16

P
AD

Towards
a New Agenda
for Design
in the
Mediterranean
Region

002

PAD #16
Towards a New Agenda for Design in the Mediterranean Region

003

Design for the Mediterranean Social Inclusion

Emilio Rossi
Lincoln School of Design, University of Lincoln, UK

Paola Barcarolo
Polytechnic Department of Engineering and Architecture, University of Udine, Italy

Keywords

Design for Social Inclusion, Design Research Approach, Human Diversities, Social Inclusion, Mediterranean Perspectives

Abstract

For many years the meaning of "human diversity" was often intended in a negative sense: physical appearances, if not included in recognized proportions or capabilities, have been tied to words like "disability". The meaning of human diversity concerns many aspect of everyday life, from physical to social, cognitive and behavioural ones. In Design, the attention to the issue of human diversity has been recognized since the 50's and, throughout years, generations of designers have proposed enabling solutions more tolerant of diversified human capacity. One of the most recent European Design Approach, oriented toward a Social Inclusion and based on it, is Design for All (DfA). Accordingly, DfA considers all human diversities as design strength in order to propose complete end enabling products for real end-users. The paper describes the DfA approach and, considering the emerging scenario of Mediterranean countries, it considers the potentialities resulting from the adoption of a human-centered, inclusive-oriented and socially responsible design approach.

1. Introduction

As reported by Stefan Collingnon (2008), contemporary society is characterized by an evident and intrinsic sense of complexity and diversity that inspires a large sense of so-called social exclusion. These aspects can be found both in industrialized countries and, most of all, in emerging ones like those of the southern Mediterranean basin, where the perception of the diversity tend to be most perceived and, then it can produce various effects in the sphere of everyday life and in design.

In particular, the social, economic and environmental disparity characterizing the southern regions of the Mediterranean area – compared to the northern ones – is one of the elements affecting the quality of life. Thus, while from the anthropological and social point of view the Mediterranean Sea can be seen as a place of encounter, cultures, exchanges and civilization, it is also a place characterized by a large number of intrinsic socio-economic contradictions (Figure 1, next page). In this scenario, the subject that most of all shows characteristics of uniqueness, but at the same time of diversity, is the human; with his anthropological, cultural, physical and psycho-cognitive specificities, considered in a positive sense (abilities), or in a negative sense (disabilities).

A large number of recent studies (Barcarolo & Rossi, 2013; Rossi & Barcarolo, 2013, 2018) have pointed out the importance of the relations between humans and the ecosystem where they live; such advances have allowed to define new design and methodological approaches to explore holistically both environmental conditions and social backgrounds.
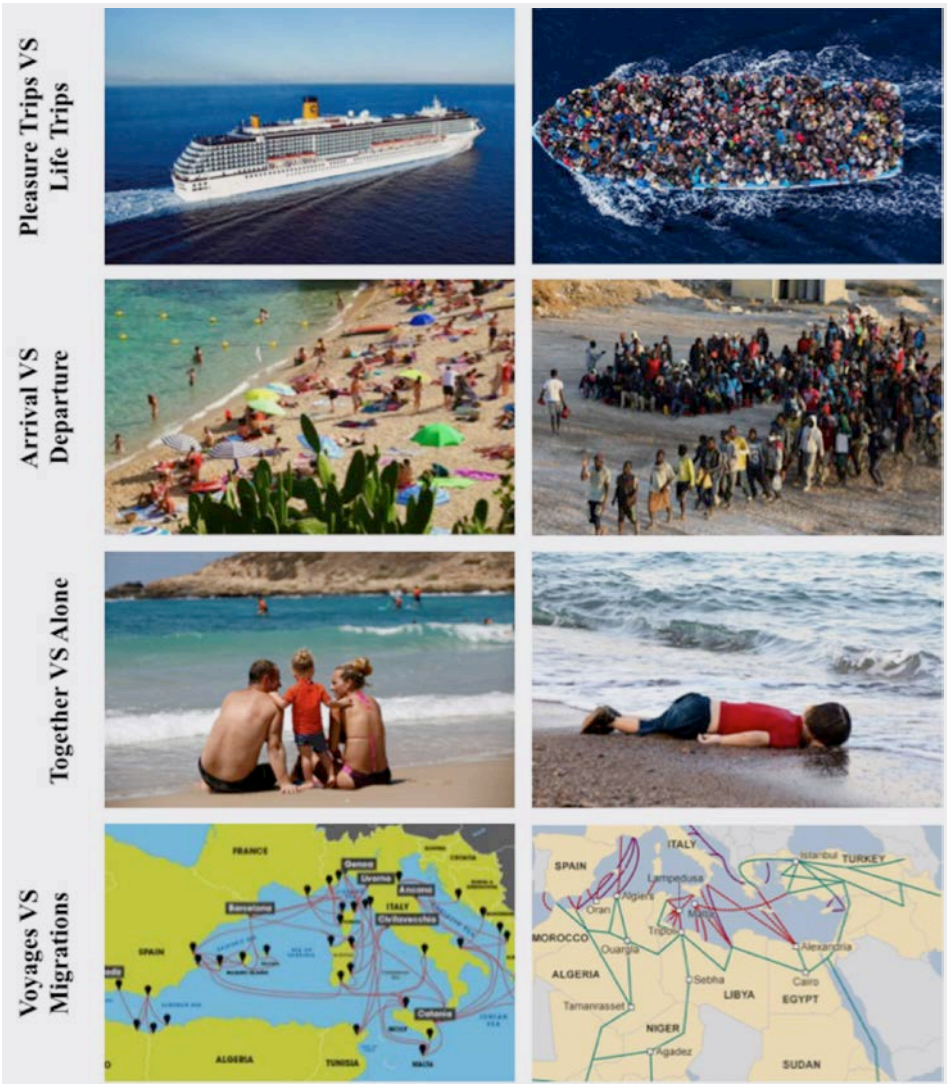
Figure 1. Contradictions in the Mediterranean Sea (from left to right top to bottom: *costacrociere.it, coe.int, depositphotos.com, africanews.com, jpost.com, dailysabah.com, freightlink .co.uk, bbc.co.uk).*

