced from the end of the 1970s to the modern day present a *smooth-design* that is

obviously feeding our fascination with technology, focusing on the interface, on the "effect" effect, to use Lozano-Hemmer's terminology – and on free-play.

As we've already seen, play and free-play are very important, if not essential, dimensions of art experiences. However, is there not a problem when certain important aspects of the artwork and our experience with it are overshadowed by free-play, operational aspects and technological fascination? Caillois and Huizinga's analyses in Chapter VI showed us that play is always serious and meaningful; yet, as our analyses and other theoreticians' analyses have foregrounded, free-play and a complex interface that allows multiple actions or complex interaction grammars can potentially distract participants, and absorb them in *self-play*. Roberto Simanowski's analyses of Camille Utterback's *Text Rain*, Rafael Lozano Hemmer's *Body Movies* and *Re:Positioning Fear* are particularly useful here, as they underline some of the influences play and free-play have in the reception and sense-making process of interactive art experiences.

Text Rain invites participants to recompose a poem by engaging their entire body playfully. Several letters that belong to a poem are projected onto a video screen, falling as if they were rain. Then, by moving in front of the projection, participants can stop some of these letters by making them land on their silhouettes. The poem, called "Talk, You" by Evan Zimroth, is according to the author related to the interaction experience itself. (Simanowski, 2011, p. 37) But are participants really able to read and make sense of the text while experiencing the installation or afterwards?

According to Simanowski, due to the difficulty of deciphering the letters, *Text Rain* doesn't engage the participant in the reading process but rather invites her to "test the interface". (Simanowski, 2011, p. 38) For the author, *Text Rain* affords an experience that's mostly sensorial with a strong physical engagement, ironically claiming: "it is all just play". (Simanowski, 2011, 42) For him, this experience is more about playing with the text than

about narration. Finally, he observes that the meaning of the experience with *Text Rain* cannot be grasped unless the linguistic layer is grasped, thus emphasizing the need to read the poem. (Simanowski, 2011, p. 41)

In the installation *RE:Positioning Fear* by Rafael Lozano-Hemmer a very similar situation seems to occur. The artist allowed participants to use their shadows in order to reveal different blocks of text that were projected onto the façade of a building in Graz, Austria. The texts were generated in a real time IRC online chat, where several people discussed different contemporary issues as global warming, Aids, terrorism or surveillance. Simanowski observes that the relation between reading and playing is supposed to create tension, but he avers that this did not really materialize because participants failed to read the text, due to their obsession with their own shadows. Another aspect that might have made the reading more difficult is the vertical arrangement of the text, which required participants to angle their heads in order to read. (Simanowski, 2011, p. 49)

Similarly, *Body Movies*, an installation created by the same artist, requires participants to use their shadows in order to reveal photos of people projected onto a wall of a building in Rotterdam. Graham Coulter-Smith analyzes this installation, remarking that when participants read the instructions, they “dutifully” move around the space revealing the photos, but after a while they were seen improvising, introducing creative bodily movements and gestures, in an attempt to “instill some animation into the deadly stasis of the photographic image”. (Coulter-Smith, 2006, p. 275) As the reader might have noticed, this resonates with many observations regarding the encounters with *The Legible City*. As Simanowski and Coulter-Smith observe, the participants of *Body Movies* fail to comply with Lozano-Hemmer’s intentions, although the installation seems to provide them with a moment of creative free-play, self and bodily discovery. (Simanowski, 2011, p. 129; Coulter-Smith, 2006, p. 275)



Fig. 30 - "Body Movies, Relational Architecture 6" by Rafael Lozano-Hemmer, 2001

By watching the videos of both installations one can quickly notice how participants adapt the “functionalities” of the piece according to their own intentions, improvising in self-absorbed shadow play. According to Simanowski, participants neglect the semiotic level comprising text and images in favor of playfulness and body agency. (Simanowski, 2011) In *Re:Positioning Fear*, for example, it is very difficult to read the text and almost impossible to perceive it appearing in real time without reading the project’s description.

The same seems to happen while experiencing *Screen*, an installation by Noah Wardrip-Fruin. Simanowski claims that, like the other three projects mentioned, this installation also affords an experience of playing and reading. Yet unlike the other examples, before being able to play with the text, participants are exposed to four different interaction modes that give them no option for interactivity on a physical level. This mode works somehow like a brake, allowing participants to concentrate on the textual layer. (Simanowski, 2011, p. 47) This artistic decision resonates with the installation *Still Standing* developed by Bruno Nadeau and Jason Lewis in 2005, which according to Simanowski “insists on

immobilization, making the still standing observer a key for accessing the text.”
(Simanowski, 2011, p. 49)



Fig. 31 – *Still Standing* by Bruno Nadeau and Jason Lewis, 2005

When participants enter the sensitive area captured by the camera, they discover the possibility of physically interacting with the moving characters standing on the bottom of the screen, thus affecting their movement and position. Yet, besides the playful dimension that might arise from participants’ movement and actions, the experience gains sense when one stands still in front of the screen. After a while, as if by magic, the chaotic letters in motion spread around the screen become organized, acquiring the shape of the participant’s silhouette. As a result, by standing still, participants can finally contemplate the textual contents and read the poem that according to the authors, plays with the semantic and etymologic intersection between *motion* and commotion. (Nadeau and Lewis, 2005, p. 2) It worth citing a passage regarding the analysis of *Still Standing* made by Simanowski:

“In *Still Standing*, Debord’s iconoclasm translates into the critique of bustling activity in front of the screen. Nadeau and Lewis interrupt the business of action and interaction, which not only has become the new religion in art, but also an integrated element of the society of spectacle that Debord described with regard to image production. Part of this trend is the cannibalization of the text and the abandonment of reflective, contemplative reading. Forcing the audience to stand still to read the text on the screen of an interactive

installation is analogous to having the audience watch an empty screen in the movie theater.” (Simanowski, 2011, p. 52)

Simanowski recognizes a certain critical dimension underlying the aesthetic decision made by Nadeau and Lewis, but afterwards he acknowledges a conceptual inconsistency, which undermines this artistic proposal. This derives mainly from the fact that the text doesn't change over time, thus keeping participants immobile for a small amount of time and in this way still contributing to the “fast-paced culture [the work] criticizes.” (Simanowski 2011, p. 53) Despite this analysis by Simanowski, we would like to highlight the strategy foregrounded by this installation.

Nadeau and Lewis wrote an article in which they introduce the notion of *inter-inactivity* as a strategy that supports an oscillation between motion and stillness during the encounter with the installations. They were concerned with “bringing the user to a point where she will gladly make time to read and think about several paragraphs or more of text, even while making the active component interesting to engage in and supportive of the semantics of the work as a whole.” (*Ibid*) In other words, they expected to develop a kind of brake, which interrupts participants' motion flow, providing a moment of focused attention.

Other artists have actually used the same aesthetic strategies to develop their works. This is the case of *Inner Forests*, an installation by Michael Kontopoulos, *Detecteur D'anges* by Jason Karaïndros or *Ferme les Yeux* by Tomek Jarolim. In the first example, *Inner Forests*, participants stand in front of a projection screen and, by standing still, they start to perceive certain shapes that emerge from random points on their shadow on the screen. These shapes are actually trees that keep growing until the participants move again.



Fig. 32 – *Inner Forests* by Michael Kontopoulos, 2007

Detecteur D'anges also uses the *inter-inactivity* strategy, although differently from the two previous examples. This poetic installation consists of a light sculpture composed of a glass dome containing a lightbulb on the inside that reacts to the surrounding sound. By standing in silence participants give life to the light that begins to shine yet, at the smallest noise, the light goes off again.

Ferme les Yeux asks participants to sit in front of a light apparatus and to close their eyes so they can experience the phenomenon. The apparatus is composed of an eye-tracking system that detects when participants close their eyes and, some seconds after, a LED projector starts radiating a strong light sequence onto participants' face. During this sequence the light changes its color, the intensity and the speed of the strobe. The phenomenon perceived is hard to describe in words although, with her eyes closed, the participant begins to visualize certain shapes and patterns generated by the flickering light that changes dynamically over time. The experience ends when the participant opens her eyes. Of course, this example is slightly different from the other three works: participants are immediately asked to sit down and they stay immobile during most of the encounter. While

in the other cases one enters into a dialogue, *Ferme les Yeux* foregrounds an experience that is essentially contemplative even if our eyes are closed.

