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PAD

**Towards
a New Agenda
for Design
in the
Mediterranean
Region**

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Towards a New Agenda for Design in the Mediterranean Region

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The Mediterranean scenario does not stop to attract our interest and attention. We believe it is essential today to generate a convergence of actions that promotes creativity and innovation in this region, looking at the future of youth, by breaking the barriers of differences and misunderstandings between the various national realities and making the most of the difference in understanding the other.

PAD #16 issue deals with the design research and practices for the Mediterranean region, according to the vision of young creative innovators, in line with the previous #14 and #15 issues. It closes the trilogy of these last three issues to launch a new way of looking at the Mediterranean challenges.
We decided to shed light on the potential of the new globalized generation who wishes to take control of their future. It is by supporting the innovation capacity of youth that we will be able to advance the actual Mediterranean reality and open new perspectives on the future.

Whit this issue we give voice to PhD and researchers from the Mediterranean areas. They have faced a variety of problems that afflict these areas, to give new future perspectives each one with unique culture, personality, and means. They propose different design approaches, methodologies, and strategies to take advantage of the unique potentials of the Mediterranean communities, related mainly to the human capital, cultural identity, and creative resources. Creativity is the enabling forces for smart, sustainable and inclusive growth, to build a "territorial capital", specific to increase opportunities for social innovation. Creativity is the way to forwards

new development models in the Mediterranean as a whole, in line with the EU 2020.

Reported researches mainly deal with the identification and recognition of the cultural and historical resources of each territory and its adoption as distinctive elements in the pursuit of new activities, with the double purpose of preserving the heritage and taking advantage of it.

The design applied to the development of cultural and creative resources can make a significant contribution not only at a social and cultural level but also at an economic level, becoming of general knowledge. One of the reasons that make cultural and creative practices so unique, as well as industries, is that they rely on unlimited resources: creativity and tradition, on which we can organize a sustainable economic development.

Reopening the dialogue with the cultures and ecologies of places, taking into consideration the unawareness of the economic reality, the continuous loss of territorial skills, and trying to insert into the reality new logics and ways of conceiving behaviours, ecologies and human needs, means to work for social and entrepreneurial innovation, knowing how to discern globalization trends with a view focused on the sustainable development of each territory.

The first section titled *Design for Social and Entrepreneurial Innovation* collects four contributes in which design has been declined into four corresponding different approaches/disciplines and immersed within the Mediterranean basin and its relative socio-economic contexts and complexities.

Design for All and Social Inclusion have been called into question by the article "Design for the Mediterranean Social Inclusion" by Emilio Rossi and Paola Barcarolo. Human-centred, inclusive-oriented and socially responsible design approaches have been here taken into account as concrete and relevant attitudes, considering the Mediterranean countries' contemporary scenario with all its multiplicities and controversial contingencies (immigration at the first place).

Design for social innovation and teaching are at the core of Valentina Frosini's contribute titled *"Mondiale!* Open-ended Game-tools to Stimulate Possibility Thinking for the Intercultural Education"*, which presents practice-oriented research on intercultural education in terms of innovation in kindergartens. The article reports an exploratory case study conducted within the *Scuola per l'Infanzia I Gelsi* of Scandiano (Reggio Emilia, Italy) where design tools and the Reggio Emilia pedagogic method have been applied to generate intercultural and interdisciplinary education games for small children.

"Bio-inspired Design System for the Egyptian Market: a Short-term Project Case Study" by Nariman G. Lotfi and Dina Bahgat explores the fascinating field of the biomimicry-oriented design. Nature became the first source of inspiration and information in the area of Egyptian Product Design to create innovative, efficient, and sustainable solutions. Authors report interviews with local companies and designers in Egypt as well as a case study of short-term product development projects, which research outcomes led to the application of a Bio-inspired design system and method. According to

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this, develop products is a matter of manufacturing locally and cost-efficiently with the consideration of user needs.

Jomana G. Attia investigates the struggles faced by Design Entrepreneurs in Cairo with her contribute "Design Entrepreneurs' Challenges in Cairo's Ecosystem". The article focuses on communication problems between the entrepreneurs, the designers, and manufacturers in a start-up among the city of Cairo entrepreneurial ecosystem. The research, primarily intended as a sort of guide for Cairo's design entrepreneurs, reveals the problems faced within the start-up and the ecosystem, as well as challenges, emerged in terms of dealing with designers and makers in the product development phases.

Connecting Design and Culture of Territories is the title of the second section of this issue which ascribes four articles that equally experience the relationship between the heritage of local cultures and design practices.

"Mediterranean Critical Regionalism. A Methodological Concept Linked to the Southern Space Designs of Post-War II" is the contribute by Sara Coscarelli Comas who establishes a historical connection, during the Post War II period, among Milanese Modern Architecture and the Spanish Group R, founded by the architect Josep Antoni Coderch. Critical regionalism seems to be the common ground of both architectonic visions that took their traditional vernacular traditions as a model, reinterpreting them through the progressive criteria of the architectural modernity and avoiding a mere aseptic application of the International Style.

Moving from Barcelona to the Egyptian territory, Ahmed Wahby and Mona A. Marie write "Fatimid Secular Architecture: a Visual Reconstruction", a singular contribute dedicated to heritage of the ancient and influent dynasty of the Fatimids. The article reports the work of reconstruction of the Fatimid secular architecture through historical textual narratives in books and traveller testimonials and descriptions, then reported as a series of illustrations to be used as backgrounds in printed material, or studio setups for media purposes.

At the turn of anthropological studies and contemporary design eco-sensibilities lies the contribute by Bilge Merve Aktaş titled "Vernacular Design Examples to Study Climate's Role on Design Decisions: an Example of Nomadic Yörüks in the Turkish Mediterranean". The research presents vernacular design examples to investigate the relationship between design and climate through the study of the habits of the Turkish nomadic clan of the Yörüks, whose living habits have been here taken into account as an example to analyze how climate, mobile lifestyle and accessible materials actively affect their design decisions.

The closing paper of the section titled "Design and Culture of the Territory: *Ecomuseo del Grano e del Pane* in the Salemi Museum System", by Serena Del Puglia, Laura Galluzzo, and Viviana Trapani, brings us in the middle of the Mediterranean Sea, in the Italian region of Sicily. Design for territories is at the core of this contribution that reports the case of an Ecomuseum made possible thanks to the interconnection between

territorial actors and a multidisciplinary design process, gathering experiences and activities under a common relational discipline.

PAD #16 ends with the images of the project "Giochi di Strada" by the students of ABADIR, Academia of Visual Art and Design in Catania. The photos by Maddalena Migliore record the working in progress and the results of the design workshop made in collaboration with G124 and tutored by Giorgio Laboratore. Aim of the project was to design a new pedestrian path to be realized with a local crowdfunding operation. The result are fifteen playgrounds created on the walkway that revisit traditional games and invent new ones triggering a virtuous appropriation and regeneration process of the outskirts, starting from the children living nearby.

We hope this trilogy of PAD #14, #15 and #16, with a look towards the future, will promote and spread a new agenda to improve Mediterranean sustainable progress.

Photo in the opening page, courtesy of Maddalena Migliore, from the *Giochi di Strada* project.

DESIGN FOR SOCIAL AND ENTEPRENERIAL INNOVATION

Design for the Mediterranean Social Inclusion

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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.

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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).
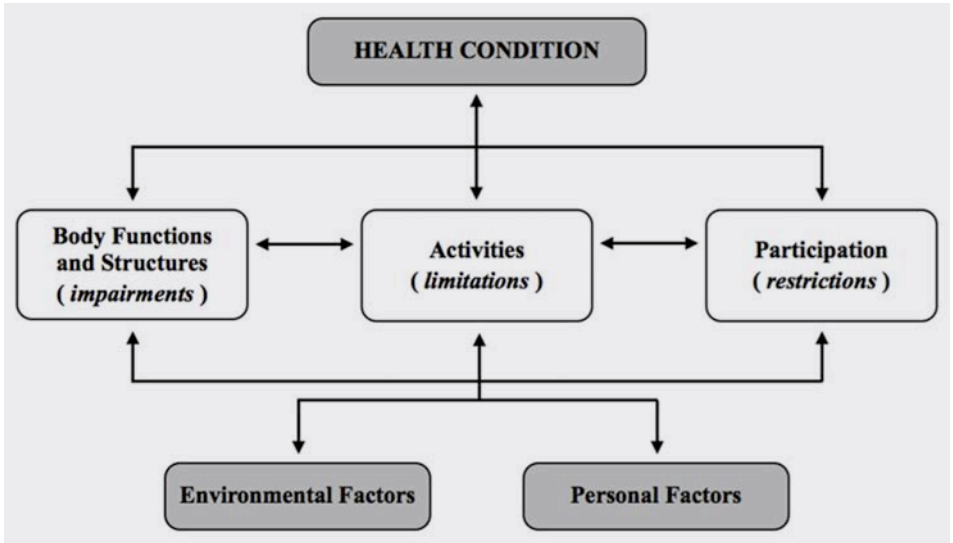
Figure 2. The ICF's biopsychosocial model. (Source: World Health Organization, 2002 -redesigned)

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.
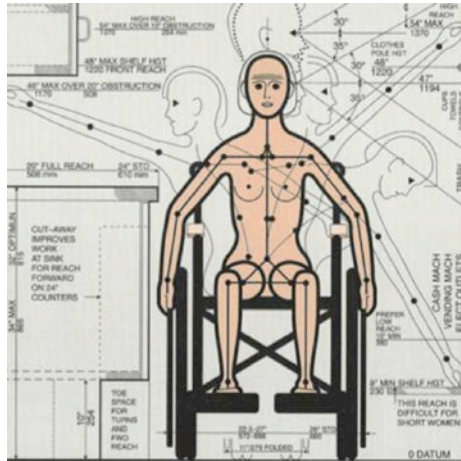
Figure 3. Designing for real end-users, leaving standard interpretations to foster authentic ones (from left to right: Dreyfuss (2001) and *aaronfotheringham.com*).

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.

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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.

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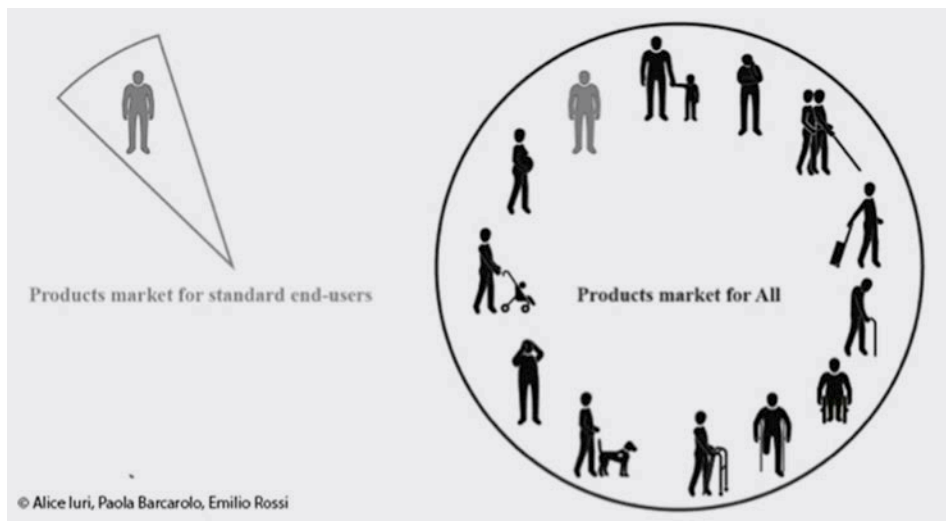
Figure 4. Market opportunities gained by adopting a standard "end-users" approach (left) and a for All approach (right).

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 in-frastructures established (i.e. Greece, Spain, Croatia, Alba-nia). 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*.

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034

Mondiale!
Open-ended Game-tools to Stimulate Possibility Thinking for the Intercultural Education

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Keywords

intercultural education, interdisciplinary approach, design-intensive innovation, open-ended game-tools, Reggio-Emilia approach

Abstract

This paper presents a practice-oriented research on intercultural education, based on an interdisciplinary process shared with design, anthropology and pedagogy. On the basis of an exploratory case study, the aim of the research was to investigate whether and how design could contribute to the theme of intercultural education in terms of innovation in kindergarten (3-6 years), thanks to the design-driven method, which has been used in a more inclusive and extended version, the *design-intensive innovation*.

The output of the research is a series of *open-ended game-tools*, designed to be part of the educational programs in schools and oriented to stimulate creative learning in terms of *possibility thinking*. The field research was conducted within the *Scuola per l'Infanzia I Gelsi* di Scandiano: in terms of methodology, the Reggio Emilia approach has been used to verify the learning effects of the proposals. Conclusions report strengths and weaknesses of the project practice.

1. Foreword

Interculture means conceiving cultures as relatively homogeneous entities, capable of creating shared areas, where socialization can arise: it means perceiving cultures not as absolute and closed, but permeable and open, where identities are the result of memory and oblivion, in a constant becoming process (Appadurai, 2001; Aime, 2006; Todorov, 2009). According to Aime "interculture is already alive in the culture itself" (2004, p. 63) and Italy as a "weak nation" (Glick Schiller & Çağlar, 2011, pp. 125, 126) is a special case, being historically and culturally characterized by differences. Because of its geographical position in the middle of the Mediterranean sea, Italy is "the country in the middle of the middle-sea" (Lotti, 2015, p.16), a crossroads of migrations of various and many people: as such, it is desirable that Italy regains an active role in the Mediterranean chessboard, "a role of proactive mediation in terms of creation of cultural synergies among the countries on the Mediterranean and one of activation of collaborations of knowledge and skills" (Lotti, 2015, p. 39). Because of this specificities, Italy represents a favorite field of high potential experimentation on intercultural education (a relevant European and global issue). In order to achieve this goal an "accelerator of change" is required (Germak, 2008, p. 67) which would enable researchers and professionals to overcome the disciplinary boundaries and create visions before actions: design is one of the most effective agents of change in the intercultural domain, as a "socially and politically aware choice of field" (Lotti, 2015, p. 43) able to catalyze the main factors to activate solid choices. This paper is an experimentation based on how project culture can intervene

2. Intercultural education: a paradigm shift

Intercultural education is a global issue that represents a main topic: both European recommendations[1] and national ministerial recommendations[2] strongly suggest to work on structured and documentable teaching proposals which allow transferability to other classes and capitalization in subsequent years in order to avoid the fragmentation of single curriculum projects. It is necessary to create initiatives beyond the urgency level, operating in the medium-long term and encouraging a radical change in the education field. Inclusion can only start from a basic assumption: it is normal to be different (Eco, 2013). Social change in Europe is giving rise to increasingly multi-ethnic societies, often incapable of confronting each other, since most of our cultural institutions still have a traditional character which represents national culture, "based on a premise of cohesion and homogeneity rather than diversity and convergence" (Federici & Reggiani, 2006, p. 3). A paradigm shift is therefore necessary, which will allow us to move from the principles of universality and homologation to those of diversity and convergence. Cultural diversity could be seen from an autonomous perspective, not necessarily related to ours, but equally meaningful (Sclavi, 2003).

1.   European Parliament and EU Council's Recommendations of 18 December 2006.

2.   Ministry of Education, University and Research, Department for Education and Training System Directorate-General for Education and the Evaluation of the National Education System (2017). National Indications and new scenarios, available at http://www.miur.gov.it/documents/20182/0/Indicazioni+nazionali+e+nuovi+scenari/3234ab16-1f1d-4f34-99a3-319d892a40f2.

3. *Mondiale!* Research: the main goal

The research main goal was to answer the general question "can design contribute to intercultural education in terms of innovation?" through a set of answers generated by the results of the field tests. At the same time, two other questions were specifically related to my research:

does it make sense to talk about interculture in kindergartens? Is it possible to create a methodological path, based on previous studies?

In order to answer these questions, it was created an exploratory case study, which has been used at the *Scuola dell'infanzia I Gelsi* di Scandiano, in Reggio Emilia.

3.1. Specific goals

The research process was shared with the other two main disciplines: pedagogy and anthropology. If the main goal was to answer the initial question, the specific goals were:

- Designing innovative play tools for intercultural education;
- Making tools which can be replicated;
- Making teachers independent from the presence of the designer (transmissibility);
- Making the methodological path explicit and repeatable;
- Making the practice of interdisciplinarity explicit.

4. The methodology

Despite the interdisciplinary nature of this research, the purpose was to understand how design acts in the anthropological and pedagogical fields in terms of methodology and how it borrows methods and tools, modifying them for design purposes.

The methodological approach was reflective-interpretative and practice-oriented (Rizzo, 2009), balancing design practice and scientific approach (Figure 1).
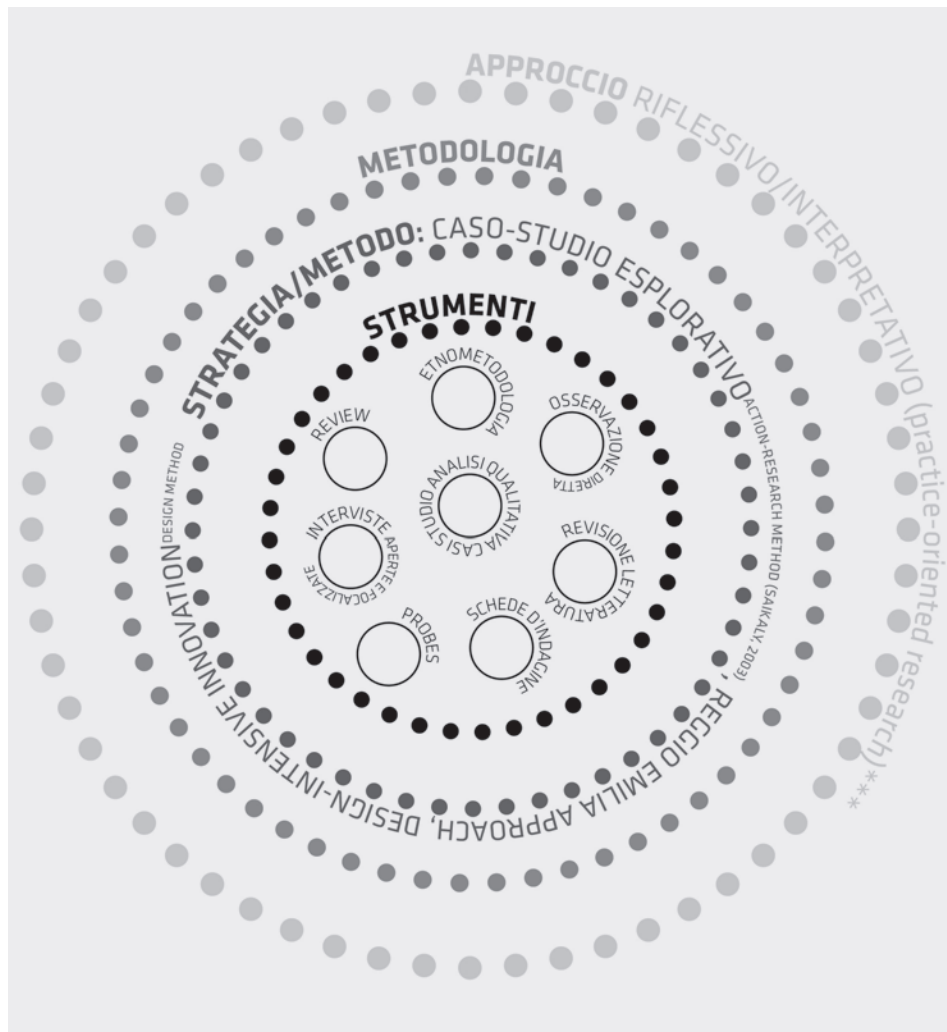
Figure 1. Valentina Frosini, *Mondiale!* methodology: from the approach to the instruments. Credits Valentina Frosini.

4.1. The exploratory case study

Gerring defines the case study as "an ideal-type research strategy", rather than a method with strict rules: it is a particular kind of investigation that, through a deep study of a certain situation, allows us to deal with it in its complexity" (Gerring, 2004). Yin classifies the case studies into three different typologies: exploratory, descriptive and explanatory (Yin, 1981). Exploratory case studies are carried out to identify hypotheses and questions that "may be the subject of subsequent research or to establish the feasibility of the research. They are therefore a prelude to other research projects" (Yin, 1989). The exploratory case-study was therefore particularly effective because of the nature of my research, especially for its holistic nature since it has offered a plurality of points of view which allowed to understand the phenomena in their multiple facets. Anthropology and its relationship with design (Gunn, Otto & Smith, 2013) was involved especially at the beginning of the proposal; pedagogy was particularly involved in the proposal check (before and after the field test).