The convergence of these researches have allowed to rise a new awareness on the role of Design Research as an action of positive projections in the future, able to start new strategic

changes aimed to improve the conditions of people living in critical and/or disabling context.

It is considered that the discipline of Design must work on this new idea of human, considering its new central holistic role as "real" (Bandini Buti, 2008). Accordingly, the discipline of Design should orientate its means on the way of Social Inclusion taking into account not only the human psychophysical difficulties, but also, the active participation of real end-users during the whole design stage and their involvement also in the final verification phases.

From this point of view, the approach promoted by the Design for Social Inclusion – and by all its sub-cultural design approaches like Inclusive Design and Design for All – allows to consider all human specificities, both positive ones and negative ones, as design strengths rather than weaknesses. Design for Social Inclusion, using aesthetically beautiful, ethically correct, socially participative, and proactive methodological design solutions aims to conceive equipment, services and built environments usable by "all end-users", also by people with limited and diversified abilities or needs, in autonomous and safe conditions.

2. Aims

This paper aims to synthetically introduce the main aspects of Design for Social Inclusion, as a proactive methodological design approach able to identify and support the development of new human-centered, inclusive-oriented and socially responsible design solutions at all scales. In particular, for the Mediterranean area, an early set of promising design and research topics related to the Design for Social Inclusion will be

outlined in order to identify strategies and real possibilities to be taken into account in the near future.

3. Literature Review on Design for Social Inclusion: Human Diversity and Design for All

This work uses the literature review methodology to investigate the principal and most recent documents on human diversities and Social Inclusion's issues for Design discipline. Specifically, the study is articulated in three phases.

- The first phase analyses the meaning of human diversity and focuses the attention on the relationships between human, his skills and environment.
- The second phase theoretically and methodologically describes the Design for All (DfA) approach, as one of the most promising and recent design approaches usable for the design of inclusive services, systems, products and environments – for All. This part will also underline strengths and the participative phases that involve "all" end-users, also those that have diverse abilities.
- The third phase illustrates the users' role in DfA approach, describing their different involvement in the meta-project phase and in project one.

3.1. Understanding human diversity in Design

The relationship that each person has with a product or with the built environment is functional to some specific parameters like: psychophysical conditions (both momentary than permanent), age, gender, attitude, preparation, coordination, etc. Referring to own capacities, abilities, traditions, knowledge,

everyone is able to autonomously choose in which way to use a product, a service or a space.

In contemporary society, the diversity among people often has assumed a negative interpretation. Psychophysical diversities, where they don't fall within rules or capacities counted as "common" or "standard", have been associated to the concept of "disability". Even though the concept of diversity is now intended as a transversal and multidimensional notion, in the field of Design the understanding of its real meaning, mainly that concerning disability and handicap, appears difficult to interpret and not always well understood by designers who deal with this issue in relative approximations.