Another example that uses a very similar interaction mode is the installation *Terrain* by Ulrike Gabriel. The participant is asked to sit in a chair and to wear a headband that measures the alpha waves produced by her brain. In front of her, a small “society” of solar robots move in search of light that radiates from the ceiling according to the participant’s brain activity. If alpha waves are produced the lights turn off, otherwise they are on, and the robots move to the strongest light spots. Yet, as Arjen Mulder observes, it is the absence of thought and reaction that allows the control of this society: “the activity the visitor must perform in order to bring the interactive object into motion and turn it into art consists of its opposite: inactivity.” (Mulder, 2007, p. 59)

What is interesting about these works is the fact that they strategically use motionlessness, silence and closed eyes as meaningful actions that open up a contemplative mode, which is normally nonexistent in typical interactive artworks. As such, the *inter-inactivity* strategy is not specific to installations that feature text but can actually be applied to all kinds of media. This strategy resonates somehow with an observation made by the French artist Bernard Brunon when he says: “With less to look at, there’s more to think about.”⁵⁶ (Brunon, Online 2013) If we slightly transform this statement, adapting it to the operative paradigm of interactive arts, we obtain: “With less to do, there’s more to think about.” This is actually what the inter-inactivity mode appears to do. By temporarily suspending participants’ control and action flow, it provides a distance and a space for contemplation and reflection on the experience at hand. This is not of course the case for *Terrain*, in which the absence of reflection is the sole condition for achieving a meaningful interaction; the reflection and the symbolic sense-making process, if they take place at all, emerge after the

⁵⁶ Last Access in December 2013: <http://gyst-ink.com/blog/?p=80>

encounter. As Mulder observes, the onlookers watching the participant facing the robots have critical distance and can speculate about the interaction mode, yet this knowledge remains discursive. On the contrary, participants who have experienced the apparatus have a “purely physical and fundamentally wordless experience”, achieving a presentational knowledge that “cannot be generalized or abstracted.” (Mulder, 2007, p. 62)

Once again, if an artwork accomplishes its mandate then participants should also be able to distance themselves from this “purely physical experience” to critically reflect on it. Nevertheless, despite the strategy applied, these installations seem to foreground a desire and fascination with technology, an “effect” effect that sometimes resembles magic. As such, is it really possible to open a space for critical reflection or is this mode another grammar structure⁵⁷ that only contributes to the spectacle and business of interaction?

This is of course a difficult question with many possible answers that vary from experience to experience, yet we should try to analyze other strategies that have been applied by artists in order to provoke critical reflection and produce critical interactions. We’ll introduce the notion of friction design and analyze the idea of critical play, bringing forward a few examples of how interactive art can have a critical agenda while engaging participants in playful and fun experiences that do not only, exclusively fulfil our desire and fascination for technology, control and novelty.

5.5) Transparency, Opacity and *Friction design*

Transparency is normally related to visibility, clarity and openness when used in the context of politics or economics. Yet, in the field of HCI, transparency is related more to the action of making something invisible for the sake of simplicity. (Arns, 2011, p. 256)

“We no longer partake the drama of alienation, but are in the ecstasy of communication. And this ecstasy is obscene. Obscene is not confined to sexuality, because today there is a pornography of information and

⁵⁷ Reference to the concept of *interaction grammar*.

communication, a pornography of circuits and networks, of functions and objects in their legibility, availability, regulation, forced signification, capacity to perform, connection, polyvalence, their free expression. It's no longer the obscenity of the hidden, the repressed, the obscure, but that of the visible, the all-too-visible, the more-visible-than-visible, it is the obscenity of that which no longer contains a secret and is entirely soluble in information and communication.” (Baudrillard, 1988, p. 22)

The “all too visible” that Jean Baudrillard associates with information pornography contrasts with the invisibility of the code and internal processes that our nano-devices hide under shiny plastic cases and liquid crystal screens. Recently, not only have the code and software been obfuscated but the hardware and the mechanical components too have become black-boxed, progressively hiding the core structures, only showing a simplified version of the device. (Berry *et al.*, 2012, p. 51) This process is obviously related to a consumer society interested in producing and acting faster, more effectively and with no margin for error. However, under the surface of our friendly, playful, “eye-candy” devices we find the “rules, conventions and relationships, which are basically changeable and negotiable, being translated into and fixed in software”. (Arns, 2011, p. 257) As Inke Arns maintains, the code not only affects the graphical interface but has a political effect on the virtual worlds we inhabit, and as a performative text it's becoming law. (Arns, 2011, p. 262; Lessig, 1999)

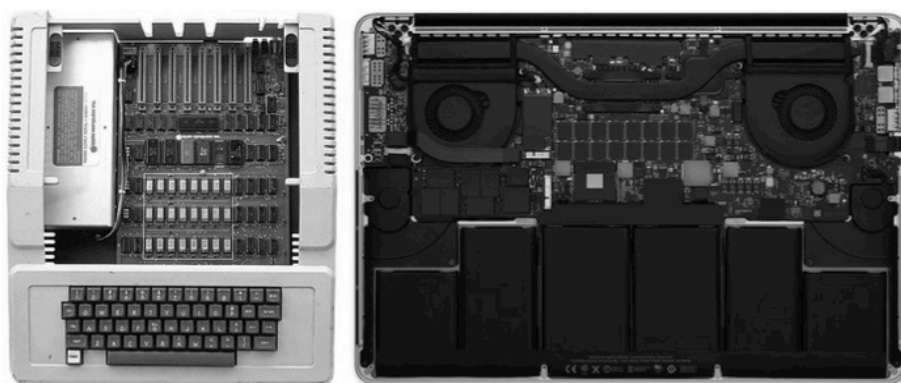


Fig. 33 - Internals of an Apple II computer and Apple's 2012 Retina Macbook Pro (Begemann 2012)

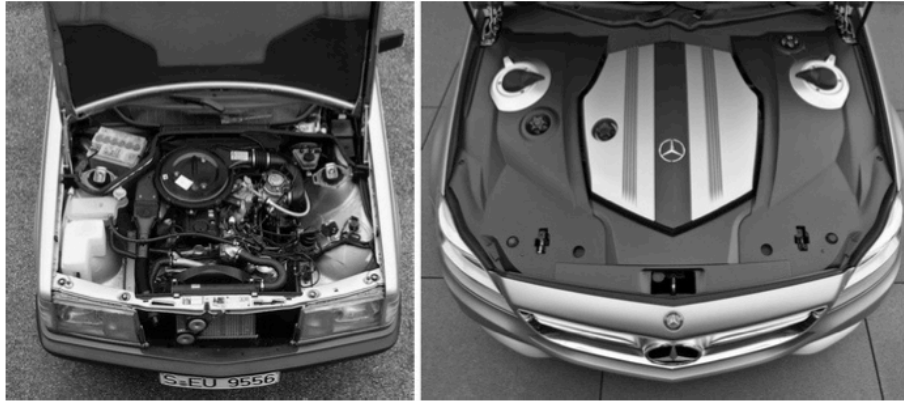


Fig. 34 – Engine compartments of a 1982 Mercedes-Benz Series 190 (W-201) and a 2010 Mercedes Benz Concept Car called “Shooting Break” (Begemann, 2012); Berry et al. 2012.

Code, software and the hidden internal processes of our apparatus then become central issues that shouldn't be discarded by those who gather, discuss and intervene in the affairs of the public sphere. The way in which dominant private companies such as *Google* or *Facebook* take care of our personal or public data and the way in which they design their interfaces should be an issue of public concern. As such, artists have been producing objects and experiences that often take the form of pieces of code or custom-made software that according to Florian Cramer become semantic, aesthetically and politically meaningful. (Cramer, 2011, p. 108)

According to Arns, software artists do not just regard the software as an invisible function that produces visible surfaces, but rather concentrate our attention on the code itself, even if it is not directly visible or made explicit to the spectator. This tactic differs from the approaches of most generative art or interactive art propositions that essentially obfuscate the code. (Arns, 2011, p. 145)