4.2. Design-intensive innovation

The research was conducted through a design-driven method. According to Verganti (2008), design-driven method is defined as a radical innovation of meaning, capable of influencing and changing socio-cultural contexts. In particular, Verganti points out that the design-driven method is never user-centred: it is the result of the intuitions of the expert designer, who suggests proposals instead of answers, thanks to his/her visionary capabilities. In my opinion Verganti's description does not care about the profound social changes ongoing, particularly

in the last decade. Manzini (2018) defines this social changes a transformative social innovation: "a composite and dynamic social landscape, in which there are other ways of thinking and doing" (Manzini, 2018, p. 8). It represents a subset of social innovation, which changes reality towards sustainability. In my opinion, Verganti's idea of the user does not take these profound changes into account. Therefore, I suggest to open the focus from the design discourse (which stimulates the designer's visionary skills thanks to the key interpreters) to the design community (Figure 2).
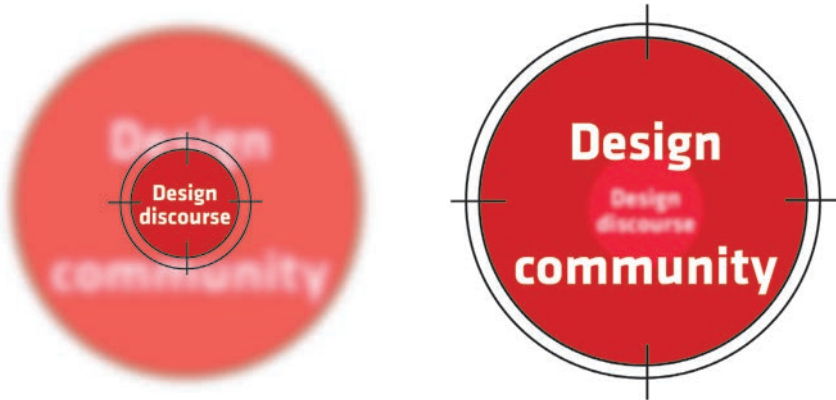
Figure 2. Valentina Frosini, *Mondiale!* focus opening: from the design discourse to the design community. Credits Valentina Frosini.

I think that every expert designer has to consider this paradigm shift, which will affect his/her proposals. In order to include this profound social changes, a broader and more inclusive definition is required. I suggest to refer to the design council's definition[3] who talks about *design-intensive innovation*, related to the intensity with which design is applied

3.   https://www.designcouncil.org.uk/resources/report/understanding-design-intensive-innovation.

during the innovation process (at any stage of it), rather than Verganti's definition.

4.3. The Reggio Emilia approach

The Reggio Emilia approach is the method applied to check the learning activities designed on the basis of the interdisciplinary design process. This approach was fundamental in order to check the proposal's learning effectiveness. It is based on the constructivism and social constructivism approach, and related to the 100 languages of children (every child learns in different ways) and the whole approach is based on the observation, through documentation and conversation between children and teachers (Giudici, Krechevsky & Rinaldi, 2009; Nuzzaci, 2011). Making learning visible is one of the cornerstones of the model and it was fundamental, in the field check phase, to allow me and the teacher to understand how children responded to my proposal: the analysis of the many facets, typical of the exploratory case study, expressed itself in this phase in all its potential (Gerring, 2004). According to Vygotskij's theory (1930, 1934) about the mediated and situated nature of learning, it is necessary to act on artifacts (material and immaterial) in order to improve children's education and designer can therefore act as *catalyst-agent* to gain social change (Bennett, Cassim & Van der Merwe, 2017).

4.4. DNE: design process within education process

The methodology which has been used conceives *Mondiale!* at the centre of a chain made of two processes (Figure 3): the project process driven by *design-intensive innovation* and the educational one driven by the Reggio Emilia approach.

Mondiale! is in the middle and it represents the output which allows the designer to understand the effectiveness of his/her proposal in order to stimulate learning in intercultural terms. It also allows not to miss potential elements of surprise.
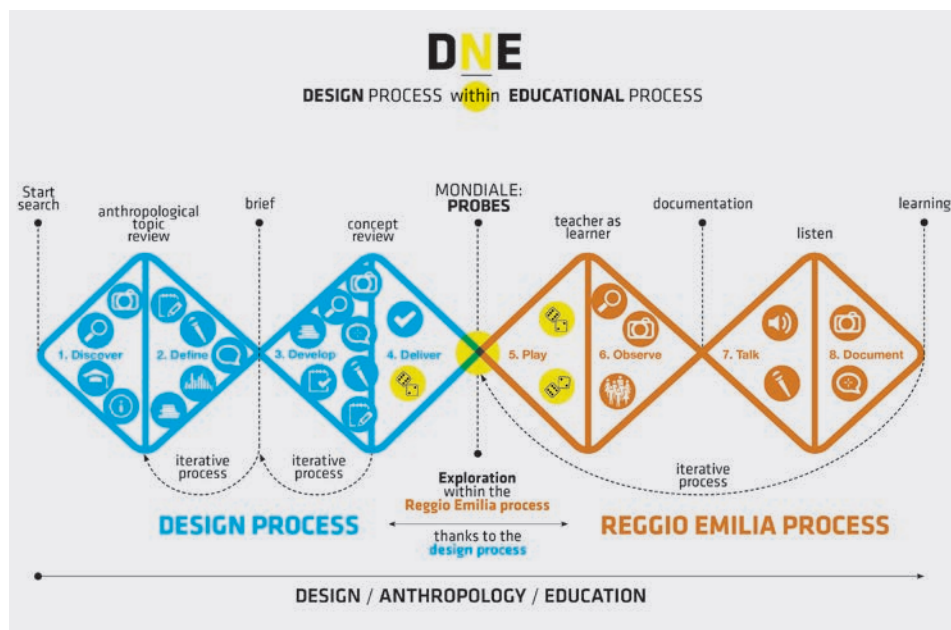
Figure 3. Valentina Frosini, *Mondiale!* Dne: design process within educational process. Credits Valentina Frosini.

We can define *Mondiale!* games as probes (Mattelmäki, 2006) oriented to an exploratory and not-intrusive research. Probes belong to the expert-mindset (Figure 4) and they are coherent with my design-driven research (Sanders, 2008). Final users (children) use probes and take part to a learning process by an innovative gaming activity (Iversen & Nielsen, 2003). Therefore, *Mondiale!* is the link of an information chain that recalls the dna double helix structure.
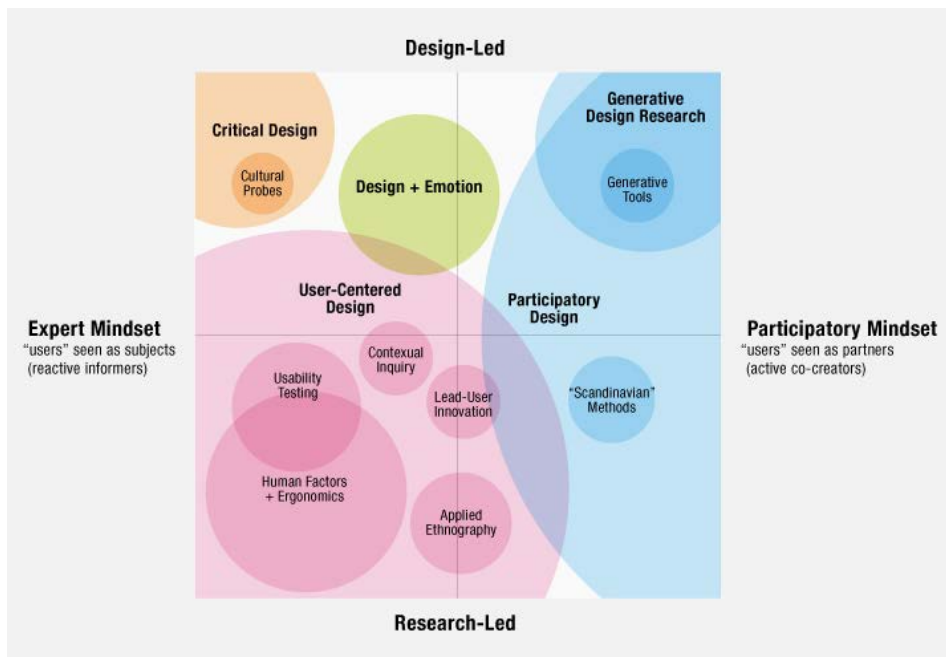
Figure 4. Liz Sanders, map of design research - research types. Credits Liz Sanders, *ACM – Interactions, XV/6*, November/December 2008 on Modeling Forum.

5. *Mondiale!* The project

The name calls to mind both the sense of global belonging (seeing oneself as world citizen) and the figurative sense (an exclamation for an extraordinary event). Games are *open-ended*, in other words they leave freedom in terms of learning (Figure 5).

Figure 5. Valentina Frosini, *Mondiale!* open-ended process: design process oriented to learning, overcoming the result to focus on the process. Credits Valentina Frosini.

The idea of *open-ended* is common to all the instruments of *Mondiale!,* as a matter of fact every activity provides for many possible combinations instead of only one (possibility thinking). They are designed to cover the entire educational offer of the kindergarten (3-6 years) so that they can become part of it (as per national indications).
At the same time teachers can gradually become familiar with the activities.

5.1. the three activity levels
Every activity is three levels-shaped:

1. The over-structure: this is the theoretical level, related to the anthropological, pedagogical and epistemological principles. This level does not directly concern children or the games, but it is the fundamental theory that produces the games;
2. The game itself, provided with rules/not rules, since, as already described, it is always a matter of open-ended games, without constricting boundaries;
3. The third level can be defined by teachers. Mondiale! is a kind of module: teachers can attach videos, stories or any kind of connection that is related to the preliminary over-structure of the game. The game can therefore be introduced by teachers: they can customize the game and feel part of it.

5.2. activities
Every activity starts from tool-games that are designed and dedicated to specific objectives. The project output mainly tries to innovate the game (new concept, with no specific rules) to the benefit of the freedom for learning.

The graphic language is uniform and basically consists with the idea of re-designing the world: every activity refers to an imaginary map (Figure 6) and it is linked to the concept of re-designing geography from scratch thanks to the stimulation of *possibility-thinking* in children (Camuffo, 2017).
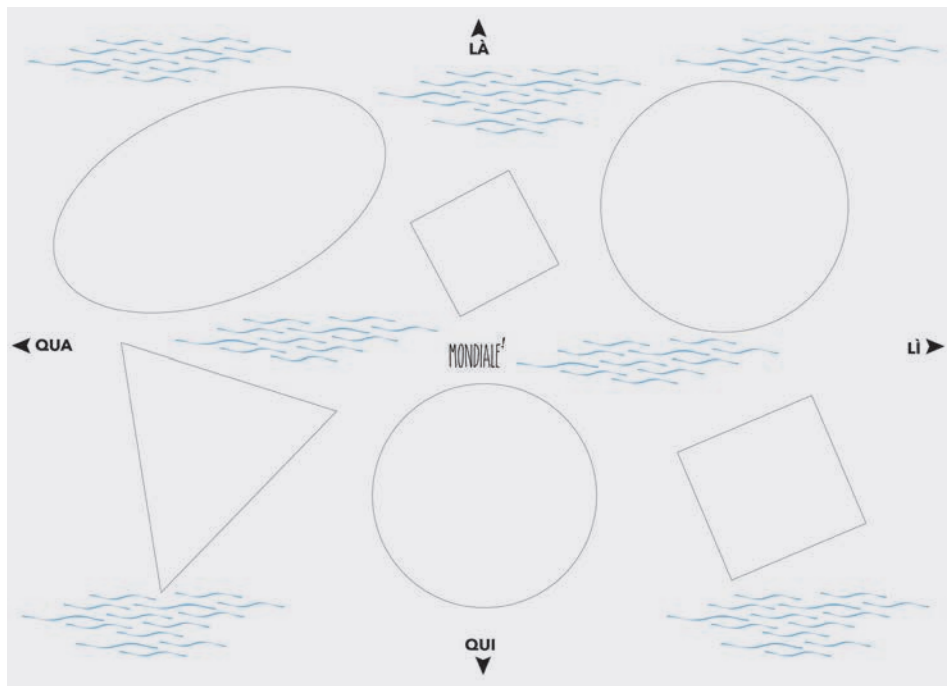
Figure 6. Valentina Frosini, *Mondiale!* The ideal map to re-design the world. Credits Valentina Frosini.

5.3. *Giragiramondo* (3-4 years-old)

It can be played with a globe, a series of figures and a board/world. The game is based on the attempt to find a balance between pluralism of cultures and universalism of values shared by all humanity. *Giragiramondo* is a cube (Figure 7) that represents a special globe: each of its faces refers to a country of an ideal map and the countries are shaped as basic colored forms.

Figure 7. Valentina Frosini, *Mondiale! Giragiramondo* the special globe. Credits Valentina Frosini.

Each face has a cut that allows the player to access the inside of the cube/globe: inside of it children can find the necessary shapes to complete the board/world. The idea behind the game refers to the universalism of shared values: whatever country you belong to, you have access to the same values shared by all humanity. Transposed into the game: from whatever side of the cube you enter, you have access to the same figures contained within the globe. The shapes are numerous and the combinations of colors that the players can create to complete the board (the world) are always different.

5.4. *Quale verso? Uguale o diverso?* (4-5, 5-6 years-old)
It can be played with 36 cards (Figure 8), representing 36 primitive shapes, which refer to the six shapes of the ideal

map: six shapes in six different colors. The activity makes us think about the dichotomy between equality and diversity: does integration take place because we accept the diversity or because we recognize in others traits common to ours? As a result, the game tries to make children reflect: there is never a univocal and right choice, and even when we have to choose which figures are alike or different, the criteria are related to the subjective and cultural domain.
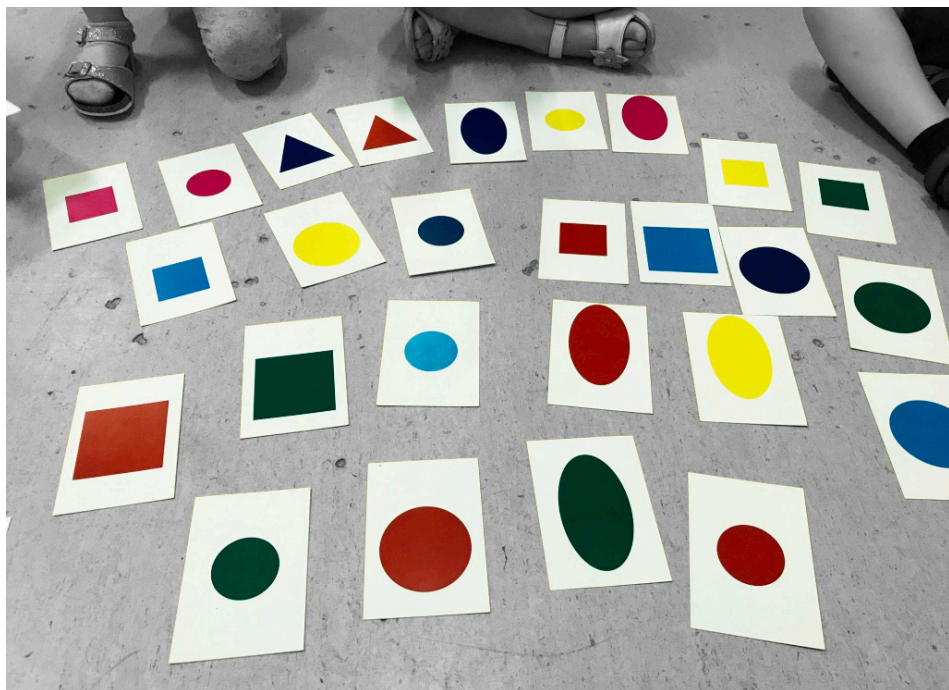
Figure 8. Valentina Frosini, *Mondiale! Quale verso? Uguale o diverso?* the cards. Credits Valentina Frosini.

The game begins by arranging all the cards face up, so that they are all visible at the same time. Each child is asked to choose, according to his/her own criteria, two pairs of cards: one pair of identical cards and one pair of different cards.

The child must then argue why the two cards are alike or different: the criterion is based on shapes or colors and is highly subjective. As a matter of fact, a card can be alike to another card in color, but different in shape and so on: it is up to the child to choose which of the two features is predominant in the selection made. The criteria are obviously interchangeable: at a turn the child can see two cards as alike to each other, and then he/she can change his/her mind at the next turn and judge them as different. The game never concludes with a solution and stimulates the child to reflect on the fact that the point of view can change completely the perception of what we observe.

5.5. *Il mondo in classe* (4-5, 5-6 years-old)

It can be played with an a5 note-pad, some shapes for drawing (triangles, squares and circles) and a rubber-stamp (Figure 9). The note-pad is made up of 500 sheets: on each sheet a random name is printed: Italian, English, Chinese, Arab and French names. Each sheet shows one of the names along with two eyes and a heart that, together with the hand-shaped rubber-stamp, represent the common traits of all children: all the rest is the result of the imagination of the child, who draws the figure through the shapes (which call to mind the basic shapes of the ideal map). The activity plays with random factors such as the name written on the sheet and the actual child drawing on the sheet: two children, probably of different nationalities, meet virtually. One of them draws the other, without prejudices or stereotypes. The basic idea is giving to children the power to redesign the world, starting with the people who inhabit it, helping them to overcome the prejudices. Moreover, at the end of the school year, children will have

many sheets with faces from all over the world: the world diversity will have overcome the classroom boundaries.
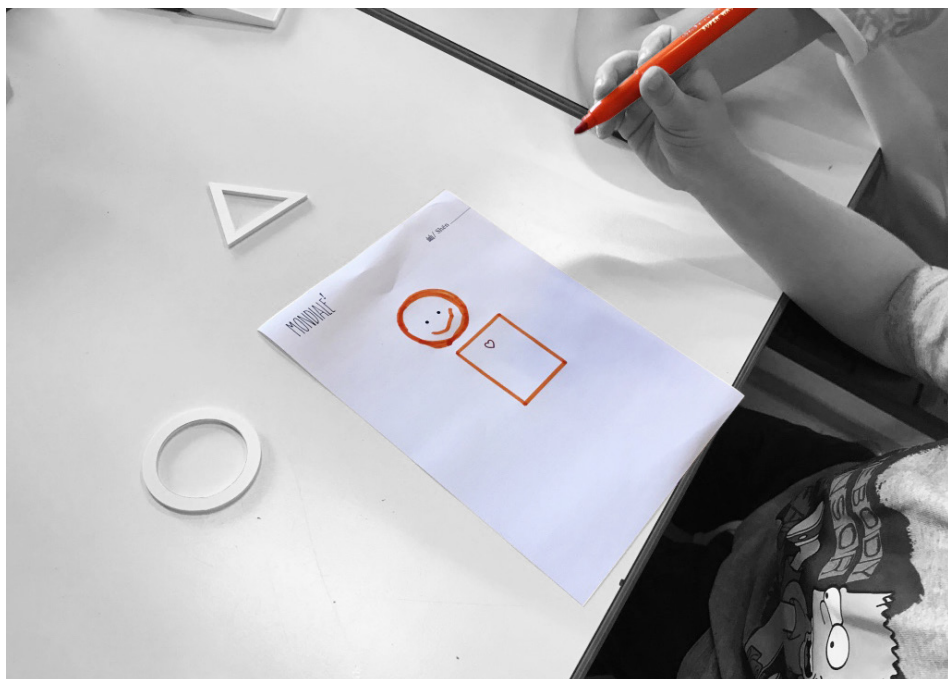
Figure 9. Valentina Frosini, *Mondiale! Il mondo in classe* the note-pad and the shapes for drawing. Credits Valentina Frosini.

5.6. *Pontifichiamo!* (5-6 years-old)

It can be played with a pvc carpet/map, a cube with colored faces, a cube of directions/non-directions (*qui, lì, qua, là*), pawns, 30 bridge tablets, a nut (Figure 10). The ideal map is inspired by real continents but it reinterprets them; the shapes are basic because children have to re-design the world! Directions are non-directions (*qui ,lì, là, qua*) and everyone can decide to move in total freedom. The map is designed to become a large carpet on which children can start planning a new world.