According to the ICF's biopsychosocial model proposed by the World Health Organization (2002) and shown in Figure 2, the disability can be defined as "every limitation or lack of the capacity to fulfil an activity in the way and in the extension considered as normal". It refers to functional capacities expressed by acts and behaviours that form essential aspects of daily life. Handicap, indeed, is considered as the "condition of disadvantage, subsequent to an impairment or to a disability and that, in relation to age, gender, sociocultural factors, it limits or inhibits the fulfilment of the role as a normal" (World Health Organization, 2002). It concerns the socialization of impairments or disabilities and it is the meaning given to a situation or a personal situation when it deviates from normality. In other words, disability is a human condition, whereas handicap is the consequence of a deficit and not the deficit itself (World Health Organization, 1980).
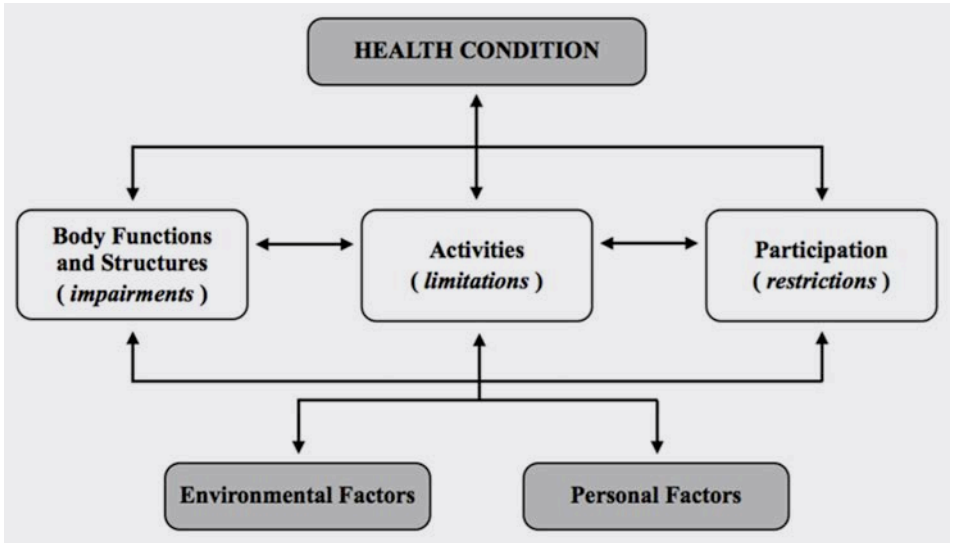
Figure 2. The ICF's biopsychosocial model. (Source: World Health Organization, 2002 -redesigned)

In Design, the attention to human diversity, both from the physical point of view and from the socio-relational one, has a relatively recent history (Welch, 1995). Since the 50's, Barrier-Free Design Movement proposed earliest laws on the theme of accessibility; in the 80's the Universal Design (Story, Mueller & Mace, 1998) approach has extended the dimension of interventions toward industrial design products. In recent years, Inclusive Design and DfA have completed previous aims toward the dimension of inclusion and users' aspirations.

3.2. The Design for All

In 1998 Paul Hogan stated: "A good design enables, a bad design disables" (EIDD, 2004). The previous assumption opens the EIDD Stockholm Declaration, the first official document which marks the birth of the Design for All. The Declaration defines DfA as:

(…) the design for human diversity, social inclusion and equality. (…) Design for All aims to enable all people to have equal opportunities to participate in every aspect of society. To achieve this, the built environment, everyday objects, services, culture and information – in short, everything that is designed and made by people to be used by people – must be accessible, convenient for everyone in society to use and responsive to evolving human diversity.