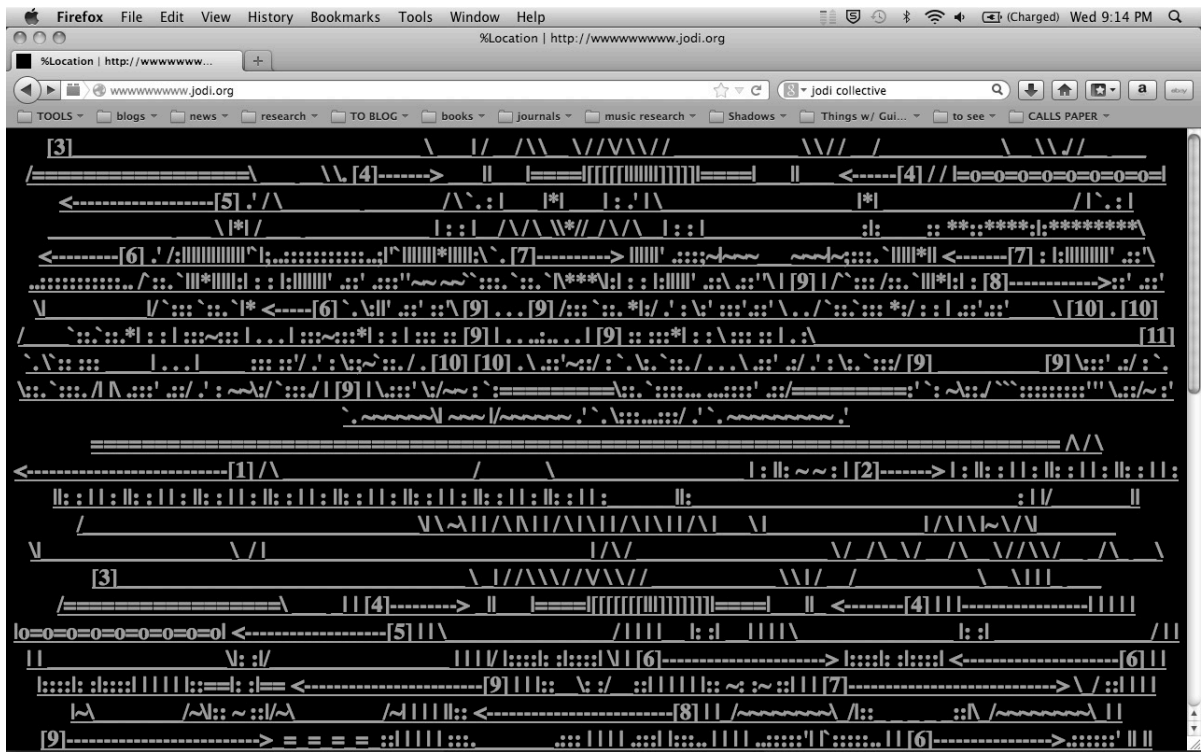


Fig. 35 – Screenshot from Jodi’s website, 2013

In projects created by Jodi Collective or by the artist Netochka Nezvanova, the code emerges from the underground to become the material that composes the visible surface displayed by our web browsers. The labyrinthine structure of *Jodi.org* invites the visitor to engage in a journey which has no established end or purpose but the pleasure of wandering from link to link, error to error, and the challenge of discovering the goal of the proposition itself or simply of finding the next link that’ll lead us somewhere else. The user is unable to control but rather is controlled and played by the irrational and nonsense forces conveyed by the interface. We might feel lost and confused when the system seems to trick us with this kind of code-charade that makes the interface *present-at-hand* rather than transparent. Such an unworkable interface plays with the unexpected consequences of the visitor’s actions and by displaying parts of the structural code, the aesthetic and poetic values are not only enforced by the form of the text but, as Inke Arns maintains, by the fact that these snippets can be potentially executable. (Arns, 2011, p. 153)

Tim Barker observes that such kind of examples remind the user of the interface's existence, highlighting the post-media aesthetics model supported by Lev Manovich, in which software stands between the sender and the message and in-between the receiver and the message in this form: Sender – Software – Message – Software – Receiver. (Barker, 2007)

Such examples of Net Art objects make us aware of how ubiquitous and invisible code has become, by actively short-circuiting our acquired routines and psychomotor habits, reminding us of the way in which our bodies have become programmed and shaped by such performative codes.

As the next section will show, the cultural effects and consequences of code have also been expressed and explored by other types of interventions outside the field of Net Art and Software Art. While in these movements code is often made visible and constitutes part of the aesthetic experience, the media artist Christophe Bruno observes that in his work he's not interested in showing the code as something that can contain the truth, as a revelation, but instead wants to show what's hidden in the "social building where technology plays an essential role but is not the essential phenomenon". (Lartigaud, 2011, p. 228) He argues that the fascination with code leads to the masking of sociological and political questions. (Lartigaud, 2011, pp. 228-229)

We share Christopher Bruno's point of view, thus the objects we will analyze next comment on code, on the agency of media interfaces and on our relationships with them and with the surrounding cultural and political environment; yet without making the code visible. As these projects convey, code as a political and social subject can also be brought to the surface by using errors, glitches, or noise in a strategic way.

The use of errors as aesthetic functions is not new, although, as the work by Jodi and Netochka Nezvanova suggests, with the progressive introduction of machines and electronic

media in the field of art, error has become not only a subject to explore but also a form of critical media aesthetics. (Menkman, 2009, p. 4)

“As our digital culture oscillates between the sovereign omnipotence of computing systems and the despairing agency panic of the user, digital tropes of perfect sound copies are abandoned in favour of errors, glitches become aestheticized, mistakes and accidents are recuperated for art under the conditions of signal processing.” (Krapp, 2011, p. 54)

Following the observations made by Peter Krapp and other theorists we argue that audio-visual glitches, noise, system crashes and other undesired forms of electronic failures have been integrated as aesthetic elements in art and design propositions. Yet, they seem to have been somehow absorbed and commodified and are now part of our cultural landscape.

The book *Glitch – Designing Imperfections* provides us with a catalogue of imperfect or abnormal images that are the result of deliberate accidents created by artists and designers. In the field of music creation, Kim Cascone also detects an *aesthetic of failure* in the field of contemporary electronic music composition. Using noise as material, the avant-gardists Luigi Russolo, John Cage and Karlheinz Stockhausen are seen as strong influences in the introduction of noise and malfunctions into our contemporary electronic soundscapes. (Cascone, 2000, p. 12 – 14)

According to Rosa Menkman, glitch transforms the artwork into a form of “unstable utterance of counter aesthetics”, a critical media object that gives the opportunity to “critique the conventions of the medium”. (Menkman, 2009, p. 4) But is this opportunity still possible? What happens when the *aesthetics of failure* become assimilated into our cultural audio-visual landscapes? Are errors and glitches still failures that break transparency and make media opaque?

There is no simple answer to such questions since each situation needs individual consideration, although one might acknowledge that visual and sound glitches have been accepted and become ubiquitous, as well as the media that produce them. Today not only are they part of our pop soundscapes but they have also been assimilated as visual strategies for

graphic design in magazines, posters or motion graphics and have also been displaced to the physical world of matter, becoming materialized in the form of sculptures or daily objects.

But what happens when we apply these malfunctions, glitches and noise to interactive experiences? Is there a potential for aesthetic experience that goes beyond the representation and the use of visual and sound glitch and noise? Regarding Christopher Bruno's claims we ask: do we really need to foreground and to use the code as part of the representation to reflect on its politics and its social impact?

5.4.1) Bringing friction into interaction

In the article *Mistakes & Misbehavior: Tantrums in/Tampering with Cyberspace* Perry Hoberman observes that Virtual Realities' unrealness and inauthenticity derives from the lack of unpredictability, and from their resistance to misbehavior and mistakes, underlining the limitative character of such places: "Virtual technologies are usually touted as holding a vast liberating potential; but more often than not they seem to be exactly the opposite, restricting the participant's field of action to options that are tightly scripted by the designer." (Hoberman, 1998)

Hoberman recognizes the importance of non-systematized behavior and mistakes when using artificial intelligence techniques during our interactions with virtual worlds, yet is in favor of more credible and realistic experiences. However, in this context, we wonder about the powers of non-systemized and deliberate errors and system failures as factors, which might produce breaks and brakes that can bring participants to a halt that affords a critical reflection on the medium or its surrounding context.

But is the term “error” the most appropriate to use in this context? The first option that appears in *The Free Dictionary* defines an error as: “An act, assertion, or belief that unintentionally deviates from what is correct, right, or true.” This definition is useful in two ways: firstly, the use of the word “unintentionally” collides with the intentional and deliberate character of the “errors” found in artistic proposals; secondly, these “errors” are not deviating from the true but actually aim to redirect our attention to a kind of truth or to reveal something which was not visible before.

Nevertheless, in some of the works we analyze here, errors eventually occur when the system is under certain conditions. For example when the participant rides into the 3D letters in *The Legible City*, the system produces a visual glitch, or in *Discontrol Party* by Samuel Bianchini, if there are too many active participants the system eventually ends up crashing or producing bugs because it becomes overloaded. So the error appears systematically as the consequence of an action, which can be repeated, and not as a random event out of participants’ control. Yet the “errors” or glitches found in *The Legible City* don’t seem to have an artistic intentionality but are instead limitations of the 3D graphic engine running inside the computer. These glitches don’t afford tension or friction but, as we’ve discussed above, seem to give participants a certain kind of pleasure.