Figure 10. Valentina Frosini, *Mondiale! Pontifichiamo!* the re-design of the world. Credits Valentina Frosini.

At the base of the map is the idea that the world, as it has been given to us, needs to be rethought, redrawn: children, more than anyone else, are the architects of change. Playing to draw and change the world is a way to train them to the idea that rethinking things can and must be done, to stimulate them to think different possibilities, in other words, to train them to the possibility-thinking.

At a first attempt the map was with colors, but in a second time they were removed in order to generate the fundamental dynamics of learning and allow children to re-design (with colors) the world. The next step is moving on the map using

ideal directions (*qui, lì, qua, là*) in order to build bridges between countries, and at the end, all countries are connected to each other. The final part is moving on the map thanks to the bridges: each child moves freely around the world, crossing all countries and plays to become a citizen of the world.

6. Results

The field test involved 6 classes, 39 children and 16 teachers, all within the *Scuola dell'infanzia I Gelsi*, Scandiano (RE) and was carried out through direct observation (by me and the teachers), photographic and audio documentation, conversation with children, focused interviews (with the teachers), daily reports. Since my research was an exploratory case-study, some of the results were expected, but others were absolutely unexpected (Rizzo, 2009).

6.1. Expected

The aim of the research was to answer the initial questions through a set of answers:

- *Can design contribute to intercultural education in terms of innovation?*
  Research has shown how design can effectively contribute to intercultural education in innovative terms. *Mondiale!* is one of the ways in which design can contribute, but any contribution to intercultural education requires *open-ended* activities, i.e. without a given delivery or prescriptive tasks. The intercultural issue requires a dialogic approach (Sennet, 2012) that does not allow proposals to be inscribed within rigid frames;

- *Does it make sense to talk about interculture in kindergarten?* It is a domain to explore and contribute to. In particular, the need for innovation is growing along with the need to overcome the dominant paradigm of equality and homologation and the risk of ethnicization (Aime, 2004);
- *Is it possible to explain a methodological framework?* DNE is one of the possible methods to produce innovation by a design process. The Reggio Emilia approach was also fundamental, to make learning visible.

6.2. Unexpected
The field test revealed a set of unexpected data:

- *The presence of prejudices*: during the conversation (driven by teacher, to understand the child's way of learning) of *Quale verso?* (4-5 years-old), prejudices rooted in the paradigm of similarity emerged. Actually, from the interview it emerges how similarity is perceived as a positive value and how, on the contrary, diversity is experienced and described as wrong (a position shared by all the children of the group subject to verification);
- *The value of collaboration and language*: in *Pontifichiamo!* Activity, the large surfaces, the need to color them, allows us to meet the other, to help each other (if at the beginning each child had chosen a shape to color, the large surfaces have forced them to work together).
Language (bridges, diversity, alike, different, redrawing, places, far away, near), transversal to all activities, trains children to develop a sense of alternative to the dominant thought they inherit;

- *The value of randomness*: drawing possible geographies and encounters in an unconventional way (i.e. *Il mondo in classe*), makes it visible how cultures can and should meet in an unconscious way, in a balance between memory and oblivion.

7. Conclusions

The domain of education compels the designer to overcome the urgency of results in favor of the process: *open-ended* approach is necessary to stimulate free learning frameworks. At the same time, we have to pay attention to time management: it is necessary to find a balance between learning times (lenses) and the design synthesis, to avoid not understanding the effectiveness or our purpose. Furthermore, it is fundamental to consider the educational training of the designer who aims to operate in the intercultural field.

The designer must necessarily:

- overcome the frames of belonging and cultural diversity (Sclavi, 2003);
- build the reciprocity of the look and work on the overcoming of ethnocentrism (Aime, 2004);
- overcome the urgency of classification and project synthesis;
- build the dialogic ability, or rather overcome one's own vision in favor of newly acquired perspectives (a direction/non-direction), also from the point of view of the management of the iterative process, which an interdisciplinary path necessarily requires.

Finally, teachers' fragile and diversified intercultural competences, together with a widespread resistance to innovation, call for future participatory design research projects aimed to teacher training.

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Bio-inspired Design System for the Egyptian Market: a Short-term Project Case Study

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Keywords

Biomimicry, Bio- inspiration, Product Design Process, Nature, Egypt

Abstract

Product Design development requires many sources of information and inspiration, one of which is nature. Bio-inspiration and Biomimicry are tools based on extracting information from nature and applying them to reach sustainable, efficient products. Bio-inspiration involves gathering ideas from nature and adjusting them based on project requirements and available resources. It provides flexibility by integrating possibilities without the limitations. These processes deliver realistic, short-term compromises that are applicable, efficient, and functional. Egyptian businesses, including small companies and startups focusing on Corporate Social Responsibility, will benefit because projects will be realizable, leading to innovative products that encourage local manufacturing. The research aims at developing a system that creates innovative, efficient, and sustainable solutions while satisfying the Egyptian market's needs. Research methods used were interviews with local companies and designers in Egypt as well as a case study of a short-term product development project. Research outcomes led to the development of a Bio-inspired design system where products were developed with the consideration of user needs to be locally produced and cost efficient. It is recommended to develop an ecosystem, which incorporates teaching skills to local workers in Egypt while investing in production techniques and materials' development, leading to local, environmentally friendly products.

1. Introduction

The focus on nature-inspired product development is becoming greater due to the current serious environmental issues. According to Hoeller et al. (2016), it is now a designer's priority to develop sustainable products. Applying systems from nature would create "efficient, effective, ecologically appropriate, and less risky" solutions (Hoeller et al., 2016, p.37). Professionals from different fields have frequently turned to nature for inspiration. One of the growing fields focusing on this approach is Biomimicry; imitating nature while following life's principles to reach faultless outcomes. These principles limit project applications, causing them to remain conceptual especially in countries like Egypt. Alternatively, Bio-inspiration focuses on simulating and abstracting inspirations in Biology without precise replication. It provides researchers endless, idea sources. This is more convenient to companies and clients creating sustainable and innovative projects as it saves time and money.

Therefore, the research aims at comparing Biomimicry and Bio-inspiration, and argues that Bio-inspiration is more convenient for design in Egypt due to limitations in available materials, production technique options, and craftsmanship quality. These cause a gap between the market needs, that are influenced by aspects of imported goods such as product finishing, usability, and design aesthetics. A design system was developed based on a freelance short-term design project used as a research case study to provide a process for future Bio-inspired products. The study hypothesizes that following the proposed design approach leads to realizable and sustainable products to the local Egyptian market.

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2. Nature-inspired systems & design

Studying Biology creates a mix of methods for emulating nature and applying it into different fields such as Bionics, Biomimicry, Biomimetics, and Bio-inspiration (Whitesides, 2015). Although the terms seem similar they have different meanings and application processes. Reed, Lumb, Koobatian, and Viney (2009) discuss that several researchers use "Bio-buzzwords" assuming that methods such as Biomimicry (focusing on design processes) and Biomimetics (focusing on the field that applies the design process) are simply techniques of imitating nature "without giving thought to the value or limitations or consequences of such copying" (Reed, Lumb, Koobatian & Viney, 2009, p.1572). Therefore, it is important to first define the meaning of the Bio-terms Biomimicry and Bio-inspiration before comparing and analyzing them to each other.

2.1. Defining Biomimicry

Biomimicry stems from the Greek words *Bios* (life) and *mimesis* (imitation). It became famous in 1997 through Janine Benyus' *Biomimicry: Innovation Inspired by Nature* book (Biomimicry: Designing to Model Nature, 2019). It is a tool for innovation that involves searching for solutions by emulating nature's strategies and patterns. By doing so, innovative and sustainable outcomes can be achieved to "create conditions conducive to life" (Benyus, 2007). Biomimicry breaks down a project into three levels: model, measure, and mentor. The first level, model, mimics an organism's form to create a solution and the second involves replicating chemicals in nature. Finally, using nature as a mentor establishes complete ecosystems similar to those in nature.

2.1.1. Life's Principles

Life's principles are rules present in any living organism according to its natural conditions based on limits and boundaries, water, sunlight, and gravity, and dynamic non-equilibrium (Baumeister, 2011). These principles are:

- Evolve to survive
- Be resource (material and energy) efficient
- Adapt to changing conditions
- Integrate development with growth
- Be locally attuned and responsive
- Use life-friendly chemistry

Each principle is based on analyzing strategies and patterns found in nature; if all are replicated in the design process the outcome would be as sustainable as any organism in nature (Biomimicry Institute 3.8, n.d.).

2.2. Defining Bio-inspiration

Bio-inspiration offers idea sources from Biology to achieve research in non-biological entities such as science and technology. It provides new opportunities to areas with limited resources and creates a bridge between geographical areas' cultural interactions and technical differences. According to Whitesides (2015), inspiration from nature should consider function, simplicity, and dissipation.

Finally, everything in nature requires a flow of energy and can be studied to achieve sustainable Bio-inspired products (Whitesides, 2015).

2.3. Product design processing

Many processes exist depending on challenges to create a solution according to the designer's perception and analysis. Design processes include three core phases present in different design disciplines: Research, Ideation and Implementation. They are sometimes referred to using different nouns or surrounded by other leadings steps and broken down into multiple phases. The Design Thinking model, for instance, is broken down into five phases: empathize, define, ideate, prototype, and testing, as shown in Figure 1. The process is not linear and designers begin or return to any step (Hasso Plattner Institute of Design, n.d.).
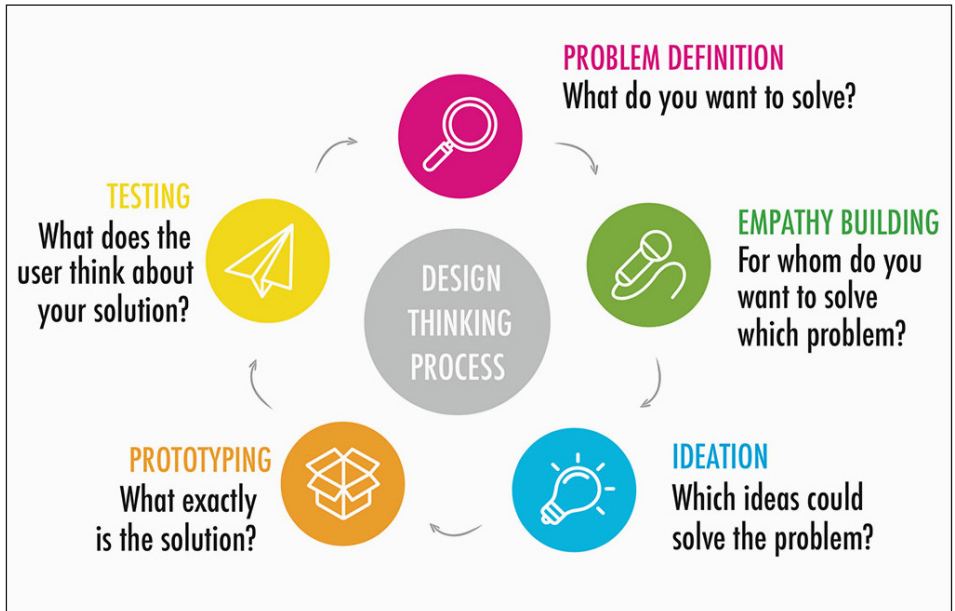
Figure 1. Hasso Plattner Institute of Design at Stanford. Design Thinking model.

2.4. Nature-inspired design systems

Nature-inspired product design systems have different approaches depending on a product's marketing strategy: market pull or technology push. Some systems follow steps to categorize creative processes including Biomimicry using levels of form, process, and ecosystem. Another approach, the Biom Bridging Model, connects systems' components according to its "structure, behavior, and functional role" (Hoeller et al., 2016, p.3). In this case, Bio-inspired systems start with inspirations to create new technologies or find solutions for existing problems using nature's knowledge.

3. Designing in Egypt

Product design, in the Egyptian market, is not well established due to misunderstanding of the designer's role. Innovation in the industry has depleted since the Sadat's "Infitah" (the open door policy). According to Ates, Duman, and Bayraktar (2006), the Sadat government worked towards becoming a financial and commercial centre in the Middle East. Companies found faster, easier profits with Sadat's government "encourage(ing) commercial activities, particularly importing advanced technology and stimulating exportation", rather than investing in local production development (Ates, Duman & Bayraktar, 2006, p. 63).

Companies nowadays prefer to assemble finalized imported products rather than developing their own. Egyptian products are forced out of the international competition because local consumers prefer foreign, high-quality finished goods. Consumerism led to a fast-paced industry where large quantities of goods are produced in low qualities.

After Egypt's revolution in 2011, several economic changes caused an increase in customs on electronic products. This led to a rise in startups and motivated companies to invest in R&D departments and develop high-quality products that suit market demands. Egyptian product design projects can now be divided into two categories; long-term and short-term projects.

3.1. Long-term projects: Industrial developed products in companies' multidisciplinary teams

These projects are developed under established companies owning large-scale factories that produce electronic goods and mass-produced furniture. Processing these projects requires years of development and financial investment to serve the masses. Interviews conducted with representatives from two industrial companies in Egypt showed that both work in similar processes. Dr. Bahgat Saad (Chief Technology Officer at Universal group for household appliances) stated that the product design process consists of Ideation, Market Brief, Design Concept, Feasibility study, Engineering Design, Digital Simulation, Functional Prototype, Functional Testing, Tool and equipment preparation, Pilot production, Reliability and performance Testing, and Launching. A similar process is used at ElAraby group with the addition of cross-functional teams to engage designers in different roles depending on project requirements.

Product design in Egypt is not yet recognized with few vacancies advertised for the position in large industries because companies still rely on assembly.

Dr. Saad states that the country needs to fight against the assembly industry to urge factories to build R&D departments to increase the need and support for product designers. According to Youssef ElAraby, product design senior manager at ElAraby Group R&D center, design priorities depend on project and market requirements. At Universal group, priority goes to new ideas with a unique selling point and new technology. The industry's current goal is getting rid of import and assembly to produce their own products, making sustainability a secondary goal.

3.2. Short-term projects: Independent freelance projects developed by local designers

Short-term projects target niche markets developed under small companies and startups. Production is minimal, relying on importing materials or producing designs in China for low costs. Several companies invest in one machine to produce small amounts of products to sell to a market percentage. Some produce their own handcrafts or outsource local crafts workshops to teach additional skills to reach high-quality products with an authentic Egyptian identity.

According to an interview conducted with Doa'a Refaat, a product designer in Egypt, the designer introduces new tools and methods of design thinking and product development to the Egyptian industry. Although most industries use traditional methods, the best approach is to mix local industries' experiences with modern techniques to develop new business concepts that can compete internationally. The designer manages interdisciplinary research as an intermediate between the technical and management expertise.

However, designers in Egypt are not deeply involved and often mistaken for engineers. Until now, the industry is not fully aware of the importance of research and conceptualization in business concept development. Usually market clients are uninterested in the research stage at the beginning and require immediate concepts.

3.3. Reflection on Design and Biomimicry/ Bio-inspired in reality: The application of producible designs

Rajeshwar discusses that although Biomimetics is important in basic science and exploratory research, it is limiting and needs to go beyond nature. This involves transitioning from the imitation of Biomimicry to the recreation of structures in Biomimetics to, finally, achieving Bio-inspiration by pushing functionalities beyond what is offered by nature (Rajeshwar, 2012). According to Whitesides, using Bio-inspiration in research is simplistic and easy to achieve in a less expensive manner. It is more suitable to short-term projects, especially for the Egyptian market and creates a compromise that allows projects to be developed using inspiration from nature without identical replication. It leaves designers the flexibility to use materials and resources imported from other countries which is not the case in Biomimicry. Bio-inspiration, therefore, is more compatible with existing design processes and nature-inspired development can be achieved realistically and efficiently (Whitesides, 2015).

4. Case study

4.1. Overview

A project was developed by the researchers in collaboration with Dayma Journeys, an Egyptian company that focuses on teaching youth about Biomimicry. It is led by environmental educators who offer guided tours to Egypt's natural areas where participants are engaged through games and activities. A journey's main purpose is the exploration of three aspects: discovering self to become better decision makers, discovering nature to create sustainable designs, and the discovery of local Egyptian communities.

The project involved using inspiration from nature to develop products that can be used during Dayma Journeys and sold commercially in the Egyptian market. The focus was using Egyptian crafts, production techniques and materials relating to Egypt's biome. The researchers studied the market trends and target group; active working adults who were largely influenced by advanced finishing of foreign products, aesthetics, and eco-friendly ethics. The products consisted of a bag, bottle, multi-functional cloth, and information pamphlet/notebook.

4.2. Developed process

Initially, the client requested a Biomimetic process. However, the process that was followed used different steps which included:

1. Client briefing
2. Break down of product elements
3. Analyzing product elements

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4. Categorizing core product specifications
5. Defining each core product specification
6. Use taxonomy to highlight organisms
7. Research
8. Clustering and narrowing down
9. Selecting strategies
10. Research
11. Simplify and apply
12. Model
13. Test

After the client brief, product elements were broken down into target group, target environment, and product specifications, which included primary and secondary functions, as shown in Figure 2. Based on the usage environment, functions were categorized into three core product specifications: protect from radiation, protect from elements, and practicality, as shown in Figure 3.

Functional, sellable products were designed by analyzing the purpose, environment, and target group. Combining all four products' main features into three core product specifications ensured that product functions were the main focus.

According to Cohen, Reich, and Greenberg, some strategies were used by several organisms fulfilling the same task (Cohen, Reich & Greenberg, 2014). For example, protection from heat strategies involved layering, hair, surface shapes, etc. Information from nature was found using the Biomimicry Taxonomy on the AskNature Database and broken down into the following common strategies: cells/ pigments, casing, structures, air, and coating.
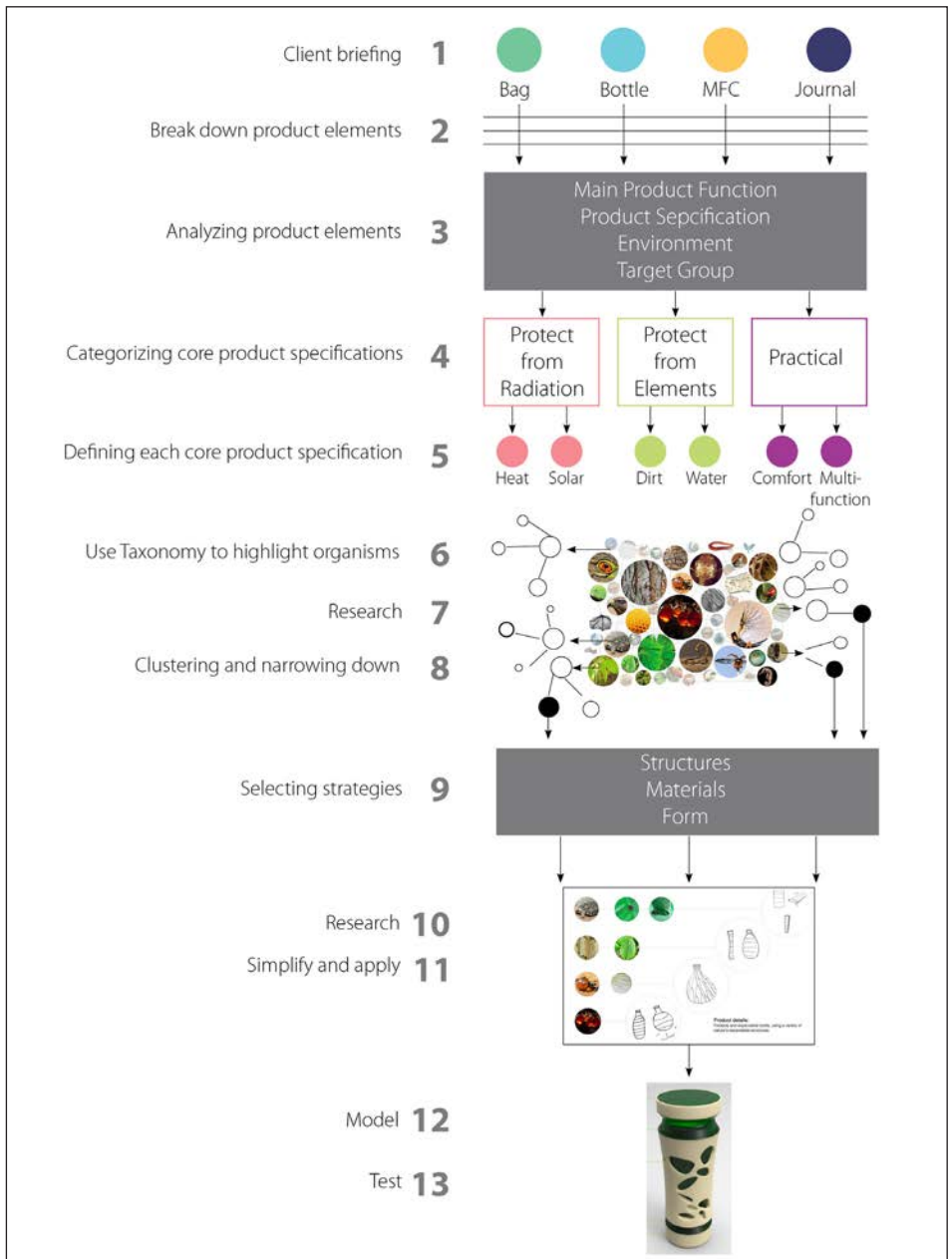
Figure 2. Nariman G. Lotfi and Dina Bahgat. Dayma Journeys Project. 2017. Project process followed in the case study.