So, on the basis of what is proposed by the ICF's bio-psycho-social model, if it is the object – badly designed – that can generate handicap, the role of designer gains a more socio-ethical value, for not himself being an additional "handicap maker". At the heart of DfA there is the consideration of needs and human aspirations in the use of a product; indeed, it must be: beautiful, pleasant, comfortable, socially participated and ethically accepted. In one simple word: "inclusive at all scales and at all level of product supply chain".
The main cultural change of such approach affirms that "human diversity is a useful wealth and we must act according to it" (Accolla, 2009). DfA is oriented toward a group of end-users that potentially includes the whole humanity, with proper psychophysical, cultural or social characteristics, both momentary and permanent. This implies that the DfA approach is not only oriented to people with disability, but to all with diversities from the "standard" condition. Precisely the notion of standard is being questioned by the DfA approach: as is shown in Figure 3. Today we design more than 90% of products, services or built environments for a stereotyped human reference that represents less than 5% of the whole population of consumers.
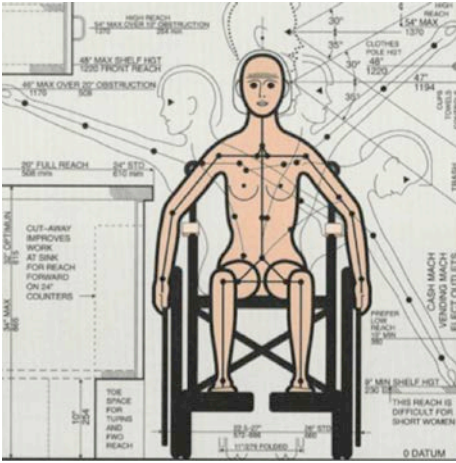
Figure 3. Designing for real end-users, leaving standard interpretations to foster authentic ones (from left to right: Dreyfuss (2001) and *aaronfotheringham.com*).

As shown in Table 1, the DfA philosophy is based on some basic values recognizable in the users' personal and social dimension (Rossi, 2014; 2019), such as: the richness of human diversity, the valorisation of diversity as such, the claim of personal satisfaction, the social duty to adapt to the environment to specific human needs and, finally, the duty of Social Inclusion. Thus the DfA's aim is not only to allow all people the utilization of products, but stimulating through their use, the participation and the integration of possible users in every aspects of social life.

Design for All Principles	Design for All Guidelines	
1. Valorise human diversity	1.1.	Enhance end-users' ethnic-anthropometric characteristics.
	1.2.	Enhance end-users' psycho-cognitive and interpretative-cultural capabilities.
	1.3.	Enable end-users' physical conditions, handicaps and disabilities (even temporary ones).
	1.4.	Empower end-users' diversified capabilities and times of reaction to external stimuli.

2.	Promote Social Inclusion and equality	2.1.	Support the access and the use of services and existing solutions in an aware and responsible way.
		2.2.	Support in a synergic way the interaction and the participation of stakeholders to their most appropriate level.
		2.3.	Promote the cooperation, the socialization and the establishment of networks among stakeholders in order to optimize and rationalize the access to resources.
		2.4.	Support the personal identity, the homogeneity and the equity in the autonomous fruition, even during collective interventions.
3.	Make easy and pleasant the use for all possible end-users	3.1.	Give the chance to simply choose and enjoy the easiest and pleasant technically adequate and suitable solutions.
		3.2.	Give the chance to easily choose the most all-inclusive, tolerant and psychophysically adaptive solutions.
		3.3.	Foster the choose of pleasant, playful and reversible solutions.
		3.4.	Make the fruition suitable to the evolution of aesthetic trends, cultures and end-users' personal aspirations and needs.
4.	Avoid psychological and physical stigmas	4.1.	Admit in advance and in an inclusive way conducts and personal choices deriving from cognitive-behavioral and socio-cultural activities.
		4.2.	Admit in advance and in an inclusive way interpretative diversities, learning attitudes, errors, ambiguous behaviors, cognitive capabilities and diversified reactions to external stimuli.
		4.3.	Admit, in advance and in an inclusive way, ethic- anthropometric capabilities, before (the wish of), during, and after the use (the evaluation of).
		4.4.	Admit in advance and in an inclusive way handicaps and disabilities (even temporary ones).
5.	Make aesthetically beauty products, environments, systems and/or processes	5.1.	Make aesthetically harmonious the different elements in order to make synesthetically pleasant conceptual and operative schemes.
		5.2.	Show equilibrate and perceptually congruous details for allowing the end-users' autonomous fruition.
		5.3.	Make the aesthetic of the solution adaptable to end-users' aspirations, needs and market evolution.
		5.4.	Make the aesthetic of the solution so as not to be perceived as "designed only for a specific end-users group".
6.	Make socially, environmentally and economically sustainable, products, environments, systems and/or processes	6.1.	Make the intervention socially suitable, valid and justified compared to generable social impacts.
		6.2.	Show the intervention as a fundamental part of a socially aware, inclusive and respectful of stakeholders' needs.
		6.3.	Make the intervention environmentally suitable, valid and justified compared to the conservation of involved ecosystem's equilibrium.
		6.4.	Make the intervention economically suitable, valid and justified compared to the expected economic efforts.