Hence, in this context we are mainly interested in propositions that deliberately use errors, failures, glitches or noise that lead to some kind of friction. Borrowing from the field of physics, friction should be understood here as “a resistance encountered when one body moves relative to another body with which it is in contact” where one of the bodies stands for the participant and the other for the artwork. (The Free Dictionary, 2013)

This “resistance” doesn’t have physical implications, since participants don’t feel any tangible resisting force against their body, but rather an incongruity that contradicts and short-circuits our normal psychological automatisms. The word *friction* is used here to

express a counter-movement, a resistance or incongruity that emerges during the interactive art encounter and that has an influence on the *distancing power* of the work. Yet this brake should not be perceived as a failure or anomaly that puts participants off. On the contrary, in some cases this should allow for a first-person phenomenological investigation or in others for a detached reflection on the medium or the political and sociological context.

This resistance is then a kind of brake that counteracts, interrupting the flow, resembling the notion of *Interface-conscience* described by Samuel Bianchini. This interface model appears as an opposing force to the *Interface-absorbante* (absorbing interface) that has infiltrated all the capillaries of human activity, ultimately representing the dominant model. (Bianchini, 1996, pp. 22-26)

Then, despite the different tactics used, from the integration of noise, glitches, errors or delays, to the fusion of different media, friction presents a good operational term that unifies the interfaces and objects under analysis here. We are interested in better understanding how this *friction* is manifested in interactive arts, thus we expect to be able to answer the following questions: 1) How do artists and other actors produce friction in the interactive objects they create? 2) To what extent can this friction open fissures on the transparent surface of media, revealing its workings and its implications on a personal, bodily level and on our societies? 3) How are these tactics articulated away from the gallery and how do they incorporate our everyday lives?

The schema below illustrates in a simplified way the operational logic of *friction design*. *Friction* unfolds from the interaction between the participant and an artwork, a performer or even another participant. As we've suggested before, this might happen due to the introduction of programmed "errors", glitch, noise, incompatible media assemblages or by any other kind of programmed behavior that breaks the normal flow of actions and responses, creating unusual situations that remind us of the distancing effects implemented by

Bertold Brecht in his theater pieces. Brecht used direct audience-address techniques to prevent the spectator from having a passive emotional reception, avoiding an exclusive moment of amusement and entertainment. These techniques revealed the illusory and manipulative construction of the piece, keeping the spectator intellectually distanced from it. (Brecht, 1964, p.91) The next section introduces some examples of works by contemporary artists that use these new forms of *distancing effects*.

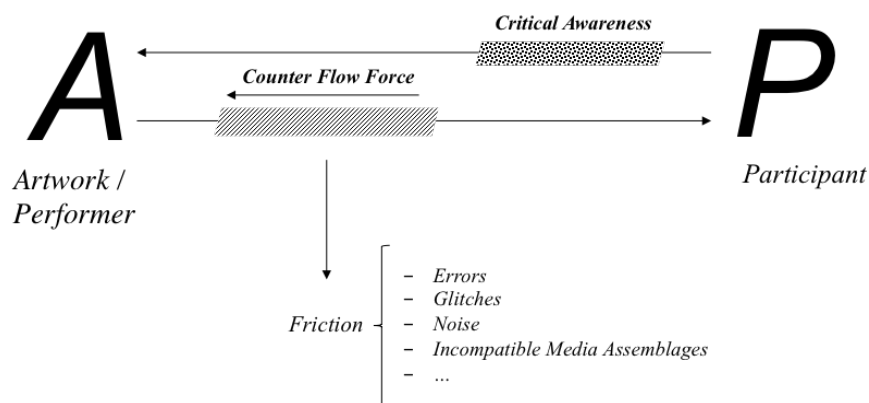


Fig. 36 – Schema referring to the interaction process between a medium reflective artwork and participant

5.4.2) Friction design examples

Delayed is a closed-circuit sound installation by Mathias Gommel that invites two people to engage in dialogue by using two headsets that hang from the ceiling in the gallery space. By using the headset, one can hear the other but due to a three-second delay in processing the audio signal, the process of communication becomes confusing and unclear. This apparatus subverts the normal use of technology and instead of improving communication it introduces noise and interference, hindering a process that is normally transparent: the act of speaking. According to Gommel, the experience of *Delayed*, isolates the act of speech from its execution (Frieling & Groys, 2008; p. 157) thus, the

communicational failure gives this delay an aesthetic function that is normally unwanted and avoided by *smooth design* strategies. At first, while trying the apparatus, one might consider the delay as a malfunction or unintentional error, but after some insistence one is able to “play” within the limitations and make sense of this calculated friction.

This project can be seen as following the line of other previous manifestations in the field of avant-garde video art installations as *Dan Graham's Present Continuous Past(s)* although, more than just rendering our bodily processes opaque, it focus our attention on the workings of the apparatus and frustrates our desire for perfect and fast communication, immediacy, fluidity and control.



Fig. 37 – *Delayed* by Mathias Gommel

In *Human Browser*, a performance by Christopher Bruno, a man using headphones approaches the visitors of a gallery and starts an endless monologue. Despite the visitors’ attempts to engage in a dialogue or to bring up questions, the performer goes on spilling out

sentences that reveal an incoherent articulation, sometimes becoming devoid of any sense. Through the headphones the performer is able to hear a continuous text that is streamed in real-time from Google using text-to-speech software. Depending on the context, specific keywords are searched on Google and the results are immediately transformed into an audio stream that is sent to the performer's headphones. The unusual moment in this performance is not provoked by the invasion of our personal or group space so much as by the fact that we fail to engage in dialogue with the performer and even more due to his *machine-like* behavior. This feeling of speaking to a robot is reinforced by the incoherent construction and articulation of sentences in his monologue, as well as due to certain random and off-topic subjects. Nevertheless, there's a point of connection with this monologue as the performer sometimes introduces subjects that are related to the context.

Another good example of friction design is *Discontrol Party*, an event that invites participants to dance and have fun while being monitored and constantly tracked by a totalitarian surveillance apparatus that is intentionally made visible. The walls of the installation space become video surfaces that display the crowd in different modalities, by means of simple graphics and numbers which refer to partygoers' activity, coordinates in space, speed and size that constitute an abstract, intriguing composition. Moreover, the blobs representing partygoers' bodies are also shown side by side with the video displaying a real-time feed from the surveillance cameras installed in the space. Eventually green rectangles are displayed on the video, around the faces detected by a face-detection algorithm.



Fig. 38 – *Discontrol Party* by Samuel Bianchini

With this apparatus, Samuel Bianchini renders visible and accessible what is normally closed and concealed in public and private video surveillance networks. Visuals are not responsive to music but they are essentially alive and dynamic due to the crowd's activity. Each movement affects the visual landscape, affording a playful behavior that according to Bianchini challenges the crowd: "This is a game with a challenge. Can the partying outdo the system? Is it possible to create enough confusion for the system to ultimately break down? Is it even conceivable to produce a bug in the system? In this way, the audience can play with the devices and possibly disrupt them." (Bianchini, n.a., Online)

Bianchini observes that the apparatus tries to do the same job that surveillance devices normally do in "organized crowd movements", yet the chaotic movement in the space seems to difficult and to frustrate this action. Bianchini observes that the apparatus tries to do the same job that surveillance devices normally do in "organized crowd movements", yet the chaotic movement in the space seems to be too difficult and to frustrate this action. (Bianchini, n.a., Online)

default to public: tweakleak by Jens Wunderling is a network installation that operates in public places. Inside a café in Berlin, a printer installed inside a wood monolith prints Twitter messages on small sticker strips. Each time a tweet is sent in the surroundings of the café, a sticker containing the message is printed and the author is notified over twitter by an alert message: “Your tweet has just been printed on a sticker.” Later on, if someone removes the sticker from the printer, the tweet’s author is informed by the message: “Your tweet has been taken away.” (Wunderling, n.a., Online) With this apparatus, Wunderling connects two spheres that are normally separated and work very differently, first questioning the sense of online and offline privacy and then creating an awareness of self-exposure (Wunderling, n.a., Online). By leaving the online sphere, the tweet enters the physical world of matter and atoms that has different mechanisms of information processing and the author loses track of her message since anyone can take away the sticker. This loss of control seems to highlight the incongruities between both spheres and instead of solving them the artist uses it as part of the work’s statement. By delocalizing and appropriating the user’s information and by notifying her that the message has been set “free” into the physical space, the artist is producing a kind of *distancing effect* allowing the user to reflect on the medium’s functioning mode and on her relationship with it.

5.4.3) Playing critically

This conception of *friction design* considers artworks as recipients of critical reflection yet, it regards play as a fundamental aspect of the work or of our relationship with it. As such, it resonates with the concept of *Critical Play* as defined by Mary Flanagan.