	Main Practical Function	Extra Practical Function	Product Material Specification	Decisions	General Material Specification	General Target Environment	Additional Target Environment	General Target Group
Bottle	To carry liquid	- keep temperature - size modularity	- expandable - insulation - structured - light	- referring to previous design attempt - keep aesthetics - Biomimetic functions need to be enhanced			daily use (hot & cold beverages)	Uni-Sex **Age: 13 -16** - school teenager - attached to technology - go on Dayma trips
Bag	To carry a number of item around for one day or more	- back supports - organized compartments - safety pockets - insulated part to keep food or beverages - attach items to it	- easy to clean - UV protection - breathable - light - expandable - padded (for ergonomic fit) - structured (for back support) - insulated (parts of it)	none			daily use (school / college / work)	- dependent - not frequent campers **Age: 16 - 30** - a lot of outdoor activities - school \ college \ work
MFC	Protect against external elements	- assisting the user during 1-2 day trip in a number of situations - fashionable direction - allows storage	- breathable - easy to clean (self cleaning) - space efficient - reacts to (dry and wet) - waterproof - insulated - light - shaping flexibility - structured	none	- durable (weather resistant) - hygienic - modular - user friendly - standardized - biodegradable	Outdoor (daily use) Camping extreme activities (limited resources + Unpredicted weather conditions)	day to day (leisure / sport / maternity)	- busy - independant - slightly superficial - attracted easily to aesthetics - tech-updated - financially unstable
Journal	To collect thoughts during Dayma trips	- informative section about the trip and biomimicry - interactive	- water proof - rigid	2 directions incorporating nature journal - Dayma trips using existing materials - create new journal for commercial purposes when Dayma material is out, the commercial design will be used in Dayma trips journal will be divided in half and we will design a cover			introducing nature journal to the mass-market	**Age: 30 - up** - financially stable - can afford luxury - afford free time - selective - independant - willing to invest in long time products - busy - active during weekends - health conscious

Figure 3. Nariman G. Lotfi and Dina Bahgat. Dayma Journeys Project. 2017. Product specification analysis.

It was decided that the most realistic strategies were structures, materials, and forms as they were the most applicable in the time constraint. Figure 4 shows the list of organisms used for the research and inspirations of the project.

4.3. Design outcomes

The requirements of the project led to the ideation of two design proposals for each product based on the different structural inspirations. They were developed into preliminary models to communicate initial ideas to the client.

It was planned that the Egyptian craftsmanship would be involved in the production process by making use of their expertise while improving the quality and finishing of the final product. To design the products, structures and organisms addressing the three core product specifications were studied in more detail to analyze, understand, and abstract, as shown in Figure 5. Tessellated and deployable structures were applied to all four products.

List of inspirations	
	Organism
	Acacia nilotica
	Acacia raddiana/ tortilis
	Tamarix
	Doum tree
	Date palm
	Barnacle
	Starfish
	Fire coral
Egyptian Biome	Tiger shark
	Whale shark
	Hermit crab
	Sea urchin
	Sea cucumber
	Fennec fox
	Egyptian jerboa
	Osprey Perch
	Austalian mice
	Honey ants
	Fireflies
	Barrel cactus
Foreign Biome	Bristles and barbs
	Tree bark
	Beetles
	Millipedes
	Scales
	Bromeliads

Figure 4. Dina Bahgat & Nariman G. Lotfi. Dayma Journeys Project. 2017. Inspirations from organisms found in Nature.

Figure 5. Dina Bahgat & Nariman G. Lotfi. Dayma Journeys Project. 2017. Different organisms used as reference and inspiration.

4.3.1. Deployable structures

This product family consists of structures folded compactly when not in use, to provide practicality during backpacking trips. The structural folds provide protection from heat and dust (elements in environment). Figure 6 shows the bag design development process according to the deployable structure inspiration. Insect wings (earwig and ladybird), bat wings and snake jaw joint as well as seahorse bone structures inspired the deployable bag design. Those provided strong structure in addition to flexible and foldable features. The structures also inspired the deployable pamphlet design as shown in Figure 7 and 8.

Figure 6. Dina Bahgat & Nariman G. Lotfi. Dayma Journeys Project. 2017. Bag design development process according to the tessellated structure inspiration.

Figure 7. Dina Bahgat & Nariman G. Lotfi. Dayma Journeys Project. 2017. Deployable structures made into the pamphlet design.
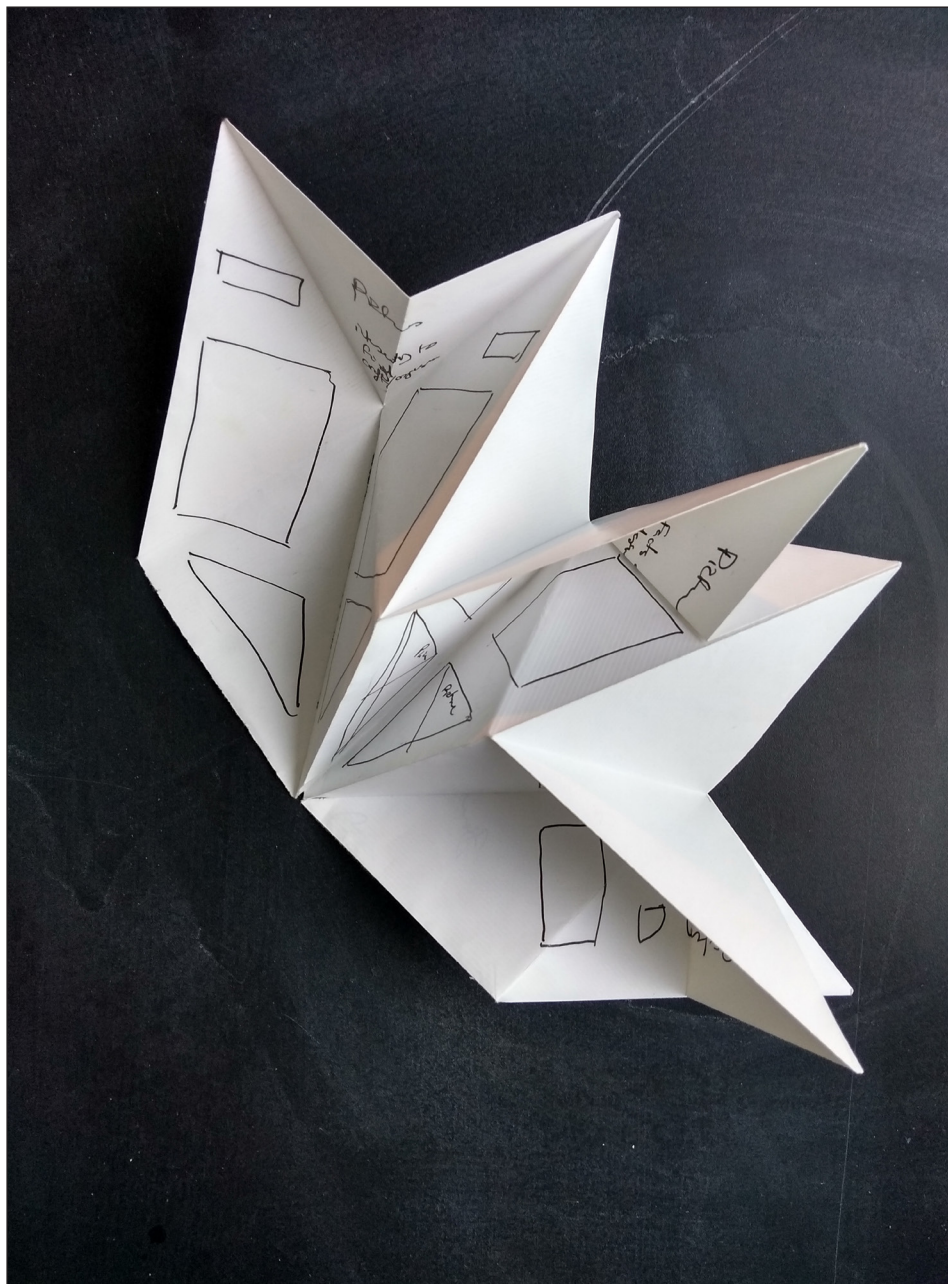
Figure 8. Dina Bahgat & Nariman G. Lotfi. Dayma Journeys Project. 2017. Final pamphlet prototype.

4.3.2. Tessellated structures

The product family followed structures that offer different possibilities depending on how many objects are carried, as shown in Figure 9. Because our customer has an active life-style, this structure provided them with diversity in the products. Figure 10 shows the variety of inspiration and the development process of the tessellated bag design. Prism shaped ant hairs, scorpion exoskeleton's water resistant properties, wasp's nest compartments, tree bark layers and date palm leaves inspired several functional elements for the tessellated bag design.

4.4. Case study reflection

According to our previous literature review and interviews, the case study considered the following:

- Fast paced development of designs
- Developing know-how of Egyptian manufacturers/craftsmen
- Mixing between crafts and design
- Fighting against the importing industry and becoming self-dependent
- Developing research and conceptualization to fit the market needs through problem-solving

The project provided several key findings including the misuse of Bio terms by clients as well as a difficulty in finding relevant inspirations from the local biome.
Finally, it was also found that communication between client and designers was essential to reach optimum design outcome.

Figure 9. Nariman G. Lotfi and Dina Bahgat. Dayma Journeys Project. 2017. Tessellated bad design sketches and ideation.

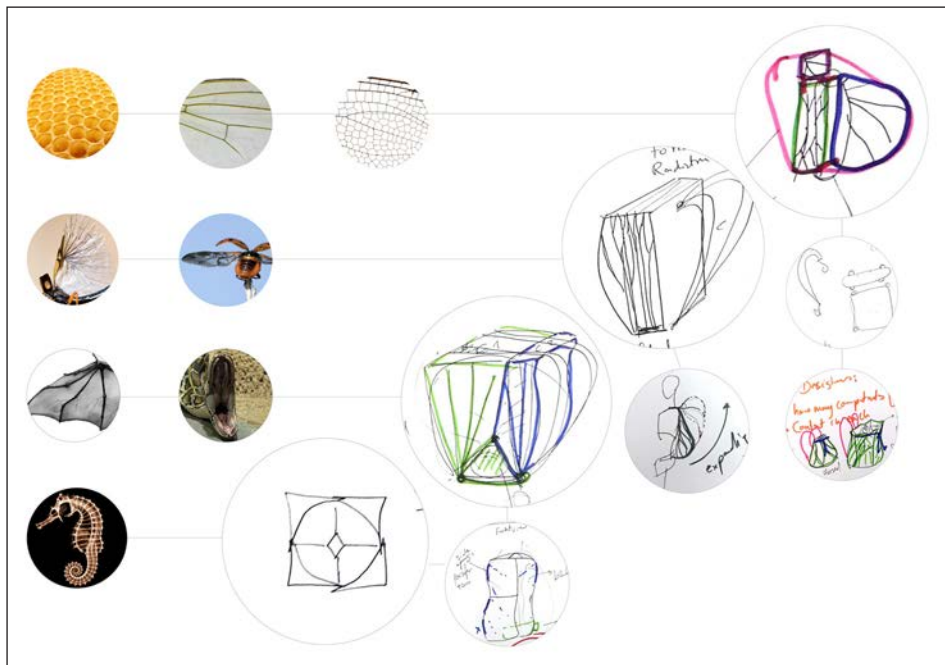**Figure 10.** Nariman G. Lotfi and Dina Bahgat. Dayma Journeys Project. 2017. Bag design development process according to the tessellated structure inspiration.

4.5. Case study development and recommendation

For further development, it is suggested that products are manufactured by skilled artisans to teach them how to make the products. Developing an entire system and production plan, starting from acquiring the material, would help increase incomes and introduce a new product to the Egyptian market. Market acceptance needs to be tested and analyzed to find out if consumers would be interested in purchasing Bio-inspired products.

Cost analysis and feasibility studies need to be carried out to examine if a Bio-inspired process is worth investing in. Testing the process on other projects including long-term projects in the Egyptian industry is recommended.

A method of introducing the Bio-inspired process to industries would be needed to communicate how things can be done in a more efficient and optimum way.

5. Conclusion

Biomimicry life's principles create limitations during the realization stage which leaves projects in the concept phase.

A case study proved through practice that a Biomimetic design approach could be restraining at the moment in Egypt. Therefore, a switch to Bio-inspiration was needed to deliver realizable outcomes, regarding client needs, materials, production techniques available, and market perception. By exploring the Egyptian industry and product designers' reflections on design, it was found that designers are still limited to styling tasks and rarely included in the development process due to lack of awareness of their potential and limited amounts of product innovation in Egypt.

Implementing nature-inspired systems in large companies is welcomed with acceptance and appreciation. Companies are interested in applying Bio-inspiration to their line of work but have not yet done so because there is still not an apparent need in the market for it. Applying Biomimicry is seen as too complicated which needs investment in time and money with insecurity about market acceptance. Therefore, it is recommended that Bio-inspiration is applied to small industries of products in Egypt for now, where mass production is not a main demand, for easy realization and introduction to the market.

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Design Entrepreneurs' Challenges in Cairo's Ecosystem

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Keywords
Design Entrepreneurs, Designers, Cairo, Grounded theory

Abstract

This paper investigates the struggles faced by Design Entrepreneurs in Cairo. After using grounded theory, general challenges arose from the codes, yet in depth understanding of the communication problems between the entrepreneurs, the designers and manufacturers in a start-up. The study took place in Cairo, where the entrepreneurial ecosystem is still emerging along the past couple of years. Six entrepreneurs were interviewed. The results exhibit most of the problems faced within the start-up and the ecosystem, also challenges emerged in terms of dealing with designers and makers in the product development phases. Understanding the struggles and the failed and successful methods of solving them helps create a foundation for design entrepreneurship. When this foundation is better established, hopefully would allow the economic status in Cairo to flourish. Due to lack of documentation, this study aims to guide design entrepreneurs struggling in Cairo, acting as reference for some of the problems and their possible solutions.

1. Overview

After the 25th of January revolution and over the past eight years the entrepreneurial ecosystem continued to grow. Some argue this has started due to the motivated energy after the revolution, pushing hundreds of enthusiastic youth to build their country. However, due to the economic turbulence, a lot of challenges took place. This paper focuses on the designers' problems. It aims to understand the problems faced by the designers when they decided to be entrepreneurs.

1.1. Overview of Designers and clients' roles

As per the Boland's elegant description, during earlier centuries, while building the pyramids of Giza, designers ordered massive efforts of numerous workers over decades. Same applies to Syria's and Iraq's ancient irrigation systems, and the Mayan empire's temple cities, among many others. Each of these mentioned efforts was "managed." Boland adds that all types of organizations – either profiting or non-profiting, government or nongovernmental, voluntary or coercive – are not robots. Their components prove to be reactive, and creative in their support of the stated vision, in this context Boland refers to humans as components of the organization. However, they are not the organization's organisms either; their components change. Evidently since people flow in and out, and as groups are made. Yet there isn't a concise natural life cycle, and organizations often refresh themselves with energy to pursue new goals and objectives (Boland, 2008, pp. 113-114). Donald A. Schön (1983) argues that the existence of the "profession" in society is due to the professional-client relationship. This is seconded by professions where identifying

the client's role is challenging. In cases where the profession-al's role of authority is debatable and vague, then it is contro-versial to label the objects of professional attention "clients". The controversy is clear in the way by which the term "client" is used for authoritative roles in a specialized task system (Schön, 1983, pp. 290-291).

Brigitte Wolf states: "Design must not be expensive" (2008, p.12). Explaining to non-designers the importance of design is challenging and consequently more challenging to convince them to pay for it. The Design Centre Parana in Curitiba, Bra-zil created a design competence program where it investigates the problems faced by SMEs. The program conducts seminars to help these SMEs climb up the design ladder. Unfortunate-ly, no such initiative is taking place in Cairo. Wolf continues; miscommunication and interpersonal conflicts take place reg-ularly between SMEs and designers. And consequently result in failure (Wolf, 2008). Designers often try to bridge the cli-ents' requirements and their aims, however these requirements are not always clearly stated from the beginning (Lutzenkirch-en, 2016). The relationship between the design consultant and the client can be successful or not based on the chemistry, trust and language barriers (Bruce & Docherty, 1993).

Lockwood claims, somehow designers are rational when it comes to emotions. Yet communication challenges take place when they communicate these thought to their clients. Sadly, design-aware leaders do not commonly take part in managerial roles, thus maintaining the vagueness of design. Lockwood continues to suggest that the design disciple pro-motes itself in the business field to allow executives to better

understand it, thus smoothening the communication between designers and leaders (Lockwood, 2007). While Lockwood makes a promising point, however these challenges are far from being solved in this manner in Cairo. This is due to the fact that design is already dispositioned for young designers and educators to begin with, let alone company executives. And therefore this research aims to first identify these challenges even if between design entrepreneurs and designers.

The design management handbook argues that design discipline has a lot to offer for management educators. The design profession developed user centered design in order to better identify the users' needs. Not only does the UCD focused on understanding the human experience but also makes it the foundation when creating products, services and experiences. Moreover, the management education is also accused of not relating enough to the real world. Mintzberg also adds that MBAs teach the science of management but not the craft. On the other hand, it is argued that designers are characterized by understanding problems and using their processes to solving them and thus enhancing business education (Cooper, Junginger, & Lockwood, 2017, pp. 128-129). Whereas in Cairo where design is not used enough in start-ups, it is mainly due to the following reasons; misunderstanding and misuse of the term design, Design as an emerging discipline in Cairo is only known as Graphic and Interior design and entrepreneurs have more faith in business processes than in Design Thinking processes.

Alternatively, on the bright side as per Mark Oakley's discussing the above mentioned issues in his paper in 1986, the

disciplines of arts and humanities started to engage in management curriculum. Nowadays, the management curriculums are negotiating which skills to pass on to their young learners, therefore similar developments are slowing down. Evidently, the design and management models of work are being cross-examined (Cooper, Junginger, & Lockwood, 2017, p. 108). It would be interesting to see more research done on these examinations and comparisons in the MENA region's entrepreneurial ecosystems.

Consistently does the designer engage more creatives to contribute, such as photographers, illustrators, animators, computer programmers, calligraphers, and draftsmen. Moreover, other less related profession to design are also required. However, the designer is these cases has to evaluate the communication methods to use to ease the collaboration. Finally, designers are expected to be communication experts (Frascara, 2004, p. 3). Unfortunately, in Cairo the design profession has not branched out to create several experts are per the examples of calligraphers and illustrators. Due to the economic challenges, clients prefer to hire one person to do all the work. And therefore, more communication disputes take place, and the designer and the clients' role interchange accordingly.