7. Improve the end-users' quality of life	7.1.	Enhance end-users' ethnic-anthropometric capabilities.
	7.2.	Enhance end-users' psycho-cognitive and interpretative-cultural capabilities.
	7.3.	Enable end-users' disadvantageous physical conditions, such as: impairments, handicaps and disabilities (even temporary ones).
	7.4.	Empower end-users' diversified capabilities and reaction times to external stimuli.
8. Include all potential end-users in the design process	8.1.	Stimulate, through collective and aware decision-making processes, the access and the use of services and essential solutions in an aware and responsible way.
	8.2.	Support in a synergic way – and promote the collective effort and engagement of all potential stakeholders – the interaction and the intervention of stakeholders at their most appropriate level.
	8.3.	Promote the collective cooperation of all potential stakeholders and decision makers, the socialization and the establishment of shared networks, in order to optimize the access to resources.
	8.4.	Collectively promote and support the end-users' personal identity, their diversities (intended as promote the value of diversity, rather than its meaning of weakness), the equity during the autonomous fruition, even during collective interventions.

Table 1. Design for All: Principles and Guidelines (Rossi, 2014).

DfA, expanding the concept of users to *"all end-users"* (everyone has the potential to use a product at least once in his lifetime) prospects to work on an enormous and complex number of users. This indeed, is the aspect that reflects among other things, the beauty and reality of contemporary society. About this sentence, Finn Petrén (2009) states:

> DfA is a noble concept, a kind of concept that challenges our conceptual thinking skills. (…) It is a creative thought that when practiced becomes innovation. The DfA is an innovation that has a strong potential to become one of the engines in the coming years of quality of life for All.

3.3. The users' role in Design for All approach

The project's end-users compose the main reference entity in the DfA approach. They are real people with diversified abilities and physical conditions, both in the positive sense of the term and in the negative, that try out a real and tangible experience through the designed object.

The understanding and the involvement of real end-users represent a relevant milestone in the user-centered DfA approach and in defining the limits of its intervention. They are examined in all their characteristics mainly considering those most related to project specific problems. The analysis becomes a transversal multidisciplinary investigation, defining real end-user groups who are able to benefit from the inclusive project.

On the operative level, there are two phases for defining the end-users nature: the first one is called "meta-project phase" and it has the character of strategic choice of people, whereas the second phase is called "project phase" and it defines specificities more addressed to design phases.

In meta-project phase, users are defined by "all users that wish to use system-products" (Accolla, 2009). "Wishing to use" refers to some concepts like enjoyment, well-being and emotion. It is beyond the mere notion of accessibility for moving toward the concept of Social Inclusion. The aim is to provide equal design opportunities for users to use in an autonomous and comfortable way the system-product. In this phase the designer describes, in the best and most critical way, those users that wish at least once in their life to use what we are designing.

On the other hand, in the project phase end-users are composed of "all people that wish and have a reasonable chance to benefit from the system-product in an autonomous way" (Accolla, 2009; Di Bucchianico 2011). The proper end-user characteristics are related to real project criticalities; starting from the before phase, project specificities are taken into account. In this phase the term "can" underlines that end-users' criticalities are less abstract and are related to the specific product to be produced. So, the DfA project needs to concentrate on the solution that enables real project end-users. Specific project criticalities will be solved taking into account real end-users in their autonomy, with the awareness that other people interested in using the product, but not considered before, will use some ad-hoc tools or solutions already used for their specific needs.

Through the meta-project phase and the project phase, the evaluation of autonomous fruition will help the designer to manage the various needs of project real end-users (Accolla & Bandini Buti, 2003).

4. Discussions

The new inclusive and holistic design approach proposed by DfA allows the beginning of a discussion about its new potential applicative role in everyday design practice.

More precisely, an initial discussion concerns the Design for All approach, its theoretical fundaments and its potential applications in many fields of Design research. A second discussion refers to the importance of adopting the DfA approach in the Mediterranean area that still need to develop a mature role in market.

Indeed, considering their new social and economic opportunities, the DfA approach may provide positive benefits and strengths that could be treated in the short and long-term on the micro-scale of daily products, on the urban scale, and on the intangible scale of systems and services.