The author recognizes that games can be more than pure entertainment, for passing time or for fun. She asks: “What if some games, and the more general concept of “play,” not only provide outlets for entertainment but also function as means for creative expression, as

instruments for conceptual thinking, or as tools to help examine or work through social issues?" (Flanagan, 2009, p. 1)

In her book *Critical Play*, she analyses a group of artistic objects and performances, traditional and electronic games that challenge the limits and conventions of game and play. She highlights in particular the artistic proposals that exploit and undermine the "representation systems and styles, rules of progress, codes of conduct, context of reception, winning and losing paradigms, ways of interacting in a game." (Flanagan, 2009, p. 4)

This is very interesting for the study at hand because it shows once more that art and play have been connected for a long time, and it also provides us with some good examples of objects that have been strategically using play to open up a space for critique, politics and social reflection. It is interesting to note the criticisms she makes of digital arts creation via McKenzie Wark: "If electronic art has become an experimental laboratory, not so much for new technology as for new social relations of communication, then perhaps electronic games might operate in an interventionist way within electronic spaces and discourses." (Flanagan, 2009, p.13) This statement and some examples presented by Flanagan alongside her analysis reinforce the idea that interactive arts can learn a lot from looking into the field of critical game production.

Indeed, in the last few decades we've witnessed the emergence of many experimental games that are hard to classify as belonging to art or game fields. Most of these objects are actually at the intersection of both fields, yet some display more game-like features whereas others are more open and ambiguous, thus greatly resembling art propositions. Despite their proximity to one field or the other, they produce a certain unusual experience and in some cases a noticeable subversive dimension. By analyzing game scholars as Brian Sutton-Smith, Flanagan underlines this transgressive and subversive potential of play. Following Antonio Negri's conception of *subversion* she acknowledges this subversive power as a creative act

rather than a destructive act that encapsulates the power to provoke social change. (Flanagan, 2009, p. 11) Flanagan analyzes the subversive power latent in some traditional games like the playhouse, doll, board games and language games, but also in locative, computer and other new media games. The next section examines the ways in which artistic proposals and experimental game designers have been leaving the museum and traditional screens to strategically occupy our public spaces.

5.4.3.1) Going outside

The dissolution of artists' individuality, authorship and authority as well as the dematerialization of the artwork strongly marked the avant-garde movements at the beginning of the 20th century. (Frieling & Groys, 2008, p.24) The art object gave place to ephemeral public events that required spectators' presence and very often their physical engagement. According to Groys, the Futurists and the scandalous actions created by Filippo Marinetti produced a new synthesis between art and politics through a kind of "event design" that was used as a strategy to conquer the public space by means of provocation. (Frieling, & Groys, 2008, p.25) For Marinetti, "articles, poems and polemics were no longer adequate. It was necessary to change the methods completely, to go out into the street to launch assaults from theatres and to introduce the fisticuff into the artistic battle." (Bishop, 2012, p.44) Then, as Claire Bishop maintains, "with Futurism, performance became the privileged paradigm for artistic and political operations in the public sphere." (Bishop, 2012, p.48) This was also observed in Dada and Russian public experiments although, the latter had an ideological character whereas the former were anti-ideological and anarchists. (Bishop, 2012, p.66) André Breton considered the public space away from the cabaret and the proscenium frame, to be a privileged realm that held the attention of the public and that could create a bond between art and the spectators' lives. (Bishop, 2012, p.71) The *Excursion to Sain-Julien-le-*

Pauvre and *The Maurice Barrès Trial* are two examples of public performances led by Dada in 1921. (Bishop, 2012, p. 69-72)

Some decades later, like the Dadaists, the Situationist International (SI) headed by Guy Debord and Gil Wolman reacted against a commodified art in favor of an art that shouldn't be separated from life. The works produced by the Situationists were rarely visual, with the exception of films, and were often found in the form of text and in the construction of ephemeral *situations* that were rarely documented. Two strategies were commonly used to construct situations: *dérive* and *détournement*.

The first consisted of random ramblings around the city without a defined duration, which could occur alone or in small groups of participants. (Debord, 2006, p. 253) Such ramblings or wanderings in the streets allowed the participants to observe and experience encounters, confronting them with some “taken-for-granted” views of life and action. (Lievrouw, 2011) The second strategy, *détournement*, was directly influenced by the techniques of collage, photomontage and the subversion of painting previously adopted by the Dadaists and Surrealists. This technique allowed the appropriation of cultural materials, undermining and subverting their original meaning. According to Debord, this was a true critical cultural practice that didn't support the creation of new objects but instead acted over the existing means of expression. (Bishop, 2012, p.84)

These public actions and performances outside the gallery spread throughout the 1950s and 1960s, affecting artists as Allan Kaprow, who staged the first happening in 1958, John Cage, Lygia Clark, Valie Export, Joseph Beuys and among others Gordon Matta-Clark.

Some decades later, during the 1980s, Culture Jamming rediscovered the Situationist tactic of *détournement* to reclaim urban public spaces. This tactic has been commonly used by artists or activists who appropriate and take over the existing images of advertising

billboards, as an example, and subvert their original meaning, eventually exposing the “underlying truth of a corporation’s strategy”. (Lloyd, 2003, Online)

As Jan Lloyd observes “the public sphere has only ever been a site of communication and “free speech” for those that hold political, cultural, and economic power.” This kind of “citizen art”, as Rodrigues de Gerada calls it, thus regards the public sphere as a place of cultural meaning-making and reclaims the right to public discourse, opposing the one-way flow of communication that characterizes the omnipresent corporate advertising mechanisms. (Lloyd, 2003, Online)

The actions and culture jams normally use billboards and other supports for advertising in public space, although culture jammers have been extending their interventions to CCTV systems (counter-surveillance) and recently moved onto the Internet. (Lievrouw, 2011, p. 78) With the development of new media technologies, artists have begun to explore the possibilities and the limits of public space, through the creation of temporary events, performances, happenings or installations using multimedia.

Krzysztof Wodiczko, Rafael Lozano-Hemmer and Kit Galloway and Sherrie Rabinowitz have been using public spaces and monuments as support surfaces for very precise video and light interventions that play with local social, economic and political contexts, mixing online and offline worlds and exploring space and time issues. However, the use of technology in some of these interventions has been criticized and highlighted as another form of cultural industry in disguise, a new kind of “*effect*” *effect*, working in favor of technological commodification. (Simanowski, 2011, p. 156)

In another development, as a social tool the immediacy and connectivity brought by technology is at the origin of a very contemporary urban phenomenon, the *Flash Mobs*. These actions that normally occur in public spaces gather hundreds of people who engage “in seemingly spontaneous but actually synchronized behavior.” According to Clay Shirky they

split into two categories: on the one hand “harmless but attention-getting fun” events and on the other hand political protests. (Shirky, 2008, p. 165)

In their movement towards the public space artists are not just looking to create objects and “utopian realities”, but rather to “engage with the existing reality”, creating contexts for potential action. (Bourriaud, 1998, p.13; Daniel, 2011, p. 60) By means of provocative, scandalous, polemic, humorous, playful, spectacular, and unusual practical actions, artists have been attracting and holding the attention of a wider audience outside the white cube and far away from the rigid structures of art institutions in an attempt to build a more inclusive public sphere. Nevertheless, even if the effects produced by such actions are small and their consequences difficult to track, they temporarily change the dynamics of power thus producing anxiety in those with power. (Daniel, 2011, p. 77)

Today the public is divided between offline and online spaces and, according to statistics delivered by Comscore, in 2011 European citizens stayed online for a monthly average of 27.5 hours per person. (Comscore, Online) Online presence has been increasing as well as the access to less expensive technologies, portable devices that ensure a permanent online presence; thus it is normal that for some time artists have been turning their attention and planned their actions to this “new” space. The increasing online presence reinforces the shift from a disciplinary society to a society of control and surveillance where the smallest movement or action becomes traceable and tagged. (Magnan, 2011, p. 219)

Yet another shift is observable in media consumption. The “passive” *mass* media consumer is rapidly giving way to a participant who uses media “tactically”. (Lovink and Garcia, 1997). Building on Michel de Certeau’s *The Practice of Every Day Life*, Geert Lovink and David Garcia classify the *rebellious user*⁵⁸ as the “happy negatives” who uses

⁵⁸ De Certeau characterizes the consumer as a rebellious user who uses media tactically. (De Certeau, 1990)

media in a critical way, “by which the weak becomes stronger than the oppressors by scattering, by becoming centreless, by moving fast across the physical or media and virtual landscapes.” (Lovink and Garcia, 1997) The authors classify tactical media as a “form of qualified humanism” that acts as an antidote to the commodification of human life but also to “newly emerging forms of technocratic scientism which under the banner of post-humanism tend to restrict discussions of human use and social reception.” (Lovink and Garcia, 1997) By “becoming the media⁵⁹”, through the creation of media *anti-environments* that break and undermine the normal functions of the media and their mechanisms from the inside, the rebellions highlight the structures of power and turn them opaque rather than transparent, temporarily allowing the “hunted to become the hunter”. (Lovink and Garcia, 1997) By means of custom made software and hardware the “rebellion” has been critically exploring and subverting the technological landscape using some tactics and techniques that are identified in the next section, by analysing some artistic, activist and social experiments.