This research investigates the challenges that take place between designers and design entrepreneur in Cairo's emerging entrepreneurial ecosystem. A good example of a previous attempt similar to the research presented in this paper is a model constructed by Lutzenkirchen. The model illustrates the main

skills, activities and relations involved in the relation between individual designers and their clients (Figure 1). It focuses on various relation experiences as per the diagram below.
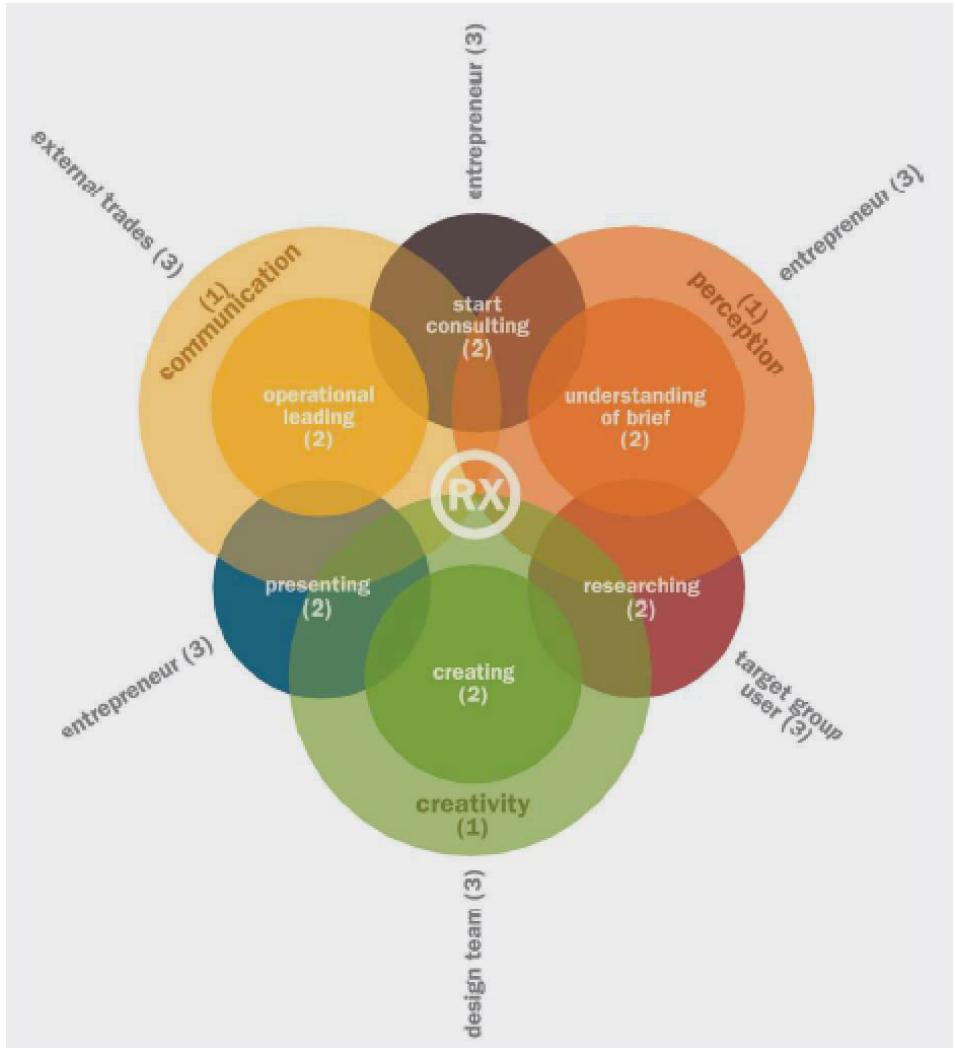
Figure 1. Relation experience (RX) model in three levels: skills (1), activities (2), relations (3), Adapted from Design for Entrepreneurship: the value of relation experience (RX) for enhanced cooperation in Design Processes, (p. 1596), S. Lutzenkirchen, (2016), 20th DMI: Academic Design Management Conference, Inflection Point: Design research meets design practice, Boston, USA..

The figure shows in the first stage the skills are perception, creativity and communication which lead to the activities such as consulting, research, and briefing, creating and presenting. Finally leading to the relations needed to conduct the above, which are summarized within the design team, entrepreneur and the target group (Lutzenkirchen, 2016).

1.2. Overview of Entrepreneurial Ecosystem in Cairo

Among many others, Innovation Collaborative attempted to illustrated the entrepreneurial ecosystem. As shown below, this ecosystem is composed of storytellers, resource providers, educational institutes, idea creators, sources of risk capital and entrepreneurs (Figure 2).
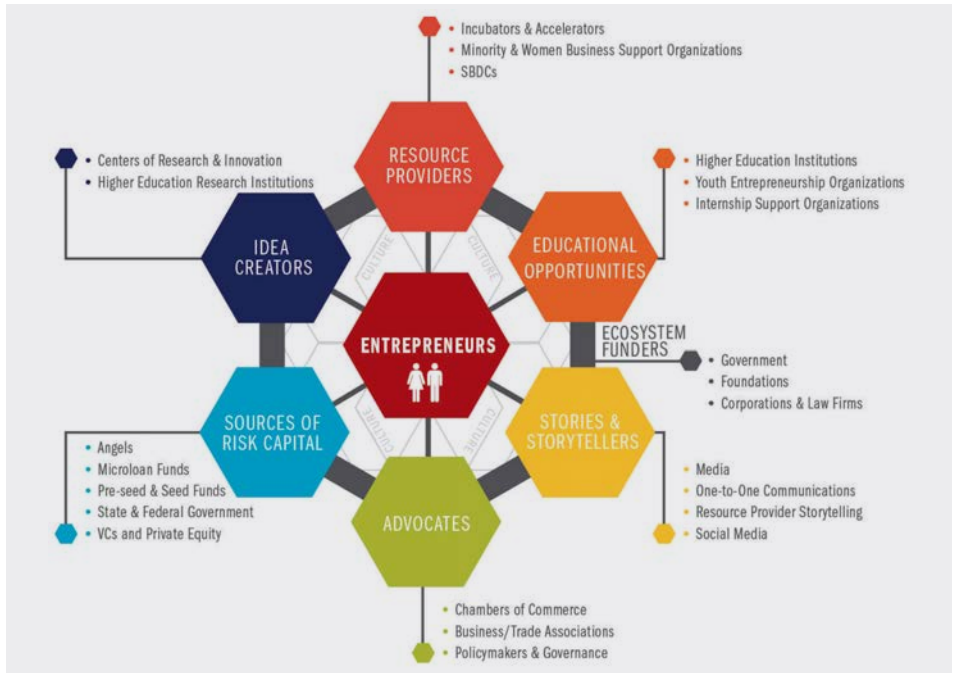
Figure 2. Illustration of Entrepreneurial Ecosystem, Source: Innovation Collaborative, Retrieved 2 July 2019, from https://innovationcollaborators.com/.

Moreover, 73% of Egyptians believe entrepreneurship is a good career option yet the rest do not as they fear risk of failure. However, 46% of the Egyptian adult population recognize good market opportunities thus proving they are good entrepreneurial calibers (AUC, 2017). According to AngelList, the average start-up valuation is $2.6M (46.6M EGP) in Egypt (AngelList, 2018). Yet, despite this growing trend, serious obstacles remain for Egyptians to start a business. According to the following diagram, it is clear that different terms of design aren't as googled as compared to entrepreneurship (Figure 3).
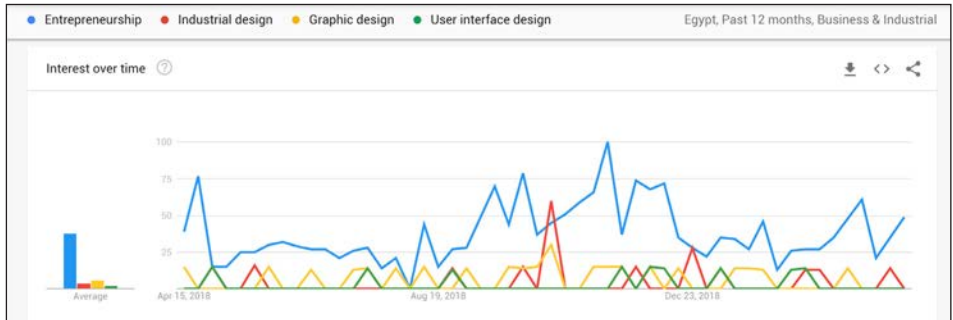
Figure 3. Interest over time in Entrepreneurship, Industrial Design, Graphic Design and User interface design, Source: Google Trends.

The only two announced design related initiatives taking place currently are the GIZ initiative to send trained youth coaches to Hasso-Plattner Institute for a one-week Design Thinking Coaching workshop to come back to Egypt and spread the knowledge. The second that only appeared in 2017 was establishing a Creative Stage in the annual Rise Up summit, where discussions on various design disciplines are discussed between Egyptian and European participants. Culture socialization among others is one of the differentiators of attitude.

Furthermore, not involving design is expected from SME leaders who do not pay attention to their employee and customer satisfaction (Wolf, 2008, p. 20). Therefore, according to Gantum and Blessing, the engineering designers influence their design process, yet the culture is not considered. Different cultures of designers trigger their ability to collaborate and work together, which is a success factor as per design research. There is lack of know-how when it comes to cultural influences in the design process, in spite of the increasing intercultural design (Gantum & Blessing, 2007). This paper aims to initiate bridging this gap by first understanding the challenges faced from the design entrepreneurs' side.

2. Empirical research: Grounded theory

2.1. Grounded theory

As per Strauss; grounded theory aims to investigate the real world in all its twists, however it is known that it cannot be 100% successful (Glaser & Strauss, 1967). This research cannot be undertaken without understanding the twists underlying within the start-ups and accordingly, during this study, grounded theory was the main method used. Since this particular area of research tackles communication and interpersonal skills, the analysis can easily be biased and thus grounded theory was chosen to eliminate any initial hypothesis. In depth individual interviews were held with each entrepreneur. Most of the interviews conducted were around 60-75 minutes long. Four interviews were conducted with six entrepreneurs (two of the interviews were conducted with both founders at the same time), two are amateur yet experienced designers, one

is not a designer but runs a design business, two are bag designers and the last one is a textile designer. Two of the interviews were conducted with both founders of the start-up. All the interviews were conducted with the main founder and/or idea initiator. All the interviewees are between the ages of 23 and 28 years old. Two of these start-ups conduct more than 50% of their production in either informal areas of rural areas. All the interviewees have a university degree and all of their start-ups have either won competitions, went through an entrepreneurial incubation program and/or gathered crowd-funding. In addition, three of the start-ups have a direct publicly announced social cause. Finally, all of them are well connected in the Cairo entrepreneurial ecosystem.

Furthermore, the program used to establish the codes, code categories and code document table is Atlasi.ti 8[1]. The qualitative data analysis program allowed smoother comparison between samples due to its friendly user experience. The below screenshots were extracted from the program. The codes presented below summarize the struggles faced and the solutions offered by the entrepreneurs. It was important during the interviews to identify design's role in the start-up scene, however the results were not enough to define the role.

2.2. Sampling criteria

Setting criteria by which the entrepreneurs were chosen was essential to keep the research focused. More 10 interviews were conducted but were not included in this study due to

1. Retrieved February 4, 2019, from https://atlasti.com/product/v8-windows/.

their irrelevance. The following are the criteria by which the entrepreneurs were chosen.

- Owning a start-up for more than 1-2 years;
- Start-up is still working even if it is not making revenue;
- Either the founder is a designer or the products sold are design related;
- The start-up has gone through at least one innovative product development phase;
- Has collaborated with designers either in house, part time or outsource;
- Has five or more employees;
- Has more than ten makers.

2.3. Limitations

In this section some of the challenges while using grounded theory are explained. Firstly, the respondents were not comfortable with an open ended interview, they asked for more specific questions. This is caused due to them being used to fully structured interviews from the media. Secondly, some respondents felt insecure to discuss their failure openly, it took effort to encourage them to open up. To help them share their experiences openly, the author focused on putting them in a situation where they give advice to fellow entrepreneurs during the interview. Thirdly, they communicated out of context information due to the open ended questions.
And fourthly, interviewing respondents in their workplace might be distracting for them and thus leads to their trying to finish off the questions rather than be more engaged and open to answering.

3. Empirical findings Phase I: Design entrepreneurship in Cairo

3.1. Entrepreneurship's perception

According to several references the definition of entrepreneurship and how it is perceived differs. The way entrepreneurs define it has also varied depending on their struggles, achievements and entrepreneurial ecosystem influences. The sample interviewed argued; an entrepreneur is a problem solver yet due to the ecosystem influences, being an entrepreneur has become a fun trend over the past couple of years, thus not all entrepreneurs actually solve problems. Alternatively, despite this trend, others perceive entrepreneurship as a sustainable on going innovative business. In total, entrepreneurship represents personal values for each entrepreneur, either reflected in her/his passion or reason for existence. Furthermore, Cairo is viewed as a community with lots of problems, and as a result several opportunities emerge for start-ups.

3.2. Entrepreneurial education for young designers

Evidently, most of the entrepreneurs tackled the existing entrepreneurial education. One of the main struggles is lacking know-how in finance and inventory keeping. Due to the fact that they are forced to start with a small team, these tasks are conducted independently which consequently caused bigger problems. Moreover, going through an incubation program has helped in various ways, either in terms of know how or in terms of seed funding. However, these incubation trainings require a lot of time and commitment which makes it harder for them to focus on their actual businesses.

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Being a designer in Cairo only leads to either of the following three options; freelancing, working for an agency or a corporate. Being a freelancer in most cases is not stable income, working at an agency or a corporate eliminates the work-life balance that some seek. As a result, being an entrepreneur would be a preferable choice for some due to the struggles faced in each of these options and due to the well positioned image of entrepreneurship in Cairo.

In spite of the above mentioned challenges, some solutions are undertaken. Learning by doing, which in most cases could be time consuming yet this is due to lack of role models. Likewise, some educate themselves and their teams via online and offline short courses either paid or for free. And finally, since university education is offered during the ages of 18-21 – where it would be difficult to relate to on ground work for some students – it is suggested offer entrepreneurial education at an earlier stage, in schools. On the other hand, when working practically in the market, being an entrepreneur is to be acquired not taught.

3.3. Ecosystem impact

Over the past years the Cairo entrepreneurial ecosystem has continued not only to grow inside Cairo but to branch out in other governorates including upper Egypt. For the involved parties, it is indeed invigorating not only to witness but to experience as well. Nonetheless, this ecosystem faces and causes several problems. Initially, the parties involved were working hard on maintaining the ecosystem and allowing it to flourish, however this backfired by creating a trend of becoming an entrepreneur.

Being an entrepreneur is currently perceived as "cool and fancy" rather than hard working. Whereas, the existing ecosystem has established a steadily growing network that continues to support opportunities. Meanwhile, more is still expected in terms of governmental and legal support.

4. Empirical findings Phase II: Challenges facing Design Entrepreneurs

Taking the entrepreneurial route as a career path has its pros and cons. According to the sample, a lot of stress was experienced in terms of working in teams, collaborating with other parties and actually implementing the business.

The expression of stress can be easily linked to collaborating with makers, workshops and designers. The challenges are not only linked to communication in terms of understanding one another, but also in terms of being keen on doing the assigned tasks and aligning both parties' objectives together. Unfortunately, these parties order their priorities differently causing this miscommunication and hence being stressed.

4.1. Design Entrepreneurs' General Challenges

After conducting open coding and categorising coding, the problems facing the entrepreneurs were visible and hence categorised. Firstly, the general challenges that have faced them along their journey, some of which have been solved and some are still problematic. As per the table below, being stressed and receiving destructive criticism is a constant struggle that they face, however they establish ways to overcome it (Figure 4). On the other hand, lack of governmental support is considered less of a struggle, due to the ease of

finding alternatives to the support needed. Other challenges entail managing conflicts, risk, resources and confidentiality.

Challenge Categorization	Interpersonal challenges	Technical challenges
	Weak workers communication	Maintaining financial stability
	Being stressed	Risk management
	Destructive criticism	Lack of governmental support
	Managing conflicts	Resource management
	Lack of role models	Maintaining confidentiality

Figure 4. J. G. Attia, Interpersonal and technical challenges facing design entrepreneurs.

In the below figure, Atlas.ti helped create a code/document table to view the code categories used per interview (Figure 5).

	D3:X1	D4:X2	D6:X3	D7:X4	Totals
Challenges	8	8	1	17	34
Design's role	9	1	8	8	26
Entrepreneurial Ecosystem	7	7		7	21
Market	2	5	10	11	28
Solutions	5		6	2	13
Totals	31	21	25	45	122

Figure 5. J. G. Attia, Codes - Document Table.

As viewed below the challenges faced by X4 were more when compared to the rest due to the founders' increased stress levels while collaborating with the makers.

Furthermore, despite the fact that the co-founder of X2 is a graphic and textile designer, her use of design thinking was only subconscious not intentional and thus the lowest design role. When the entrepreneurial ecosystem was discussed in the interviews, X3 showed the lowest categories since he believes the ecosystem is relevant to his needs. More beneficial knowledge is found in focused smaller events than in the ones offered by the famous ecosystem. Finally, the interpersonal and logistical challenges while collaborating with the makers as mentioned in more details in the following sections.

4.2. Makers' related challenges

Entrepreneurs' face challenges with manufacturers on daily basis in logistics, communication and finances. These challenges affect their start-ups' internal efficiency. Initially locating the workshops is difficult in Cairo due to the lack of documentation, thus the entrepreneurs are forced to either consult others or roam the streets looking to locate the workshops. Yet when founded, the areas they are located in are mostly dangerous for people from different social economical classes to access. Consequently, fraud and harassment are limitations to communicating inside these communities. This gap in documentation also negatively affects access to materials. Moreover, the manufacturers having limited technical skills thus limited problem solving skills and not controlling quality causes challenges in the product development phases. Evidently, lack of introducing new techniques limits the design intervention in terms of solving existing problems in the production phase or product development. In terms of finance, entrepreneurs struggle with the fact that the more

quantities they order, the higher price they get, thus they suffer from the amount of hassle financially and logistically they face to produce small quantities. Furthermore, in cases of collaborating craftsmen and designers, there is a struggle between following a pre-planned design and freestyle. The use of freestyle when implementing products is not suitable for the entrepreneurs' business model. Finally, the interviewed entrepreneurs are challenged by innovating more features or new product lines due to these challenges, yet they act as a motivator to develop their methods.

4.3. Designers' related challenges

High turnover of designers could be due to several reasons, specially in a frequently changing economic climate in Cairo. However, this study focuses on the human related reasons behind conflicts between designers and design entrepreneurs. The designers' related challenges involved lack of flexibility in design amendments and adequate skill set thus directly affecting the start-ups' products in terms of delay and quality. The entrepreneurs' set deadlines that are sometimes pushed due to the time spent discussing the amendments needed from the designers. It is concluded that these discussions lead to conflicts that affect the work flow. The designers' lack of the needed skill set or performing tasks slowly causes frustration when dealing with the rest of the start-ups' team. Moreover, designers displaying increased ownership towards the designs made in progress acts as a constraint from communicating amendments. In this sequence, both parties – the designer and the design entrepreneur – don't share the same intentions while collaborating.

The designer in this scenario seeks ownership of her/his idea and the entrepreneur seeks "getting the job done". The above mentioned challenges cause a behavioral problem when communicating with designers thus leading to personal conflicts between both parties, consequently leading to a high turnover.

5. Conclusion

Although the above mentioned challenges seem to cause stress, the sample found ways to manage. As per their trial and error iterative phases, improvising when collaborating with different parties proved to solve problems in a timely manner. Nonetheless, generating cultural change in spite of the surrounding continuous destructive criticism proved to be ambitious. Cultural change would be reflected in creating a trend in some cases, proving the role of design in change.

Despite the significant contrast between designers and makers in terms of education, social economic class and skills set, they share some attributes as mentioned in the below figure (Figure 4). These results tackle the struggles faced while interacting with the parties involved in the implementation phase of the product development process. Whether the interviewed sample are working with designers or makers, they struggled to find a relevant role model to follow as mentioned above. This not only increased their stress levels but also forces them to solve each problem in terms of trial and error.