4.1. A new inclusive and holistic design approach

As said, the DfA is a new design approach based on the valorisation of human diversity as a design element. In contemporary society, many forms express the meaning of diversity: low income, social exclusion, inability to join the community life, low education, gender disparity, diversified language comprehensions, membership to different social classes, physical appearance, etc.

The consideration of humans as "real", rather than as "standard", shows the aspect of design in a new user-centred design approach. As Figure 4 shows, adopting DfA as a new design approach brings new and unexpected benefits in everyday market design practice. It is able to detect needs and aspirations or real end-users in order to propose complete and innovative enabling solutions.

From the academic teaching point of view, adopting the DfA approach represents a sure benefit both for instructors and for students. Educating new generations of designer to solve real problems, those of tomorrow, concentrates academic attention to stimulating reflections on real and tangible criticalities. Following this assumption, we will have new generations of designers more able to understand what markets want and what consumers need. Indeed, the notion of real end-user becomes equivalent to real market demands.
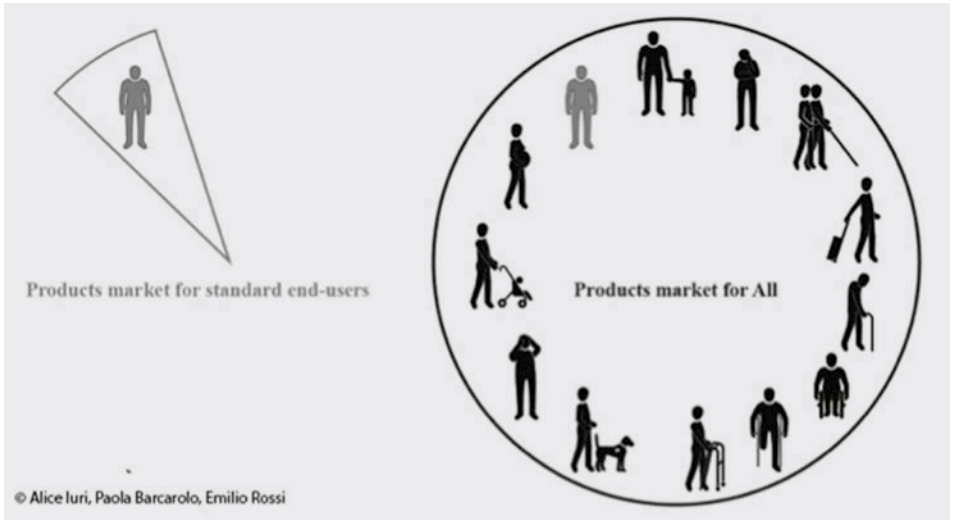
Figure 4. Market opportunities gained by adopting a standard "end-users" approach (left) and a for All approach (right).

On an academic research point of view, adopting the DfA approach should suggest and inspire (Cappo, 2002) teachers and researchers to experiment with new hidden ways; experimenting their theories on new intuitions about holistic and inclusive user-centered design research. Because DfA is a recent discipline, some relevant research experiments can be suggested and new tool kits can still be proposed and tested. Some results are, already, launched (Rossi & Barcarolo, 2018), but so much more can be done, allowing the intellectual exchange among worldwide researchers.

On a business and market point of view, the DfA approach becomes the strategic tool for all project stakeholders. It gives the opportunity for designers to work with more effective and holistic design briefs. In particular, for manufacturing companies and service promoters, DfA offers big opportunities of innovation and investment.

With the same effort, for example, it will be possible, simultaneously, to satisfy different markets, increasing their own corporate image. Moreover, the attention to today's real problems brings companies towards more competitive and culturally higher markets, mainly observant of a product's social impact. (Gilardelli, 2009)

4.2. Design for All's perspectives in the Mediterranean area

Design for All is a transversal design approach applicable to all scale of design: from the micro-scale of products to macro-scale of services and built environment. Referring to socio-economic issues that Mediterranean area reveal, the adoption of a DfA approach in daily design activities allows us to trace some relevant key elements to discussion. Mainly, they are tied to some macro-trends, which are largely diffused worldwide, but in these countries are particular prominent. Even if it could be easy to talk about physical or cognitive impairments of people living in Mediterranean area, as stated before, DfA does not only refer to human disability. In the following four scenarios, a different approach to common problems will be shown proposing a DfA approach.