In *Critical Play*, Mary Flanagan tracks and comments on different projects that propose playful and game experiences featuring media technologies taking place in the public spaces of our cities. She gives some examples developed by groups as Blast Theory and Glowlab who have been producing locative media projects involving mass participation, interpersonal interaction, GPS systems and sophisticated mobile and computer technologies.

According to Flanagan, in most cases the motivating factors associated with such experiences appears very often cited as the ability of play to liberate, generate interactions, empower, foster collaboration and lead to cultural change. (Flanagan, 2009, p. 197) Yet, the author observes that despite these motivations, in such propositions, play emerges as something “fabricated or designed”, and the urban space appears abstracted and decontextualized: “here, with the acquiescence of the participants, the city is transformed to

⁵⁹ “Don’t hate the media, become the media” is a popular slogan coined by the activist and musician Jello Biafra.

playscape and city landmarks and streets become mere spaces on an existing game board, without meaning or history in their own right.” (Flanagan, 2009, p. 199)

Flanagan signals the importance of the social and historical context where locative media projects take place, calling the attention of artists and game creators to these dimensions of urban space: “If Lefebvre is correct in his belief that the creation of new spaces has the ability to change social relations, locative games must address history, lived experience, and site in order for both participant and designers to learn how to produce something better—another city, another space, a space for and of social equity and change.” (Flanagan, 2009, p. 207) Flanagan claims that such games can still be fun, yet they should be sensitive to these critical issues and move beyond the rhetoric of innovation, liberation and possibility as the main gear of their existence. (Flanagan, 2009, p. 205)

The analysis developed by Flanagan includes projects such as *Aura* by Steve Symon, *Can you see me now?* by Blast Theory, *Come Out and Play* and *Cruel to Be Kind* by the designers Jane McGonigal and Ian Bogost, as well as some offline projects such as *You Are Not Here* by Thomas Duc, Kati London, Dan Phiffer, Andrew Schneider, Ran Tao, and Mushon Zer-Aviv, *Transition Algorithm* by Stuyin Looui, and *Cell Phone-Free Temporary Autonomous Zone* by Ariana Souzis. Curiously, Flanagan remarks that very often, low-tech projects are more sensitive and give more space to critical reflection than high-tech projects. She suggests that such findings don’t derive from any personal anti-technological position so much as from the fact that locative media projects place lived and mediated experience of space as a secondary issue. (Flanagan, 2009, p. 216) Moreover, by paying more attention to the conceptual and focusing less on the technological and technical aspects, low-tech projects are more closely connected with the Situationist ethos and, in this sense, they should serve as a reference for new media art conception. (*Ibid.*)

Finally, Flanagan recognizes the power of play as a protesting and public space

reclamation tactic that can lead to social change yet, as she observes, play needs to be organized in order to be effective and to become meaningful: “While there is opportunity for protest and empowerment through play, play also must be carefully organized to have a lasting and meaningful impact. Space must be understood, ordered, and reexamined, and, where technology is used in a project design, that technology must begin to reflect the contested nature of the lived reality of such spaces.” (Flanagan, 2009, p. 216)

The next section analyzes some projects involving new media technologies that have been exploring online and offline public spaces by means of playful and subversive tactics. Yet, if playful, interactive and embodiment dimensions are less evident when compared with the projects that were previously analyzed, this group of works foregrounds many critical aspects regarding the politics of our public media spaces.

5.4.3.2) The electronic crowds and the new challenges for interactive art

In the age of the electronic crowds and networks, an effective action happens in the place where the crowd is and where the networks flow. A pervasive and ubiquitous phenomenon requires pervasive and ubiquitous actions in order to transform our personal and public technological apparatus into opaque, unworking vessels for detached reflection.

As we saw during the previous section, artists have been using very different tactics to reclaim the public space and to hold the attention of passers-by, and lately have been adapting them in order to examine and comment on our use of electronic media, disrupting the normal flow of use by means of subversive reverse-engineering.

The video superimpositions in public spaces and monuments by Krzysztof Wodiczko, the fake websites by the Yes Men, the shop dropping done by Barbie Liberation Organization (BLO) and the city-scale laser projections by Hehe collective have been using *tactics of*

infiltration, decontextualization, appropriation and hoax that aim to call our attention to social, political, ethical, gender, economic and environmental questions. However, such interventions are constructed to essentially focus the spectator's attention on the "content" rather than on the medium in use.

Recently, a new kind of action that we might call *medium reflective* has been produced by artists, hackers and media activists. Such actions might take place in the offline public space, in online spaces such as news or social network services or in the intersection of both. The artists normally create a temporary situation that keeps them incognito or remote in the case of online actions, thus their presence is normally not perceived and the intervention occurs without any kind of official authorization. The interventions are normally subtle and very surgical and they always depend on the use of a certain medium or apparatus, thus they demand specific actions from the users. In order to clarify this idea, we'll describe and examine four different projects (*Image Fulgurator*, *Face to Facebook*, *Newstweek* and *2.4GHZ*) that follow this *modus operandi*.

The *Image Fulgurator* is a device created by the German artist Julius Von Bismarck that reverses the normal operation mode of a photographic camera. As such, instead of taking pictures it projects pictures onto any surface. The device detects when another camera nearby triggers the flash and in the same instant projects a predefined image onto a target surface. The artist has been using the apparatus in public spaces that are normally crowded with tourists or at events involving photojournalists. In *Tiananmen Square* in Beijing, Bismarck "fulgurated" a white dove (Magritte dove⁶⁰) over the portrait of Mao Zedong on Tiananmen Gate. The tourists who took photos with their digital cameras could immediately access the manipulated photo, a superimposition of a dove over Mao Zedong's face. Another

⁶⁰ This superposition seems to make reference to René Magritte's *The man in the bowler hat*, depicting a white dove that hides the face of a man.

intervention took place in 2008 when Barack Obama visited Berlin and made a public speech in front of the *Siegessäule*. This time, Bismarck “fulgurated” a Christian cross onto Obama’s lectern, diverting his political role and changing the meaning of the event itself. The tactics adopted by the artist include infiltration of crowds and image superimpositions that produce deceptive *détournements*.⁶¹



Fig. 39 – *Image Fulgurator* performance at Tiananmen Square in Beijing

Another case of data manipulation is *Face to Facebook*, a “global mass media hack performance” by Paolo Cirio and Alessandro Ludovico. The artists developed an algorithm that automatically appropriates and displaces the information available on personal Facebook profiles, re-contextualizing it on a new dating website, “lovely-faces.com”. Beyond getting textual data, they were able to manipulate profile photos that were later arranged according to their facial expression features on the new website. This provocative action resulted in “one thousand media coverage around the world, eleven lawsuit threats, five death threats, several

⁶¹ Debord and Wolman identified deceptive *détournements* as the diverting of major political, artistic or philosophical signs and minor *détournements* as the diverting of ordinary elements to another context.

letters from the lawyers of Facebook.” (Cirio, n.a., Online) This action as well as *Tweaktleak* remind us that all the information that we give to social networks is available and accessible to others. Even when profiles are private, companies such as Facebook keep our data on their servers so they can use it or sell it to other companies. Furthermore, as Cirio and Ludovico maintain, “any user can easily duplicate any personal picture on her hard disk and then upload it somewhere else and mix it with different data. The final step is to be aware that almost everything posted online can have a different life if simply recontextualized.” (Cirio, n.a., Online)

This temporal displacement is then a symbolic action and representation of a commodification movement that already occurs in our networks, however invisibly. With the emergence of online social networks we’ve witnessed the obsolescence of *telescreens*⁶² and the architectural metaphor for modern power named *panopticon*. Today, on Facebook alone more than 1 billion active users willingly feed the network every day with the most refined information that *telescreens* or *panopticons* could never obtain. Coupled with a ubiquitous and effective CCTV surveillance system integrating face detection algorithms, social networks have become an essential, powerful source of information, and as a consequence those who resist such networks have become a potential threat to society, accused of suspicious behavior⁶³. In this context, Benjamin Gaulon’s work *2.4GHZ* creates a disruption in the transparent CCTV network by infiltrating it with small *counter-devices* near the CCTV cameras in the public space. These devices are essentially small LCD monitors coupled with a 2.4GHZ video wireless receiver that display the image captured by the closest CCTV camera and make it accessible to the passer-by.

⁶² In 1984, George Orwell’s famous novel, *telescreens* are devices of mass surveillance featuring television and video cameras. They were used by the “Thought Police” from the Inner Party.