5.1. Breakdown of challenges
The below map showcases the challenges faced in general by design entrepreneurs. The challenges are first categorised into interpersonal and technical, these were general findings

from the overall study. However, when further categorising the "weak worker's communication" inside the interpersonal categories, one finds specific issues. As per the map, the start-ups being design start-ups collaborate with designers and makers either consecutively or alternatively (Figure 6).
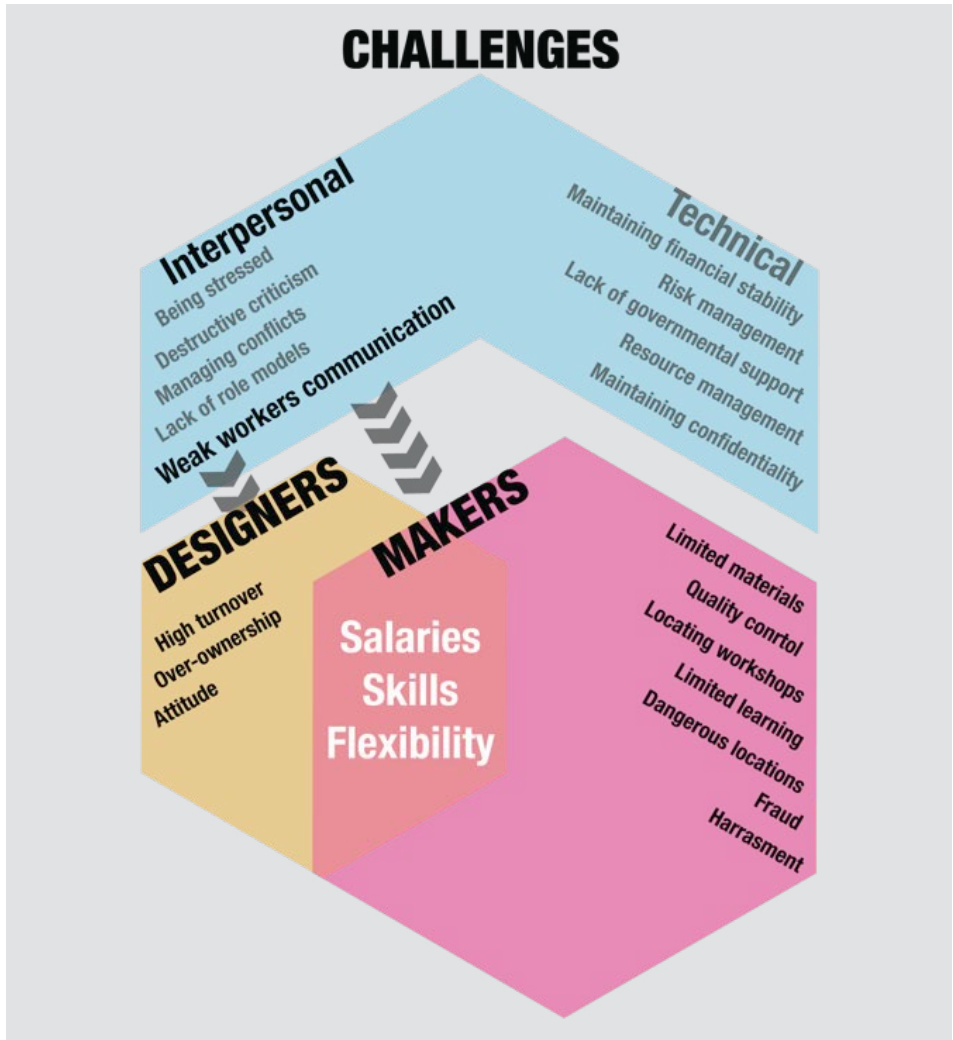

Figure 6. J. G. Attia, Breakdown of challenges faced by design entrepreneurs.

According to field research and observations, the designers and the makers in these scenarios have different backgrounds, designers have university degrees, get distinctively higher salaries, on the other hand the makers do not have any university education and are paid in lower wages. However, similarities in the communication issues took place such as flexibility while amending the work, negotiations over salaries and finally not having the required skill set. The latter seems to cause the most conflict, since most of the time neither parties aspire to expand their skills.

These findings allow us to observe that the roles of designers, entrepreneurs and makers are not clearly defined. Not in the sense that they do not understand what is expected from one another but neither parties understand their own role. Provided that these roles are defined, evaluating the salaries and wages would be easier. Moreover, theses definitions of roles will also inform the parties who is in the authoritative position and when. And finally, bridging the educational gap either through university education or via trainings is a need to smoothen the communication channels.

5.2. Future steps

This study only revealed the underlying obstacles faced by design entrepreneurs in the existing ecosystem. It also analyses some similarities when dealing with different types of employees. Admittedly, more research is needed to further understand the cause of these issues, starting with university education. Research might question the methods by which young designers are guided into communicating while working on group projects.

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Consequently, investigating the communication barriers between makers and designers in terms of implementation and establishing authority in the workplace. Moreover, more research is needed on the design job opportunities in Cairo either inside or outside the entrepreneurial scene. Undoubtedly, since the training field is becoming more constructed as an integral part of the ecosystem, research on the expected trainings makers and designers could attend together to enhance their communication on both the technical and interpersonal levels. The following bullets summarize the above mentioned research into questions:

- What are the communication barriers between designers and makers in Cairo's entrepreneurial ecosystem while in the implementation?
- How can authority be managed between the designer and the maker in the implementation process within a startup?
- How can designing a workshop for designers and makers help them communicate better?

To reciprocate, there is a lot of action taking place in the ecosystem that would go to waste if not constantly documented, compared and analyzed for the uprising design generations. Understanding the struggles and the failed and successful methods of solving them helps create a foundation for design entrepreneurship. When this foundation is better established, the economic status in Cairo will flourish.

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CONNECTING DESIGN AND CULTURE OF TERRITORIES

Mediterranean Critical Regionalism. A Methodological Concept Linked to the Southern Space Designs of Post-War II

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Keywords

Mediterranean Architecture, Critical Regionalism, Barcelona, Post War II, Kenneth Frampton

Abstract

During the Spanish post-war period, an adaptation of the design processes of the Milanese architectural imaginary is carried out by a group of architects related to the Group R founded by Coderch.

In this context, some vicissitudes are detected of a critical regionalist positioning that the architect and critic Kenneth Frampton theorizes during the eighties and who conceives as an attitude. It is applicable to any interstice that belongs to a decentralized context and therefore can be treated as generic.

As in the case of Milan and Barcelona, the critical regionalism refers to those Post-World War II architectures that take their traditional vernacular tradition as a model and reinterpret it to adapt it to the current reality and to the progressive criteria of the architectural modernity, fleeing from all folkloric connotation, but also from the lack of humanity of the International Style.

The architecture of the Modern Movement is understood as a decisive episode in the modern history of culture. It is conceived as an active way of opposing Francoist eclecticism while seeing a synthetic system capable of explaining the most varied programs from visual criteria that express singularity and identity through architecture and its historical continuity with its own past.

1. Introduction

During the Spanish post-war period, an adaptation of the design processes of the Milanese architectural imaginary is carried out by a group of architects related to the Group R and of which José Antonio Coderch (1913-1984) is the first referent. These architects assimilate the *modus operandi* of their Milanese counterparts, Ernesto Nathan Rogers (1909-1962), Ignazio Gardella (1905-1999) and Franco Albini (1905-1977), among others, but they accommodate it to their specifically Mediterranean context.

Following the celebration of the *V Assembly of Architects* (RED, 1949), held in May 1949 in Barcelona, and continuing with Gruppo 7 (Costanzo, 2004) and GATCPAC (Pizza, 2006), the fifties will review the tradition in Milan and Barcelona as a point of tension between the International Style and the false historicisms. The normalization of Milanese vernacularism together with the new search for material quality above the imposed formalisms will become the exponents of the use of Catalan tradition. Its architecture will no longer seek the symbiosis between respect for tradition and the Modern Movement, and it will create a personal way of looking for a constantly changing modernity that will gradually take on an identity of its own.

2. Suspicion of a Mediterranean Critical Regionalism

As in the case of Milan and Barcelona, Critical Regionalism refers to those Post-World War II architectures that take their traditional vernacular tradition as a model of reinterpretation to adapt it to the current reality and to the progressive criteria of the Architectural modernity, fleeing from any folkloric

connotation, but also from the lack of humanity of the International Style. The importance of the region, understood as the heritage of the being that lives there, is fundamental to understand its conception. Heidegger's *being-in-the-place* concept (Barañano, 1990), in which human existence makes sense when that being is identified with a specific place, has just given its existential and phenomenological dimension. Kenneth Frampton (1930), professor at Columbia University in New York, and theorist of the regionalist concept during the eighties, already states Coderch's participation in this Critical Regionalism: "The career of the Barcelona architect J.A. Coderch has been a regionalist inasmuch as it has oscillated, until the recent day, between a Mediterraneanized modern vernacular brick first formulated in its eight-storey ISM apartment block built in Barcelona on the National Walk in 1951 (…) and the avant-gardist (…)."(Frampton, 1980, p. 243) About *the Urbanization "Les Forques"*(1946) he writes: "It is difficult to distinguish between the earthwork and the main body of the house."(p. 244) And regarding the *Ugalde House* (1951) he defends: "Coderch's early domestic way achieves its first truly convincing formulation in the famous Ugalde House" (Frampton, 2002, p. 7). According to Frampton, Critical Regionalism is a concept that must be understood as an attitude, a category that aims to establish a direct link between the architectural fact and the place where it is built. This critical regionalist attitude should therefore be applicable anywhere in the world where there are decentralized interstices and with a strong identity weight. Therefore, this first conclusion leads to the suspicion of the existence of specific characteristics of the Critical Regionalism typical of the Mediterranean context.

In fair correspondence, Mediterranean Critical Regionalism, due to its strong roots in the corresponding southern context, but also to the emancipating processes of Modern Movement architecture, should not be based on merely formal criteria when it comes to unifying the works architectural elements that belong to it, but should exercise the procedure to determine this architectural method of the corresponding context. The importance of the human being in Critical Regionalism, as a recipient of the place where he has to live, should still be emphasized more in the Mediterranean Critical Regionalism, where the link between being and place exceeds the physical limit of its existence and has always been a source of inspiration for writers, painters and philosophers of all times and of all places.

3. The Milanese continuity outside the International Style

At the end of World War II, Europe has two major issues to solve. The first one is to deal with the issue of survival; the second one is to guarantee a place to accommodate the population after massive destruction of cities. The notable individual creations of figures such as Le Corbusier (1887-1965), Alvar Aalto (1898-1976), Jorn Utzon (1918-2008) and Arne Jacobsen (1902-1971), among others, neutral buildings that provide solutions to the problem of accommodation, hygiene and function, but which are lacking in humanity and urban sensibility. This emptiness, however, cannot be filled with pre-war versions since they did not take into account variations in climate, culture or topography. Fortunately, Italy did not expel its main architects during the war and, therefore, it has a modern and strong architectural culture to be able to re-

sume the activity. This fact, along with the aid received from the United States as a result of the Marshall Plan, allows the resurgence through the public program INA-Casa (Di Biagi, 2001) to reconstruct the cities.

The Milanese architects, own of the third generation (Giedion, 1941, p. 642), will end up disengaging from all the institutions that defend the International Style, especially after 1959, on the occasion of the XI and last CIAM, held in Otterlo, but also as a result of the exchange of articles between Rogers and the English critic Reyner Banham (1922-1988), in which the latter attacks the Milanese architecture is called by Banham Neoliberian and historicist (Banham, 1959). Its architecture will take on a new direction that will lead it to design based on regional and vernacular tendencies, keeping technological advances and the progress that has enabled the Modern Movement. Their architects will go in search of renovated and true sources of legitimation in the real people of each district, in the popular architecture without architects, in the common sense. Led by Rogers, the Milanese architecture will normally assume the values of tradition and the urban context, where the environmental pre-existences (Rogers, 1958, p. 9) legitimize its production, while deepening in the method and not so much in formal references to internationalist dogmatism. This continuity will be reconstructed through a great effort to re-weave the broken threads of speech spearheaded by the greatest figures of Italian rational architecture: Terragni, Persico and Pagano. (Rogers, 1958, p. 11).

This attempt by the Milanese architecture to recover the traditional forms brings the best architects to realize an important methodological election, typical of the way of building in the

past; that is, the treatment of each project as an unrepeatable event. The clearest example is Torre Velasca (1951-1958) by the BBPR studio (Figure 1), which represented the originality and excellence of the difficulties in developing the urbanization issues of the current city on a certain dimension.

Figure 1. Studio BBPR, *Torre Velasca* (1951-1958). Own archive.

4. From the Francoist diplomatic isolation to the empowerment of the concept of Catalan modernity

While Milan, and all of Italy, continues with the reconstruction, Spain is immersed in the midst of Franco's dictatorship, repressed and far from Europe. The end of the Civil War is a turning point in the path of Spanish architecture. The feeling of success is introduced immediately in a new type of state

architecture, based on the demonstration of the power of the nation; For that reason, own resources of the time of the Spanish empire are used.

Although most of the members of GATCPAC had been exiled since 1939, there are young architects, among them the Catalans Coderch, Valls and Josep Maria Sostres (Esteban: 2000), moved by the need to find architectural references and Stylists unrelated to prevailing academic classicism, who subscribe to journals in other countries, travel and, ultimately, restart an exchange of material with the exterior that will suppose the resumption of the path to architectural modernity. Through official state magazines there is a discreet shout of reaction to a type of architecture that, due to imposition and anachronism, has nothing to do with what happens outside the limits of the country nor does it reflects its own character. These newspapers are timidly including articles referring to foreign issues, although it is not until 1947 when the first reference to an issue is published that will become one of the main arguments of the architectural debate of the fifties: "What style should the Spanish architecture?" (RED, 1947). As of that moment, in almost all the numbers of the B.D.G.A. Some text related to the subject will appear. And in the same way, the theme around the stylistic tendencies of Spanish architecture will also be published in the National Review of Architecture (RNA).

Some steps are being taken to ensure a slight economic liberalization and a certain international openness. However, public initiative in representative buildings is virtually absent in Barcelona in those years of centralism and economic penalties. The only exception is the only residential housing by Coderch

and Valls, such as the *Les Forques* (1945) Urbanization project that was to be located in Sitges (Figure 2). Although it is never built, it is the first and most important public demonstration of young architects, who are then looking for an obvious inspiration in the logic typical of the Mediterranean peoples, where it is already possible to detect a compositional attempt that allows them to dilute the vernacular, folkloric and nostalgic mannerisms so common at the time.

Figure 2. José Antonio Coderch and Manuel Valls, *Residential area Les Forques* (1945), Sitges. Sections. *Cuadernos de Arquitectura,* nº 6, Barcelona, 1946.

Thus, the assumption of the models of rationalism and the meditated recovery of traditional forms finds concrete expression towards the last years of the 40's in many projects presented in the ideas contest convened by the COACB to solve the problem of housing , "The problem of economic housing in Barcelona" (Moragas, 1961), which will be the meeting point for all the architects that will create Group R. But the novelty goes beyond the simple architectural fact, since the ideas of the Award-winning work is about economic, social and urban issues linked to the reality of that specific context. And so is expressed by one of its members, Antoni De Moragas: "The fact was that we found that architecture, which is why it is utilitarian, cannot be disregarded in any way whatsoever in each historical moment" (Moragas, 1961, p. 71).

In this sense, the conferences held in Barcelona in May 1949 on the occasion of the *V Assembly of Architects*, where Gio Ponti (1891-1979) and Alberto Sartoris (1901-1998) are invited, along with those that would take place in the following years, the one of Bruno Zevi (1918-2000) in 1950, Alvar Aalto (1898-1976) in 1951 or Nikolaus Pevsner (1902-1983) in 1952, marked the definitive opening of the Catalan capital in Europe and in the world. Coderch is the great Catalan discovery from the Assembly. Gio Ponti is astonished by his works, which he knows in person during his stay in Barcelona; and returning to Milan, he carries out an exclusive support campaign on the pages of his magazine *Domus*. Ponti publishes a series of articles in which Coderch's work is always the counterpoint to several international proposals. One of the most important article is dedicated to *Casa Garriga-Nogués* (1947) in Sitges (Figure 3), titled *Due ville a Sitges* (Ponti, 1949), published few months after the Assembly.

Figure 3. José Antonio Coderch and Manuel Valls, *Garriga-Nogués House* (1947), Sitges. AH Francesc Català-Roca-AHCOAC Archive.

Here the architect observes how Coderch and Valls renounce the volumetric virtuosity to arrive at a compact distribution that in the facade is received with an almost classic, tripartite and apparently symmetrical composition, in which the porches are recovered, the large terrace of the first floor, the cover to two waters and the latticework; all of them elements of an unquestionable Mediterranean origin.

Figure 4. José Antonio Coderch and Manuel Valls, *Spanish Pavilion at the XI Triennale* (1951), Milan. Images and layout. AH Francesc Català-Roca-AHCOAC Archive.

In the same *Domus* number, the following article is also related to the work of the Catalan genius, in this case it is *Progetti d'abitazione in Sitges* (Ponti, 1949), a quite exhaustive analysis of "admiration of the urbanization project of *Les Forques*" (pp. 7-11).

It is worth noting the realization of two works, built in 1951 by Coderch and Valls, and that will have major repercussions for the future of the Mediterranean Critical Regionalism. The first is the *Spanish Pavilion* (1951) that the regime is responsible for the IX Triennale of Milan (Figure 4), and which is worth the *Premio Internazionale*, which will be the definitive launch of Spanish architecture, and, therefore, Catalan, on the international terrain. In the moderate and prudent

environment in which Catalan architects work at the end of the 1940s, organic-realistic and popular type solutions are, in fact, the most cautious and the least compromising among those allowed by the dictatorship. Therefore, participating in an international exhibition that proposes the exhibition of the contributions of the arts to the elevation of the material and spiritual conditions of modern civilization, the Catalan architects and their advisers opt for a heterogeneous selection but revealing Spanish modernity. On a surface of abstract wooden blinds, it appears a combination of photographs of Mediterranean architecture and works by Gaudí, while on the adjacent wall there is a Romanesque painting and a medieval sculpture of the Virgin; finally, in a kind of table of curved shapes and in the two remaining walls of the room, a selection of works by contemporary artists such as Oteiza, Ferrant, Guinovart and Miró is proposed, together with craft objects that show the news of traditional forms. Despite the success and the surprise that the pavilion woke up with this internationally unpublished image of the country, surprising coincidences with the approaches of the 1930s (RED, 1951) are recorded.

The other fundamental work carried out by Coderch and Valls is the *Instituto Social de la Marina in Barceloneta Housing Building* (1951) (Figure 5), where this adaptation of modern architecture is clearly based on the reinterpretation of Mediterranean vernacular languages and the use of organic and expressionist forms. The idea of privacy is explored from a plant, unpublished until then, in which, by losing the orthogonality, a great wealth of spaces is achieved on a surface of small dimensions, thus creating a double skin

Figure 5. José Antonio Coderch and Manuel Valls, *ISM apartment block built in Barcelona in the Paseo Nacional* (1951), Barcelona. AH Francesc Català-Roca-AHCOAC Archive.

with galleries protected by latticework. In fact, this work has strong similitudes with the *Borsalino Housing Building* (1951-1953) in Alessandria, by Ignazio Gardella (Figure 6), and constitutes the beginning of several comparisons that will be carried out by critics of the time between the work of the leading architects of this period, Milanese and Catalans (Coscarelli, 2013).
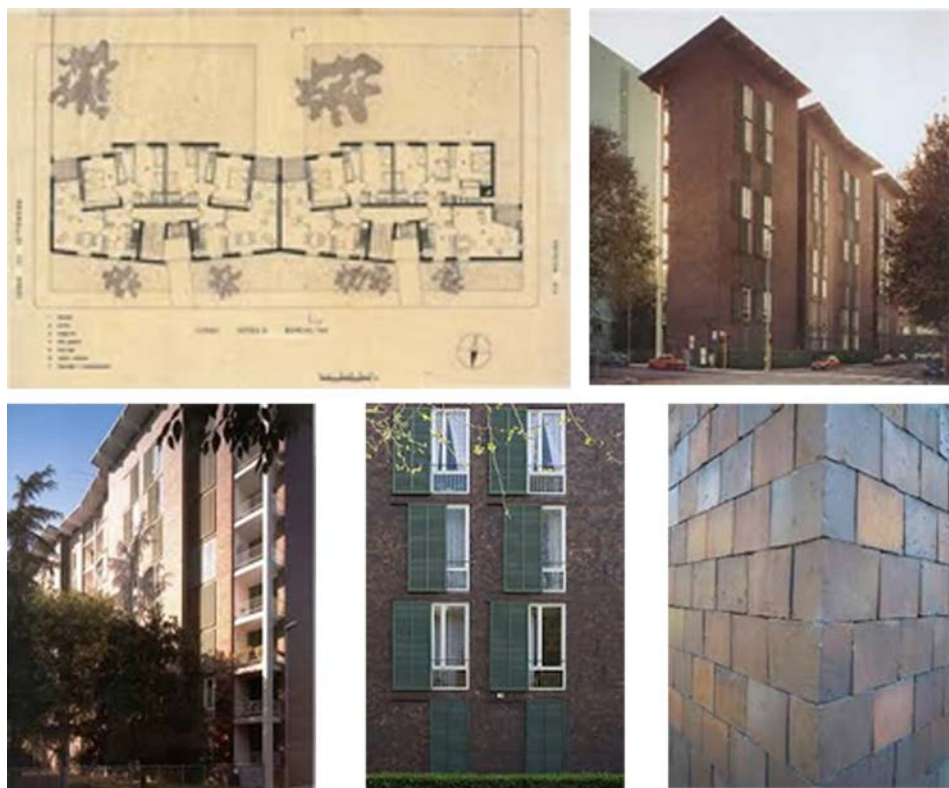
Figure 6. Ignazio Gardella, *Borsalino Housing* (1952), Alessandria. Image from own archive. Layout from Gardella Archive.