The first issue to be considered in contemporary society is the ageing issue. Thanks to improvements in healthcare and in social prevention, we live longer and in better health than in the past. For example, for some years, European elderly are considered active people; they travel (use intermodal modes of transportation), play sports, read e-books, etc. The issue of ageing can be considered as a problem, if we compare human capacity with everyday challenges, and a strength, if we un-

derstand the opportunity to develop design or architectural solutions which enable the understanding of new technologies, affordance of products, and spatial organization in new modern buildings. Through the DfA approach, the elderly are offered the opportunity to conceive, for example, products that are more adaptable to end-users age.

A second issue to consider in everyday design concerns the multiculturalism of our society. The connected and digitalized society needs to reflect upon the importance of communication not only based on words, but more related to the awareness of all-embracing signs, images, logos and dynamic and perceptible graphic gestures. It is sufficient to think about the difficulty that western people have in the comprehension of Arabic ideograms. Every day, people go around the world; they take metro and buses, surf the Internet, etc. Large part of communication is based on the use of words, but this is not enough; all people from foreign countries with every social background must be able to understand every communication. Through a DfA approach, multiculturalism offers the opportunity to conceive, for example, communicative services and products adaptable and understandable, without errors and stress-related efforts, by all people thinking or speaking in different languages.

A third issue concerns tourism. South Mediterranean countries are becoming new convergent poles for new forms of tourist traffic, mainly those related to the discovery of new lifestyles, new economies and new heritages. An increasing number of people that use new places must reflect designers

about how important it is to conceive new services and in general, new enabling infrastructures allowing the pleasant fruition of new destinations.

A new kind of tools should be created for making confortable and easy services for people who speak different languages, or have problems in understanding new cultures, for those have problems related to sight, or simply for those wanting to be totally autonomous in their travel experiences. Through DfA approach (EIDD, 2007), tourism offers the possibility to create and make available flexible services and products for the fruition of cultural or natural heritages. Examples could refer to: wayfinding and way-showing services, new app development for mobile devices, new forms of multimodal inclusive systems of mobility, etc.

A fourth issue is related to architecture and city planning. In the last decades, the growth of new industrialized economies has generated new economic investments in new emerging cities. This phenomenon has been alimented both from new market resources that have generated new diffused richness, and new marketing promotion of cities. New forms of tourism have appeared (i.e. Dubai, Malta, Nile area, Adriatic area), new cultural facilities have been created (i.e. Albania, Costa Brava, Salento and Basilicata), and new attractions and infrastructures established (i.e. Greece, Spain, Croatia, Albania). A new model of cities was born and new buildings built. Referring to architecture and city planning fields, the use of DfA approach offers the opportunity to conceive a new idea of building and public spaces, not only intended as physical objects, but also as socially-oriented places.

These offer the possibility to share spaces with others, allowing the common use of tools such as; kitchens, laundries or leisure rooms. Also places where the elderly and children can come together; places built following stakeholders and end-users needs, in which they can spend their time; places built following what Sustainable Development suggests: using local workers and resources, enabling both personal and shared use of basic equipment; places that foster the participative sense of community belonging.

5. Conclusions

DfA is a new design approach that uses key points of Social Inclusion, and treats human and social diversities as strengths, rather than disadvantageous constraints.

The divergences introduced by the globalisation phenomena in the Mediterranean area allowed to critically think on the meaning of "diversity", which appears in many forms: disability, cultural diversity, lack of participation, and more. From this perspective, adopting a design approach can address diversity in all its forms. It can be assumed to be the best way to deal the complexity of our everyday life, and as a consequence, the complexity of a new and evolving market like those arising in the South Mediterranean countries. In this scenario, the key role played by Social Inclusion allows us to understand more specifically the needs and aspirations of end-users.

In conclusion, it is possible to state that the discipline of Design, when it is orientated towards Social Inclusion, must inspire designers to reflect on real issues to be take into account, both if we consider new market challenges and the complexity of people that use everyday products.

As it has been argued in the paper, the DfA approach can surely help new generations of designers to understand, with a proper sense of maturity, the everyday design challenges characterized by intrinsic complexity that exists in contemporary society.

Credits

This paper is based on the study entitled *Enhancing Human Diversities Through the Design for All Approach: Potentialities and Relevant Issues for Emerging Countries* presented by authors in 2013 at the Gaborone International Design Conference (Rossi & Barcarolo, 2013).