⁶³ In an article retrieved from the Daily Mail in October 2012: <http://www.dailymail.co.uk/news/article-2184658/Is-joining-Facebook-sign-youre-psychopath-Some-employers-psychologists-say-suspicious.html> (accessed in October 2013)

Newstweek, a project by Julian Oliver and Danja Vasiliev, employs a similar tactic of infiltration, using a custom-made *counter-device* that allows remote hackers/writers to edit and manipulate the news displayed on some main online newspapers. (Oliver and Vasiliev, 2012) A detoured wall plug containing a mini-router is plugged into a power outlet in public cafés or any other places with open Internet access points, becoming part of the customary environment. The open wireless network in the surroundings of the *counter-device* partly comes under its control, generating a modified network that allows the hacker to edit the online news by using a graphical interface. The artists have made at least one intervention, infiltrating a Starbucks café in Paris, and they also made available the instructions to build the device on their website *Newstweek.com*. More than creating content, this project proposes a *counter-device*, which explores the nature and the typical top-down flow of mass media by using a tactic of hoax or “facts fixing”. As the authors maintain, *Newstweek* highlights the vulnerability of a reality which is increasingly dependent on media but also displays the complexity and ignorance fomented by the workings of networks and devices. (Oliver and Vasiliev, 2012)

These *medium reflective* interventions have as a common goal the undermining of our online and offline routines, making visible what is normally transparent or, to be more accurate, invisible. Instead of creating new alternative media, the artists and media activists infiltrate, appropriate and decontextualize the dominant media, opening temporary fissures that call for a detached and critical reflection. By operating through shock and estrangement, these interventions create an understanding of a certain situation and call for a “specialist” gaze normally found in museum contemplation. (Spieker, Online) Jacques Rancière upholds that “being a spectator is not something that “we should turn into activity” but instead is “our normal situation.” (Rancière, 2009, p. 16-17) In our everyday lives we are constantly making

sense of events and situations and according to a pragmatist approach in aesthetics, outside the museum, in the streets, at home or online, aesthetic experience can potentially occur. As such, a *medium reflective* object is by no means anti-aesthetical.

When Bismarck or Gaulon center our attention on the mechanisms used by digital cameras and CCTV cameras, it is not the same kind of attention that one pays to a painting or proposition when simply looking at the technique or medium used. It is the subversion of that medium that produces the aesthetic experience. It's when the medium is not transparent anymore and the code emerges from the underworld of our devices that we finally grasp and understand the way we are bounded by the "invisible" laws of code. Another aspect of these *medium reflective* interventions is their "nomadic" and ephemeral nature. Unlike some types of public art (e.g. sculpture) and monuments which progressively become part of the cultural and urban landscape, such interventions appear and move fast, adapting to the media and infoscapes in constant metamorphose. In this regard, these kinds of interventions and actions seem to expand the frontiers of interactive arts by re-directing and interrupting the media user's activity flow for the sake of new meaningful and critical interactions. Despite the evident changes to the reception mode, the user is still an active participant, which is crucial in order to trigger the aesthetic experience. One might ask if the distracted user is able to contemplate such surgical and ephemeral interventions, but these emergent proposals foreshadow a promising future for interactive arts merging with everyday life routines.

Conclusions

After a brief literature review that attempts to define interactive arts and describe their origins and development, Part I examines the contemporary *body-centrism* or *embodiment-centrism* which characterizes interactive art analysis. Despite this critique in the Chapter III we use the phenomenological account of Merleau-Ponty and later enactive approaches to perception to analyze the work *Floating Eye*. This analysis reveals two important aspects to our study. Firstly, phenomenology and the enactive accounts provide us with specific terms and rich descriptions of the experience. Secondly, it shows us some of the limitations of an exclusively phenomenological analysis, particularly regarding the symbolic interpretation of the experience. In light of this, in Chapter IV we turned our attention to the field of semiotics.

The analysis of *The Golden Calf* using a semiotic approach allowed us to examine in detail the different signs and components of the work. However, in order to grasp some aspects of the experience we would also clearly benefit from a phenomenological approach. Moreover, since thousands of combinations, movements and configurations of the apparatus are possible, the semiotic analysis also becomes complicated if we do not study a certain individual experience or parts of it separately.

Taking this into consideration, in the Chapter V we suggested that a qualitative evaluation following a phenomenological-semiotic approach would be more suitable for the task at hand. Yet as Shaleph O'Neill observes, this combined approach is not without problems. This difficulty arises from the fact that the two fields have completely different research grounds and objectives. While phenomenology focuses on the study of our pre-conceptual and pre-reflective experiences, semiotics is interested by the ways in which we relate to sign systems, and consequently to a higher level of abstract experience. Yet O'Neill's *embodied semiotics* schema foregrounds a continuous flux between our pre-

reflective experience of the world and the way we think, represent the objects of the world and produce knowledge. These findings confirm that despite the divergence of object and approaches, both phenomenology and semiotics can be coherently combined in our methodology.

In chapter VI the examination of different theoretical accounts for game and play proved very useful in understanding and describing in more detail the nature of play in interactive art encounters. This study allowed us to signalize the differences between game and play and to structure a definition of play in interactive arts. Play is free and voluntary, it does not depend on explicit rules, and it is spontaneous and improvised. It is non-narrative, yet micro narratives can unfold during interaction. It is open-ended, without precise goals to attain. It is uncertain, thus multiple outcomes are possible. It is non-competitive, so there is nothing to win and it is essentially autotelic. Moreover, play is circumscribed to a particular space (physical and/or digital) although no minimum or maximum amount of time of engagement is defined or required. Finally, play is meaningful.

Moreover, by analyzing the concepts of transformative and social play, we became aware of certain potentials that support the significance of play. We demonstrated that some interactive artworks are clearly grounded in play and free-play, thus, even if participants cannot grasp the symbolic meanings and are unaware of some layers of the work, play experience is still meaningful. Our qualitative studies showed that many participants experience some pleasure and emotion that stem from sensorial stimulation and bodily performance without worrying about the symbolic aspects or “the message of the work”. These findings are very important to our study, undermining the criticism regarding the lack of seriousness in interactive artworks.

In the Chapter VII we discuss the notion of psychological distance developed by Edward Bullough, concluding that this phenomenon is identified in the writings of many theorists using different names, the most common being: *aesthetic distance*, *reflective distance*, *psychical distance*, *critical distance* or simply *distance*. We analyze in detail the transformation of physical distance over time, arguing that with the reduction of physical distance and the emergence of other conditions such as interface-learning and operability, aesthetic distance is more likely to also disappear in many encounters. Following Bullough's notions on spectator's *distancing power* and artwork's distance-limit, we suggest five distancing factors: 1) interface complexity/learning, 2) interface transparency, 3) response time (or temporal distance), 4) *openness ratio* or openness to participation and 5) *playfulness ratio*.

In the Chapter VIII we describe in depth three case studies as well as the methodology used. Instead of building the phenomenological-semiotic method from scratch we adapted a method named IPA (Interpretative Phenomenological Analysis). This approach with a strong phenomenological basis has been used in many different fields to re-build and make sense of someone's experiences. In light of this, our method followed the IPA model, focusing particularly on the sensorial/bodily, emotional and intellectual/interpretative experience of each participant. This methodology allowed us to understand the main patterns of experience with three interactive art propositions: *The Legible City*, *Please Empty your Pockets* and *Interactive Plants Growing*.

By gathering the data available from interviews and observations, we were able to describe the overall structure of each artwork. We distinguished four different phases: 1) *Exploratory / Speculative phase n°1*; 2) *Physical engagement – Exploratory / Speculative phase n°2*; 3) *Controlled exploratory and playful phase* and 4) *Décrochage*. These do not always coexist in

every interactive artwork. As an example, the work *Please Empty Your Pockets* do not involved a third phase (Controlled exploratory and playful phase).

Additionally, we learned that in many encounters participants were only testing the interaction grammar, abandoning the experience as soon as they become acquainted with it. Notwithstanding some minor differences, the sense-making process regarding the comprehension of the operation mode was reported by participants in a very similar way. They all had a common understanding of this dimension. Yet this was not so clear when it came to the comprehension of the symbolic layers of the work. Allusions to reflection and interpretation of the experience from a symbolic perspective were very rare among participants. When any thoughts or critical interpretations were mentioned, they were very often influenced by participants' backgrounds and previously lived experiences, consequently differing from each other.

Playfulness and experimental operability were identified as the most prominent dimensions during encounters. The observations and testimonies are very consistent on this point. The participants confirmed to us a greater interest in playing and in experimenting than in trying to critically reflect on their experience. Most participants recognized that they were not stimulated to reflect on the meaning of the experience during the encounter. According to some, the moment for detached reflection was the interview itself. Therefore, the most elaborated thoughts and interpretations emerged during our conversations. Certain participants criticized the artworks' *distance limit*, claiming that the experience was too "convenient" and too "compliant" to lead to any kind of critical thought. They found no resistance or any kind of friction that led to any thoughtful experience. These findings seem to suggest that *aesthetic distance* is a rare phenomenon, not because participants are in action by physically manipulating signs and symbols, but due to some other aspects of the work that provide a frictionless experience.