Coderch will always remain outside of any type of militancy to dedicate itself exclusively to the exercise of the profession of architect. The line he chooses is the one that leads more directly to the recovery of modernity, personal timing, appropriate to new and specific realities, and that, therefore, clearly connects with the Mediterranean Critical Regionalism: "Discover who there is behind each building, attending moral values of teachers, learning from them; Think less in architecture and more in the office of architect; Prioritize the dedication to success, goodwill to ambition" (Coderch, 1961, p. 21).

The priority of the subject that projects with respect to the object that comes out of his hands and the conviction that only the architecture as an activity can correct the mistakes that his institution causes as a discipline, form the reference framework of his attitude.

4. Coalitions and alliances between the Lombard and Catalan context

During the whole of the 1950s, relations with Milan through Coderch are further intensified, which are often invited to meetings of the CIAM and after TEAM X; but also through Federico Correa (1924), the initiator of the true physical contact with the Lombard architects; and Oriol Bohigas (1925) and the influence received from the theoretical work of Rogers from *Casabella*, where the accomplishments of the Milanese masters spread: Albini, Gardella, the BBPR studio.

Based on these contacts, relationships are rapidly multiplied and trips to Italy by Catalan architects begin. For example, Correa and Alfonso Milà (1924-2009) are also strongly convinced of this historical review. In the summer of 1952, thanks to the relationship they have with Coderch – and this one with international architects –, they attend the summer courses that the CIAM makes in Venice, where they know, besides Gardella, Albini and Rogers, also Vittorio Gregotti (1927). In a chapter of his memoirs Bohigas relates a dialogue maintained with Correa that reveals important enigmas on the subject:

> The contact with the Italians came with the CIAM of Venice, through Coderch, right? - Yes, clear When we started working with him, he was doing the project for the Spanish pavilion at the

51st Milan Triennial. (...) Coderch has now met Gio Ponti in Barcelona in the year 49 (...) and in Milan he met Ignazio Gardella, to Franco Albini, etc. The year after the Triennial, the 52, the CIAM organizes a summer course in Venice. Alfonso and I are accepted to this course through Josep L. Sert, then president of the CIAM. (...). The course consisted of doing a job, which was actually urban planning: "Venezia-Terra Ferma College". The professors were Ignazio Gardella, Franco Albini, Ernesto Rogers and Giuseppe Samonà. But then there were the assistant professors: Gino Valle, Carlo Giancarlo and others I do not remember. In addition, there were visits of other architects of great international prestige. Of course, the most important was Le Corbusier. (Bohigas, 1992, pp. 57-58)

As a conclusion by the parliament of Correa, his interlocutor will find this clear influence: "There is no doubt that this was the first step in a series of contacts between the young architects of the two cities and the beginning of a strong influence in Barcelona of the Milanese architecture of those years." (pp. 57-58)

It is needed to think about the echo found in the COAC magazine (the Professional College of Architects of Catalonia) the controversy over Neoliberalism or the debate about overcoming rationalism, to understand that Barcelona situation is a debtor of the Milanese one. In this regard, it is worth highlighting the follow-up of the steps of Correa by Bohigas, who will take him in 1957 to attend the IX Triennale in Milan as a member of the jury. Years later, he will publish in *Casabella* an article about Spanish architecture in the fifties (Bohigas, 1978).

As a conclusion to this episode, which is crucial to demonstrate the involvement of Catalan architects in the search for the Milanese imaginary, there is another example of Correa's admiration for Milanese architecture related to Torre Velasca "We went to visit the Velasca Tower, (...) the most radical that was then made in Milan. (...) Really, (...) a highlight in the evolution of architecture Italian." (Bohigas, 1978, p. 29)

5. The Mediterranean: inspiration of the new modern Catalan architecture

In this way, Coderch, along with Roosters, Moragas, and later Bohigas, will propel the Catalan territory towards the new Mediterranean Critical Regionalism architecture. The rediscovery of the "Mediterraneanity" within the Catalan context must be understood as an illusory scenario of spatial and temporal continuity, which occurs during the postwar period as a response to the repressive state centralism of any other national identity. This Mediterranean tendency acquires, however, since the end of the 1940s a new sense of what GATCPAC had had. The approach of this architecture is built through a two-way theoretical effort that has, as in the Milanese model, a critical recognition of the present and a critical reconstruction of historical contributions.

The consciousness of overcoming functionalism, restoring the idea of modernity and referring to the vernacular and "Mediterraneanity", are the most widespread ideas in the field of Barcelona architectures that assume the Mediterranean cultural dimension of practice as an essential element of its

activity. Therefore, if the lack of concern for the needs of the human being and its relation to the context until the 1940s explained, in part, the mediocrity of an architecture without identity, from that moment the new circumstances propitiate a situation in which the problems of the house affect in a more specific way the diverse mentalities, since the connection indispensable is generated so that an architecture is complete: the *trinomium* "space-home-context".

Insofar as these processes begin to become effective, architecture acquires a new and true cultural reality, contextualized and rooted in its territory. It assumes an active way to understand the relationships between production, the human being for who produces it and the culture in which this human being lives; all in a precise historical context, but that exists thanks to a long lasting tradition that is intended to recover in order to remove it from oblivion in which it is found. The "Mediterraneanity" therefore occupies a pre-eminent place, although at the same time certainly ambiguous, among the myths of modern architecture, as it raises the relationship with the past and the search for origins before the rupture of the avant-gardes according to two main aspects: classical tradition and anonymous popular architecture. However, it is not a myth created by the Modern Movement, but acquired.

In fact, one of the reasons for suspecting the existence of this Critical Mediterranean Regionalism during the period under consideration is the emergence of countries - Italy and Spain - governed by right dictatorships or centralizing ideologies. In the field of architecture and design, "Mediterraneanity"

can only be rethought - or at least it has always been re-thought in this way - through the mythical and poetic trans-figuration.

The confusion that generates the myth of the Mediterrane-an is, in fact, the trans-historic representation of the past understood as present. It insinuates the supposition of the eternal, beyond the cyclical mutation of the seasons, beyond the constant alternation of day and night, and beyond infinite forms with which time itself is shown, almost as if the art of each time was measured with a unique theme: the desire for harmony. And it is precisely as a myth, as a desire for simple construction and as a symbolic expression of the arithmetical canons of the "divine proportion", that the concept of "Medi-terraneanity" can and must be evaluated beyond its objective verifiability.

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Fatimid Secular Architecture: a Visual Reconstruction

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Abstract

The Fatimid dynasty was established in the Tenth century in what is modern day Tunis. Their capital was founded in the city of Al-Mahdya from which they expanded their realm to encompass North Africa and Egypt. They founded Cairo in 969 AD and moved the capital to this newly established centre of what was the Fatimid Caliphate. The Fatimids were known to be a lavish dynasty with a lot of pomp and exuberance. They initiated a lot of cultural activities that are still part of the Egyptian inherited culture up till today. The Fatimids also had many exchanges and influences on Sicily and Southern Italy. The Fatimids as a shi'i dynasty have left a lot of religious buildings that are still standing and functioning today, however their secular architecture is long gone. Despite many accounts on the Fatimid double palaces of Cairo, the manzaras, and the amazing throne halls, none of these buildings survive today. Consequently, this paper focuses on reconstructing the Fatimid secular architecture through historical textual narratives in books and traveller testimonials and descriptions. A visual presentation of Fatimid secular architecture is achieved through creating illustrated frames that can serve in backgrounds in printed material, or studio setups for media purposes such as television series or movies.
A meticulous frame of enquiry is used in order to define the characteristics of Fatimid secular monuments and details by comparing to neighbouring regions and styles of the time. Furthermore, building techniques and terminology were examined. The resulting data is transformed into a visual language using manual sketching techniques with colored pencil and ink and edited digitally using photo editing software.

Introduction

Fatimid Islamic arts are manifested clearly in Architecture as well as in the decorative arts.

However, Architecture can be labelled as either religious like mosques, schools, *Khanqah* (sufi establishment), *Tekaya* (a place to distribute free food) and tombs, or Secular like houses, palaces, *Bimarestan* (hospital), public water taps, agencies, hotels, *khans* (shops) and animal troughs.

The Fatimid dynasty was established in the Tenth century in what is modern day Tunis. Their capital was founded in the city of *Al-Mahdya* from which they expanded their realm to encompass North Africa and Egypt. They founded Cairo in 969 AD (*Anno Domini*) or 358 AH (*Anno Hegirae*) and moved the capital to this newly established centre of what was the Fatimid Caliphate. The Fatimids were known to be a lavish dynasty with a lot of pomp and exuberance. They initiated a lot of cultural activities that are still part of the Egyptian inherited culture up till today. The Fatimids also had many exchanges and influences on Sicily and Southern Italy. Their life style was also reflected on their architecture mainly the secular buildings. However, a visitor to Cairo will be surprised by the abundance of Fatimid mosques yet the total absence of any of the secular buildings today. The reasons for this is mainly due to the destruction campaign by the Ayyubids once they conquered the city. All our knowledge of the Fatimid palaces that once stood proudly in the centre of Cairo is owed to description accounts mentioned in the history books. Examples of these palaces are the great Eastern palace and the small Western palace as described by Al Maqrizi in his book *Al-Khitat*.

In addition, the Persian traveller Nasir-i Khusraw who visited Fatimid Cairo in the fifth century AH, He described the city as being developed to be one of the elegant cities of its time, it had stylish neighbourhoods with lofty building of fourteen levels, associated with gardens and flowers of all types. It is clear that luxury and richness was not limited only to palaces, but to the whole capital and its surroundings.

Over the course of time, new buildings were erected adjacent to the two main palaces as Al Aziz son of Al Mo'iz constructed the gold palace, the great divan and Pearl palace. Other caliphs and ministers added other buildings and repaired earlier existing ones. Fatimid palaces were designed with great audience halls, in addition to a conduit system with adequate water supplies to resist any potential fire. The luxury state of these palaces was extraordinary as the gold palace, was fitted with two halls: the "gold hall" and the "silver hall", the former was allocated for the throne and the latter was designated for the meetings. The walls were reported to have been coated in gold and the throne itself was encrusted with gems and elevated on a golden table, surrounded by gold palms with fruits and flowers made of precious stones. Nasir-i Khusraw added:

> when I entered the palace gate, I saw a great number of buildings and halls if I describe them, my book would swell pages. There are 12 free-standing square structures connected to each other by subterranean passages. Each structure is about one hundred cubic square (40 meters), except one of them which was sixty cubic square (24 meters). In the last kiosk, the throne was fixed and three faces of it were coated in gold, above it is a triangle of hunting scenes, knights on their horses and other subjects. The throne

is surrounded with an amazing fence of gold and there are steps of silver behind the throne and very close to the wall. If we wanted to describe the throne in details, one book of description will not be enough. (Khusraw, 2001, p. 56-57)

In light of the absence of any physical remains of the Fatimid palaces in Cairo, it was logical to shift the attention to North Africa for the analysis of any comparable examples, of which the Qal'at *Bani Hammad*, in Masila, Algeria stands out as a fitting example. This castle contained three palaces: *Qasr Al-Manar, Qasr Al-Bahr* and *Qasr Al-Tahyaa*.

Figure 1. Picture shows the Maquette of the whole castle in the museum of Algeria. Retrieved April 25, 2019. https://en.wikipedia.org/wiki/Beni_Hammad_Fort#/media/File:Maquette_de_Kalaa_de_Beni_Hammad.jpg.

Considering one of the palaces as an example (*Qasr Al Manar*) is reconstructed as an example of Fatimid palatial architecture. The resulting three-dimensional representation was based on several aspects: a reconstruction of the Castle as shown in the

video (Figure 2), the openings for ventilation and lighting as Shown in the cross section of the same palace (Figure 3), the plan of the palace (Figure 4) and an aerial photograph showing archaeological remains of the pillars (Figure 5).

Figure 2. Screen shot from a video Al Qala of Beni Hammad shows a reconstruction of the castle. Retrieved April 26, 2019. https://www.youtube.com/watch?v=wznWksgJ2Zc
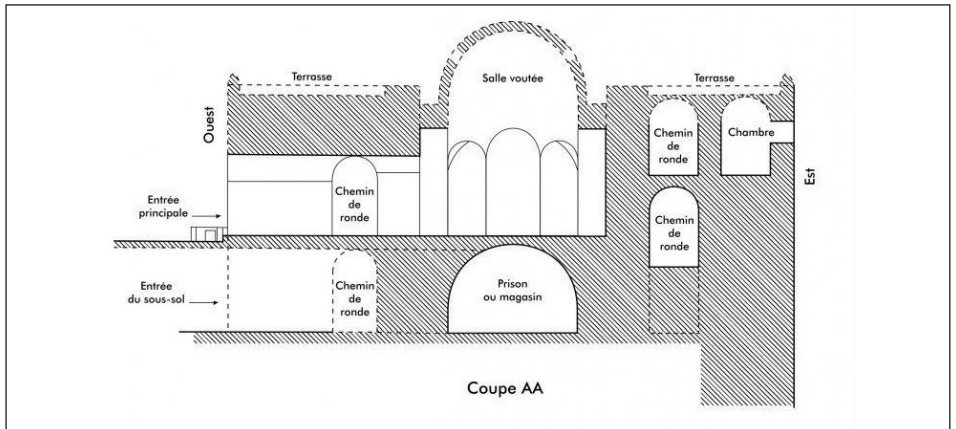
Figure 3. A cross section view of Al-Manar palace shows the openings for ventilation and lighting. Retrieved April 26, 2019. http://islamicart.museumwnf.org/database_item.php?id=monument;ISL;dz;Mon01;26;en.

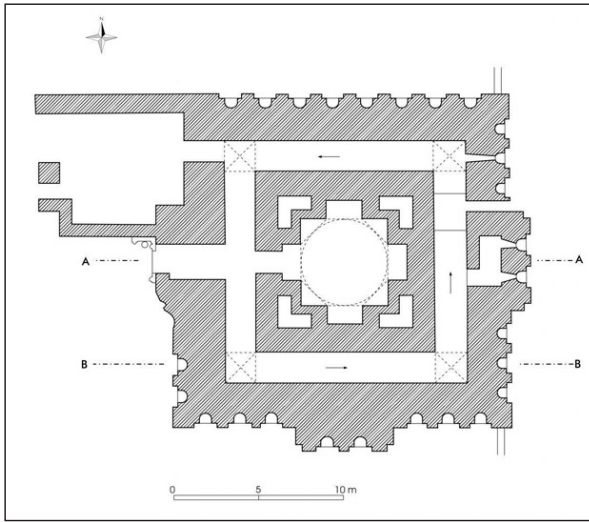**Figure 4.** A plan of Al-Manar palace. Retrieved April 26, 2019. http://islamicart.museumwnf.org/database_item.php?id=monument;ISL;dz;Mon01;26;en.

Figure 5. An aerial view of the original palace site shows the square plan that the palace followed, also the pillars and how they are parallel to each other. Retrieved April 26, 2019. https://archnet.org/sites/16740/media_contents/106668.

As per the decorations of both the pillars and drawings of scenes on the walls, they were inspired by Figure 6, 7 and 8 respectively.

Figure 6. Dome of the Rock, Qubbat As-Sakhrah, Jerusalem, completed 691/692 AD; detail of the interior mosaics showing hanging crowns, jewellery, and inscriptions. Retrieved July 22, 2012, from http://www.metmuseum.org/exhibitions/listings/2012/byzantium-and-islam/blog/where-in-the-world/posts/dome-of-the-rock.

Figure 7. Palermo, Zisa castle, 12th century, Fatimid art mosaic. Sicily. Credits: Melania Messina Photojournalist. Retrieved April 26, 2019. https://melaniamessina.photoshelter.com/image/I0000KkGwxm-LIEE0.

Figure 8. The emblem of Hisham Palace in Jericho Arabic Umayyad mosaic called the Tree of Life in the audience room of the bathhouse (125 AH - 743 AD). Retrieved April 26, 2019 from https://en.wikipedia.org/wiki/Hisham's_Palace#/media/File:Arabischer_Mosaizist_um_735_001.jpg.

Fatimid Secular Architecture: a Visual Reconstruction by Ahmed Wahby and Mona A. Marie

As a result of the careful study and inspection of the above mentioned items, an illustration of the Fatimid throne hall is produced. The Hall has a square plan. Rays of light can be seen in the illustration reflecting the ventilation openings in the dome. Parallel pillars surrounding decorated with patterns from the original figure; scenes painted on the walls were also taken from the original scenes can be seen in the following comic panel (Figure 9):
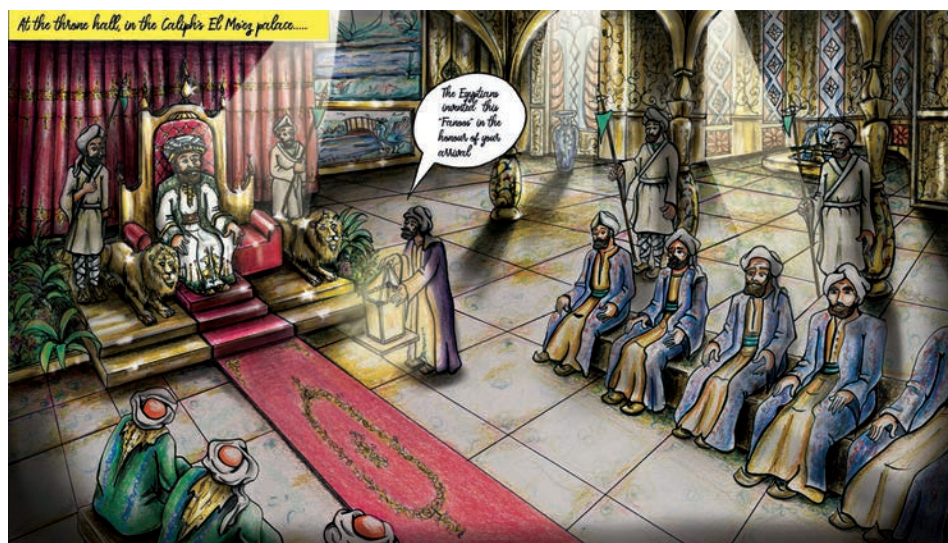
Figure 9. Illustration shows the reconstruction of the "Throne Hall" (Marie, 2015, p.78).

Another element of architecture appeared in this era called *Al Manazer* (similar to a balcony), They were originally used before this era only in military purposes as monitoring points linked to the palaces and built in the highest places facing the sea in order to oversee the boats of enemies before coming close to the coast. They also were considered communication tools as a lighthouse. In Egypt and the East, they were com-

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mon as civilian structures such as the outlets above the gates of the city of Baghdad in the middle of the second century A.H. and the Fatimid Manazer in the fourth century A.H.

In the Fatimid era, *Al Manazer* were highly considered and placed in very significant locations of the palaces. In some locations they served religious purposes such as those built in the palace infront of *Al Azhar* Mosque where celebrations were held. One example is the celebration of *layaly Al Waqood* (nights of fire).