The various theses expressed in the literature review of this paper, as well as the discussions proposed for emerging countries in the Mediterranean area are the result of a common discussion and a theoretical elaboration between authors. However, the writing of the various paragraphs can be individually attributed to Emilio Rossi, for *Abstract*, *Aims* and *Literature Review*, and to Paola Barcarolo for *Introduction*, *Discussions* and *Conclusions*.

References

Accolla, A. (2009). *Design for All: Il progetto per l'individuo reale.* Milan: Franco Angeli.

Accolla, A. & Bandini Buti, L. (2005). Design for All ed ergonomia. *Professione Ergonomia, 3*, pp. 5-13.

Bandini Buti, L. (2008). *Ergonomia olistica. Il progetto per la variabilità umana.* Milan: Franco Angeli.

Barcarolo, P. & Rossi, E. (2013). The Strategic Sustainable Valorization of Cultural and Natural Heritage for the Touristic Fruition of Developing Countries. *Proceedings of the Gaborone International Design Conference (GIDEC) 2013 - Design Future: Creativity, Innovation and Development.* Gaborone: University of Botswana.

Cappo, D. (2002). *Social inclusion, participation and empowerment.* Australian Council of Social Services National Congress 28-29 November, 2002, Hobart.

Collingnon, S. (2008). *Forward with Europe: A democratic and progressive reform agenda after the Lisbon Strategy.* Bonn: Friedrich-Ebert-Stiftung.

Di Bucchianico, G. (2011). "DFA FF" (Design for All Fast Forward): from Design "Approach" to Design "Toolkit". In Roja, Z., Kalkis, H. & Kalkis, V. (eds.). *Contemporary Ergonomics and Business 2011: Proceedings of the First International Scienti c-Practical Conference of the Latvian Ergonomics Society.* Riga: University of Latvia Press.

Dreyfuss, H. (2001). *The measure of man and woman: Human factors in design - Revised edition.* New York: Wiley.

European Institute for Design and Disability. (2004). *The EIDD Stockholm declaration.* Adopted on 9 May 2004, at the Annual General Meeting of the European Institute for Design and Disability in Stockholm.

European Institute for Design and Disability. (2007). *Tourism for All: The Milan Charter.* Adopted on 27 June 2007, at the EIDD Annual Conference of the European Institute for Design and Disability in Milan.

Gilardelli, D. (2009). Fondando il Marketing DfA. In A. Accolla (ed.), *Design for All: Il progetto per l'individuo reale*, pp.157-212. Milan: Franco Angeli.

Petrén, F. (2009). Presentazione. In A. Accolla (ed.), *Design for All: Il progetto per l'individuo reale*, pp. 9-10. Milan: Franco Angeli.

Rossi, E. (2014). *Designing Inclusive Natural User Interfaces for Sharing Know-How.* Ph.D. Dissertation in Architecture and Urban Planning, University of Chieti-Pescara, Italy.

Rossi, E. (2019). A Comprehensive Tool for Developing New Human-Centred and Social Inclusion-Oriented Design Strategies and Guidelines. *Theoretical Issues in Ergonomics Science 20(4),* pp. 419-439.

Rossi, E. & Barcarolo, P. (2013). Enhancing Human Diversities Through the Design for All Approach. Potentialities and Relevant Issues for Emerging Countries. *Proceedings of the Gaborone International Design Conference (GIDEC) 2013 - Design Future: Creativity, Innovation and Development.* Gaborone: University of Botswana.

Rossi, E. & Barcarolo, P. (2018). Use of Digital Modeling and 3D Printing for the Inclusive Valorisation of Cultural Heritage. In Karwowski, W. Trzcielinski, S., Mrugalska, B., Di Nicolantonio, M. & Rossi, E. (eds.). *Advances in Manufacturing, Production Management and Process Control. Advances in Intelligent Systems and Computing Series*, *793*, pp. 257-269. Cham: Springer International Publishing.

Story, M. F., Mueller, J. L., Mace, R. L. (1998). *The Universal Design file: Designing for people of all ages and abilities.* The Center for Universal Design: North Carolina State University.

Welch, P. (ed.) (1995). *Strategies for teaching Universal Design.* Berkeley: Mig Communications.

World Health Organization. (1980). *ICIDH: International classification of impairments, disabilities, and handicaps.* Geneva: World Health Organization.

World Health Organization. (2002). *Towards a common language for functioning, disability and health: ICF.* Geneva: World Health Organization.

034

AIAP
associazione italiana design
della comunicazione visiva