In light of this, the beginning of Chapter IX introduces the notion of *Flow Design* in an attempt to identify the “frictionless” propositions which support a playful and amusing experience without leading to critical reflection. However, taking into account the negative results provided by our qualitative study on *flow*, we suggest an alternative name more suited to the purpose. *Smooth design* seems more convenient to refer to all the propositions in the field of machine-based interactive arts that foreground a *technological correctness* strategy more interested in captivating and engaging their public in playful experiences.

In clear contrast to this approach to interactive arts we suggest the notion of *friction design* that brings together playfulness and distancing power. The word *friction* expresses a counter-movement, a resistance or incongruity that emerges during the encounter and that has a positive influence on the *distancing power* of the work. We provide some examples that fit this classification, recognizing different tactics such as the implementation of “errors”, noise, glitches, information appropriation or the assemblage of incompatible media.

At the end of the last chapter we highlight some of the potentials of interactive arts outside the gallery. *Infiltration*, *decontextualization*, *appropriation* and *hoax* are some of the tactics used by artists in creating ephemeral and dynamic friction applied to the electronic crowds.

Finally, the small samples, the quantity of propositions, and the nature of the phenomena examined do not allow us to deliver generic understandings that apply to each interactive art proposition. However, we have obtained very coherent insights that deserve further reflection and of course additional development. We expect to have contributed to the scarce discussion on aesthetic distance in the field of machine-based interactive arts, but also to have demonstrated the advantages of using qualitative methods in the field of aesthetics.

These methods allowed us to understand and characterize more deeply the nature of three different artworks. Furthermore, they supported our original suspicions by clearly highlighting the way participants favor play and physical operation over critical reflection.

We argue that there is no lack of seriousness in such approaches, although one might think about different design inconsistencies that need special attention in digital art creation.

Lastly, for the sake of art, technological agendas should fade into the background, leaving more space for critical thinking.

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Annexes

a) Qualitative study of The Legible City by Jeffrey Shaw at CEAC, Strasbourg

Flow State Scale by Jackson & Marsh (1996)

Mark with a circle a number between 1 and 5 (1 for strongly disagree and 5 for strongly agree)

| | | | | | | |
|----|---|---|---|---|---|---|
| 1 | I was challenged, but I believed my skills would allow me to meet the challenge | 1 | 2 | 3 | 4 | 5 |
| 2 | I made the correct movements without thinking about trying to do so | 1 | 2 | 3 | 4 | 5 |
| 3 | I knew clearly what I wanted to do | 1 | 2 | 3 | 4 | 5 |
| 4 | It was really clear to me that I was doing well | 1 | 2 | 3 | 4 | 5 |
| 5 | My attention was focused entirely on what I was doing | 1 | 2 | 3 | 4 | 5 |
| 6 | I felt in total control of what I was doing | 1 | 2 | 3 | 4 | 5 |
| 7 | I was not concerned with what others may have been thinking of me | 1 | 2 | 3 | 4 | 5 |
| 8 | Time seemed to alter (either slowed down or speeded up) | 1 | 2 | 3 | 4 | 5 |
| 9 | I really enjoyed the experience | 1 | 2 | 3 | 4 | 5 |
| 10 | My abilities matched the high challenge of the situation | 1 | 2 | 3 | 4 | 5 |
| 11 | Things just seemed to be happening automatically | 1 | 2 | 3 | 4 | 5 |
| 12 | I had a strong sense of what I wanted to do | 1 | 2 | 3 | 4 | 5 |
| 13 | I was aware of how well I was performing | 1 | 2 | 3 | 4 | 5 |
| 14 | It was no effort to keep my mind on what was happening | 1 | 2 | 3 | 4 | 5 |
| 15 | I felt like I could control what I was doing | 1 | 2 | 3 | 4 | 5 |
| 16 | I was not worried about my performance during the event | 1 | 2 | 3 | 4 | 5 |
| 17 | The way time passed seemed to be different from normal | 1 | 2 | 3 | 4 | 5 |
| 18 | I loved the feeling of that performance and want to capture it again | 1 | 2 | 3 | 4 | 5 |
| 19 | I felt I was competent enough to meet the high demands of the situation | 1 | 2 | 3 | 4 | 5 |
| 20 | I performed automatically | 1 | 2 | 3 | 4 | 5 |
| 21 | I knew what I wanted to achieve | 1 | 2 | 3 | 4 | 5 |
| 22 | I had a good idea while I was performing about how well I was doing | 1 | 2 | 3 | 4 | 5 |
| 23 | I had total concentration | 1 | 2 | 3 | 4 | 5 |
| 24 | I had a feeling of total control | 1 | 2 | 3 | 4 | 5 |
| 25 | I was not concerned with how I was presenting myself | 1 | 2 | 3 | 4 | 5 |
| 26 | It felt like time stopped while I was performing | 1 | 2 | 3 | 4 | 5 |
| 27 | The experience left me feeling great | 1 | 2 | 3 | 4 | 5 |
| 28 | The challenge and my skills were at an equally high level | 1 | 2 | 3 | 4 | 5 |
| 29 | I did things spontaneously and automatically without having to think | 1 | 2 | 3 | 4 | 5 |
| 30 | My goals were clearly defined | 1 | 2 | 3 | 4 | 5 |
| 31 | I could tell by the way I was performing how well I was doing | 1 | 2 | 3 | 4 | 5 |
| 32 | I was completely focused on the task at hand | 1 | 2 | 3 | 4 | 5 |
| 33 | I felt in total control of my body | 1 | 2 | 3 | 4 | 5 |
| 34 | I was not worried about what others may have been thinking of me | 1 | 2 | 3 | 4 | 5 |
| 35 | At times, it almost seemed like things were happening in slow motion | 1 | 2 | 3 | 4 | 5 |
| 36 | I found the experience extremely rewarding | 1 | 2 | 3 | 4 | 5 |

b) Communications made in the context of this research

The Sense Making Process in The Legible City

Third International Conference on Arts and Technology, 21 – 23 March 2013, Milano, Italy

Evaluating the Influence of Play in Interactive Art

THE ART OF RESEARCH IV: Making, Reflecting and Understanding, 28 – 29 November 2012, Aalto University School of Arts, Design and Architecture Helsinki, Finland.

Revealing the Spell of Media, Code and Transparency

Code 2012 - A Conference on Media, Games & Art, 21 – 23 November 2012, Swinburne University of Technology, Melbourne, Australia.

The Postdigital Art is Made of Paper, Cardboard and ABS

Computer Art Congress 3 - Postdigital Art, de 26 - 29 de November 2012, 104.fr, Paris, France.

Recovering the Activist Force in interactive Arts

ARTECH 2012, 6th International Conference on Digital Arts, 8 - 9 November 2012, University of Algarve, Portugal.

Infiltrating the Public Space, Tactics for Interactive Art

New Media and the Public Sphere, 8 - 9 November 2012, University of Copenhagen, Copenhagen, Denmark.

The Experience of Flow in Interactive Art

7th Conference of the Research Network Sociology of the Arts, 5 - 8 September 2012, Vienna University of Music and Performing Arts, Vienna, Austria.

Play, Aesthetic Distance and the Sensemaking Process in Interactive Arts

Somatics and Technology Conference, 22 – 23 June 2012, University of Chichester, United Kingdom.

Articles Published

Pais, F., “The Sense Making Process in The Legible City” in Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering Volume 116, 2013, pp. 105-112.

Pais, F., “Displacing Media: LCD LAB Artistic Residence”. In Citar Journal of Science and Technology of the Arts, Vol 4, No 1 (2012), ISBN 978-989-95776-0-2.

Pais, F., “The Postdigital Art is Made of Paper, Cardboard and ABS” In Proceedings of the 3rd Computer Art Congress, 25, February, 2013, ISBN-10 9791090094123.

Pais, F., “Recovering the Activist Force in Interactive Arts” In Proceedings of 6th International Conference on Digital Arts - Crossing Digital Boundaries, ARTECH 2012", T. Chambel, A. Ariza, G. Perin, M. Tavares, J. Bidarra, M. Figueiredo (Editors). ISBN: 978-972-98464-7-2, 2012, pp. 219-226.

Pais, F., “Evaluating the Influence of Play in Interactive Art”. In The Art of Research 2012: Making, Reflecting and Understanding. 28-29 November 2012 at Aalto University School of Arts, Design and Architecture Helsinki, Finland. http://designresearch.aalto.fi/events/aor2012/selected_papers_3.php.