Manazer were constructed out of stone and wood. Some assumed the forms of kiosks. These balconies were well groomed, they were well decorated and furnished with luxury fittings and furniture to be used around the year. *Al Manzara* disappeared completely from the Cairene architectural repertoire by the end of the Fatimid era. However, these structures remained in use up till the present in Egyptian villages and morphed into *Almanadera*, which are rooms created in Grand mansions that overlook the street and connected with the external spaces the ground floor level. Here too, a visualization was created based on the written descriptions and images (Figure 10).

Dar Al Fetra was the first sweet factory built in Cairo by the caliph *"Al-Aziz B Allah"* outside his palace and It had a secret passage linked to the caliph's palace directly. This establishment was essential in the preparation of the holy *Mawlid* day of the Prophet (birthday) in the Fatimid era. The illustration was created based on descriptions and images (Figure 11).

Figure 10. Illustration shows the reconstruction of Al Manzara (Marie, 2015, p. 104).
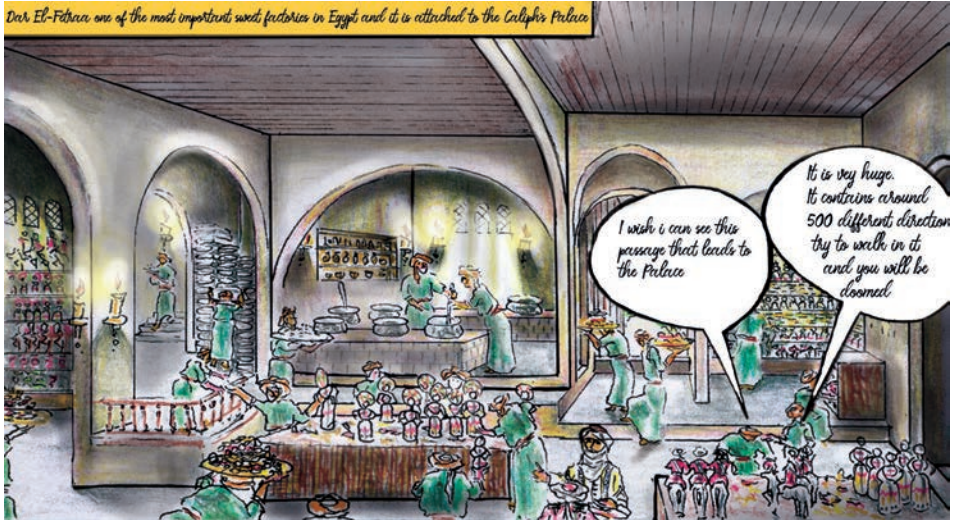
Figure 11. Illustration shows the reconstruction of Dar Al Fetra (Marie, 2015, p. 102).

A visual presentation of Fatimid secular architecture is achieved through creating illustrated frames to reflect the era characteristics that can serve in any visual mean like, backgrounds in printed material, or studio setups for media purposes such as television series or movies. A meticulous frame of enquiry was used in order to define the characteristics of Fatimid secular monuments and details by comparing to neighbouring regions and styles of the time.

Furthermore, building techniques and terminology were examined. The resulting data is transformed into a visual language using manual sketching techniques with coloured pencil and ink and edited digitally using photo editing software.

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Vernacular Design Examples to Study Climate's Role on Design Decisions: an Example of Nomadic Yörüks in the Turkish Mediterranean

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Keywords

Agency, Mediterranean, Design, Entanglement, Yörüks

Abstract

This paper presents vernacular design examples to investigate the relationship between design and climate. The paper aims at understanding ways in which design can collaborate with other elements to produce naturally compatible artefacts, systems or experiences. Considering the current climate crises and growing changes, we need to develop an understanding that does not exploit the natural resources but incorporates with them. To study this co-operation, this paper studies textile crafts, more specifically felted artefacts, of Yörüks (or Yoruks, Yuruks), a nomadic Turkic clan in the Mediterranean coast of Turkey. I examine the ways in which climate, mobile lifestyle and accessible materials actively affect design decisions of the Yörüks. Yörüks way of living could be an example to think further how to correspond to climate while developing artefacts.

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1. Introduction

Design is a way of thinking with several mediums to seek for possibilities that develop new understandings while solving problems (Brassett & Marenko, 2015). Design thinking is usually applied to generate new possibilities for existing problems. As design researcher Richard Buchanan (1992) argues, design thinking enables re-interpreting existing signs, things, actions, and thoughts, thus transforming people into innovators (Brown & Wyatt, 2010). These approaches assign a changemaker role to design to overcome our current extreme crises and propose better options.

Currently, the climate crisis has reached a point that requires immediate actions from multiple perspectives. One of these perspectives is changing the ways of engaging with natural environments in a way that does not exploit the natural resources but rather incorporates with them. This approach includes rethinking our daily habits in nature-compatible ways and employing natural resources in regenerative ways. Considering the design's interpretative role, I believe studying the climate and human encounter from the design perspective can provide renewed ways of making artefacts. Studying climate and human encounter from the design perspective can also re-build our relationship with natural surroundings based on climate specific features.

In order to investigate the relationship between design and climate, this paper examines vernacular design examples of a nomadic community in the Turkish Mediterranean, namely Yörüks. Vernacular design is similar to folk designs and refer to the artefacts produced by locals based on everyday needs.

Living in tents and moving around during the year, Yörüks have developed ways to incorporate with the climate to survive. Climate-specific thinking is reflected in their living habits and artefacts. As a nomadic community Yörüks have been living in felted tents for centuries and mainly generating their livelihood through natural resources. In this paper, by examining the main aspects of the Yörük way of living, I will present an example of how to develop artefacts that are compatible with the climate and natural environment.

Considering the close contact that the makers of these artefacts build with material and their having no formal background in design, this essay could have been positioned as part of craft studies as well. However, in my perception, design and craft are interwoven and they share fundamental commonalities such as idea generation for specific needs, careful making with material inspiration and evolvement through time (Aktaş & Mäkelä, 2017). Also, by positioning this study as part of the design studies, I aim to present historically relevant examples of site-specific product development to renew our understandings for the future of design and its employment in seeking for possibilities. Considering the dramatic changes in the climate and unforeseeable future, these examples can build grounds for adopting new methodologies for designing under unstable conditions. The Yörük example presents how to work with changing elements and conditions, such as climate and location while developing our design intentions. To study the elements that can affect our design decisions, this study examines how several elements such as animals, materials, functionality, are entangled with the design intentions.

Next, I will first present the concept of vernacular design and how our design decisions are actively affected by our surrounding. Then, I will present Yörüks and their lifestyles. Finally, I will present some of the factors that Yörüks consider while making artefacts to present how these elements are entangled in order to live in nature-compatible ways. These entangled elements are presented as an example of the relationship between design intentions and generating living habits.

2. Vernacular Design and Its Connections to Climate

The relationship between climate and design has been usually examined from the sustainability perspective with the concept of climate responsive artefacts to produce environmental-friendly products and goods. The fields that employ climate responsive methodology usually aim at reducing energy use in buildings or spaces. Typically, climate responsive designs examine ways in which designers can generate models that cooperate with various weather types and the changing climate.

One way of studying climate and design relationship is by studying vernacular design examples. Architectural historian Thomas Hubka (1979) elaborates on the concept of vernacular/folk design in order to examine designs by people with no former design education and how they design their living spaces. He argues that vernacular designers start their processes with the unchanging and later accommodate the change. I believe, studying vernacular examples can enable researchers and designers to truly understand local conditions. The vernacular examples also show the solutions with no requirement of sophisticated technology.

Therefore, these examples can provide methodologies for site-specific design (Bodach, Lang, Hamhaber, 2014; Nguyen, Tran, Tran, Reiter, 2011; Upadhyay, Yoshida, Rijal, 2004). However, vernacular examples contain both advantageous and disadvantageous situations. Accordingly, rather than following these examples as they are, vernacular examples should be re-interpreted with current possibilities to generate better results (Nguyen et al., 2011).

Similarly, this study examines how the Yörüks have developed their artefacts with accessible resources. This understanding of developing artefacts regarding existing conditions enables us to examine how to attune to our surrounding and how it actively affects design decisions. In a way, by interweaving the conditions and what they provide, Yörüks have developed a nature compatible lifestyle that incorporates the surrounding conditions and materials without exploiting them. By examining this interwoven thinking a similar approach can be applied to the larger design field. Considering the urgent need to start using natural resources wisely, we have to understand how to co-operate with the environment without forcing human needs. Sociologist Andrew Pickering (2005) perceives this co-operation as a necessity and argues for the coupling of human and the nonhuman which generates the evolvement of knowledge and practice.

To understand how we can co-operate with nonhumans to make design decisions, the active affection of nonhumans should be understood. In order to understand how nonhuman entities can actively affect human decisions, political scientist

Jane Bennett (2010) proposes the concept of vibrant matter. Bennett argues that things have independent power in their own existences which enable them to perform differently under various conditions. In a sense, similar to the vernacular design examples, we need to understand the changing and effecting power of our surrounding to best adapt to the environment rather than changing the environment to our own needs. Considering that natural materials evolve based on the climate, studying material and design relationship can inform studying the relationship between design and climate. Accordingly, this essay examines not only the lifestyle that the climate proposes but also the natural materials, more specifically wool, to make everyday artefacts. By doing so, this essay presents an example of developing design decisions with available materials and living by joining the flux of nature.

As anthropologist Tim Ingold (2010) argues, the world never stops its becoming, but rather we should join its flux and fluidity. Ingold argues that while making, we also follow the flow of the material and work *with* the material to emerge an artefact. This essay discusses one way of, namely Yörük way, joining in the flux of the world. By focusing on design, climate and material, this essay argues that these elements are interwoven, and they may actively affect design decisions. To discuss this interwoven structure design and its extensive landscape in a comprehensive manner, this essay applies Ian Hodder's (2012) conceptualization of entanglement, within which he argues that "social world of humans and material world of things are entangled together by the dependence and dependencies that create potentials further investments and entrapments".

Building upon the entanglement formulation of Hodder (2012) and the idea of co-evolvement, climate and design are studied as entangled that shape our everyday understandings and lives, and accordingly our practices and thinking. This study specifically examines the influences of the climate over the material, living habits and accordingly designing of everyday utilitarian and nonutilitarian artefacts. The conceptualization of entanglement involves many other social and material units that are influenced by each other while actively affecting each other. Therefore, studying what the climate provides as material and how this material can affect design decisions can help us develop an understanding for climate and design relationship. The next section will first briefly describe the Yörük community and discuss the ways that the climate, the material and the living habits affect developing the artefacts.

3. Yörüks in relation to the climate, the material and designing

To study climate responsive design examples, this essay examines nomadic groups in the Turkish Mediterranean, namely Yörüks, and evolvement of textile artefacts in their everyday life. More specifically, this essay examines felted artefacts. This examination is developed from reviewing literature about Yörüks. The academic texts that include Yörüks as cases are examined with a focus on climate, material and design related information to deeply understand how climate has informed the design intentions.

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Name of the Article	Authors
Tradition of Weaving in Anatolian Nomadic Life, 2016.	Meral Akan
Sarikeçililer	Hilmi Dulkadir
Collaborative Long-Term Ethnography and Longitudinal Social Analysis of a Nomadic Clan in Southeastern Turkey, 2006	Ulla Johansen and Douglas R White
The Yörüks: Their Origins, Expansion and Economic Role, 2014	Halil İnalcik
The Transhumance Activities and Problems of the Mersin-Arslanköy Yoruks, 2018	Muazzez Harunoğullari Yadigar Polat
Folk Food and Medicinal Botanical Knowledge Among The Last Remaining Yörüks Of The Balkans, 2017	Anely Nedelcheva, Andrea Pieroni, Yunus Dogan
Silvopastoralism in Turkey's Mountainous Mediterranean Region, 2003	Uçkun Geray and Sezgin Özden
The Identity of Women in The Sub-Culture of Nomadic Yuruks, 2009	Erdal Aksoy
The Mountain-Based Culture of the Taurus Yörüks: Cultural and Economic Approaches	Sezgin Özden and Erdoğan Atmiş
Comparison of Different Vegetation Measurement Methods in Determining Botanical Composition and Yield Potential of The Pasture in Yörükler Village of Hayrabolu District, Tekirdağ, 2008.	Mustafa Gür

Table 1. The list of the reviewed articles. These articles provided the main information for the discussion.

To build this discussion, ten articles about contemporary Yörük practices are examined. Several more studies from political and historical perspectives are excluded to preserve the focus. The ten articles are from various fields: folklore, livestock research and botanic studies (Table 1). In fact, the topics of these articles already point at the significant aspects of the Yörük way of living. These aspects can be categorised in two

main fields: material culture and relationship to the natural environment (Figure 1). Therefore, this essay examines the relationship between material culture, more specifically textile artefacts, and natural environment, more specifically climate.
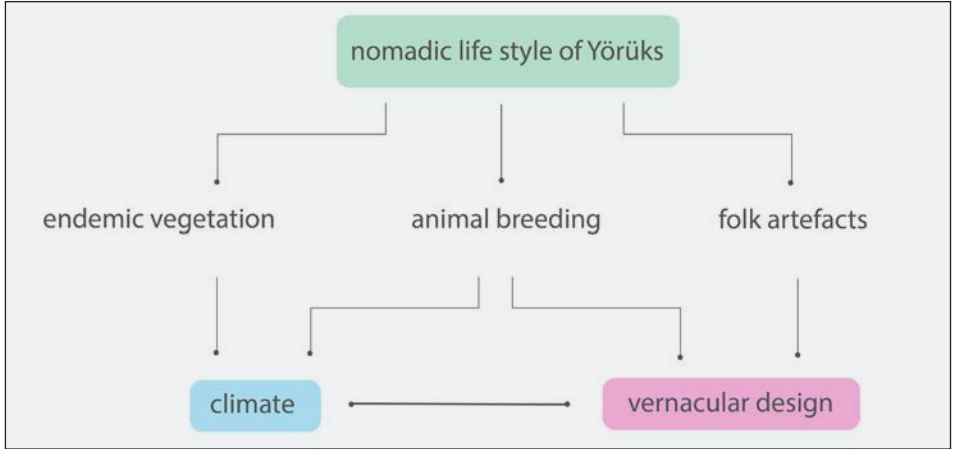

Figure 1. The two main categories of the reviewed articles are the relationship to the natural environment, namely endemic vegetation and animal breeding, and material culture, more specifically folk artefacts. These two categories constitute the main discussion of this paper, which is the relationship between design decisions and climate.

In these articles, sections about climate, living habits, and craft making were specifically studied. Since these discussions were usually embedded in the main article, the study required deconstructing the texts and then reconstructing the information in a more refined and narrational way. Based on the information gathered from these articles, next, I will first briefly describe the Yörük lifestyle, then I will discuss the main effecting factors of this lifestyle.

3.1. Yörüks

Historically, nomadic Yörüks have been migrating across southern Turkey with no permanent settlements.

However, since the 17th century the state image has gained more power in Turkey, and to provide formal education to Yörüks and due to security reasons, they were asked to settle down (Dulkadir, 1991). Therefore, over the past two centuries, various Yörük groups followed three ways: some groups have permanently settled down, some have maintained a semi-no-madic life where they travel across Mediterranean coast during the summer time and re-settle-down during the winter, and finally a small part has been maintaining a completely nomadic life (İnalcık, 2014; Johansen & White, 2006; Karagel & Üçeçam-Karagel 2011). Currently, only two clans remained as nomadic, while many other groups have permanently or partially settled down (Dulkadir, 1991). Although living in the mountain generates human traces, such as walking paths and food consumption for animal breeding (Harunoğulları & Polat, 2018), Yörük way of living is still argued to be nature compatible in various ways, such as maintaining tree ecology (Geray & Özden, 2003), and developing food and medicine from wild plants (Nedelcheva, Pieroni & Doğan, 2017).

While on the move, Yörüks usually stay in one place for a day or two and then continue moving (Dulkadir, 1991), however, occasionally, they spend several months in one place in their tents as well (Aksoy, 2009) (Figure 2). Typically, despite set-tling down close to city centres, nomads have limited access to resources to correspond everyday needs as they hike amongst the Toros Mountain range in the Mediterranean coast. Due to this limitation, despite originally being self-sufficient (Geray & Özden, 2003), for many years Yörüks have utilized goat and sheep breeding for trade purposes as well. They participate in

Figure 2. Yörüks tents at the outskirt of the Toros Mountains. Photography: Josephine Powell. Courtesy of Koç University, Reference Number: 2557-32-1.

economic activities through animal products and craft artefacts (İnalcik, 2014). The endemic vegetation and landforms of the Toros Mountains provide suitable circumstances for sheep breeding which have been the main source of income and food generation for Yörüks (Geray & Özden, 2003). Sheep breeding also constitutes the main resource for generating wool for weaving, knitting and felting to produce shelter and garments. Correspondingly, Yörüks have been associated with their talent in handicrafts, especially in textile ones, including weaving and felting (Akan, 2017; İnalcık 2011, 2014).

3.2. Mediterranean Climate

Considering that Yörüks maintain a (semi)-nomadic lifestyle, the climate forms a crucial aspect of the decisions they make during the move while maintaining their nomadic lifestyles.

The Turkish Mediterranean climate offers hot long summers by the sea coast and cooler summers, and snowy winters in the inland where high Toros Mountains lay parallel to the coast. Although transhumance is commonly preferred by the residents of the Mediterranean region, Yörüks have been moving also as a continuation of their long-lasting traditional way of living. Yet, similar to residents, Yörüks stay in one place longer during the winter time due to short winters in the Mediterranean region. The climate and the landscape are suitable for sheep breeding.

3.3. Sheep Breeding and material generation

Sheep breeding is an identical Yörük practice, although it is not unique to them. Since sheep breeding provides food supplies for them, material resources for their utilitarian and nonutilitarian artefacts, and goods for their trade activities, they are strongly attached to their animals. From the sheep, Yörüks have been generating wool to practice textile crafts for their own usage and to gain a living by trading handmade artefacts in cities. Textile crafts such as rug weaving and felting, have been significant Yörük practices that are an inseparable part of Yörük way of living as historian Halil İnalcık (2011) states. Wool is a light and easy to process material: Yörüks sheer their sheep in spring and autumn, the wool is then cleaned and carded to be ready to work with. Once the wool is ready, it can be spun for knitting or weaving, or it can directly be felted.

3.4. Design Decisions and Artefacts

Textile artefacts, both woven and nonwoven, constitute a significant part of the Yörük material culture.

Making soft textile furnishings provide several benefits: the raw material (wool) is available, the production does not require an established workshop and the soft artefacts can be foldable, stackable, and light by the nature of the material. Especially as a result of living in nature and not having structures to protect themselves from cold or insects, floor coverings, both woven and felted rugs, composed a significant part of Yörük material culture. Felted artefacts and woven fabrics generate covers of the tents, as well as the soft furnishings of Yörük houses. The home is decorated with textile furnishings, such as floor coverings, cushions and beds, containers and carrying pouches, saddle felts for the horses, bags, and finally decorative elements (Dulkadir, 1991).

The most important benefit of the textile products comes from the material features: wool is an insulation material that can be used in various weather conditions. Since Yörüks construct same living spaces, namely tents, both in summer and winter, the tents need an insulating material which should also be easy to carry and assemble. In Hubka's terms, Yörüks should accommodate to change with their unchanged artefacts. Therefore, the tents have wooden structures covered with felt sheets, or sometimes with woven rugs. This way, the material enables a certain comfort in various weather types. Inside the tents, rugs cover the floor to protect people from the insects and to keep the ground warm. The seating area is decorated with low chairs and cushions made of felt or woven fabrics. As they move during the majority of the year, their artefacts should be easy to carry. Thus, Yörüks utilize their already accessible material, namely wool, to produce all their artefacts.

They not only weave but also felt, which has a firmer structure and provides a better insulation structure.

In the next section, I will specifically discuss the felt artefacts and examine their connections to climate to discuss the entangled factors. Felting produces a nonwoven textile that is based on entangling wool in flat or three-dimensional forms. With the help of warmth and soap's acidic reaction, and following their flexible and elastic nature, wool fibres are entangled in intended forms that can be resulted in artefacts like shelters, cloaks, rugs, and cushions (Burkett, 1979). The tight entanglement of fibres provides a closed surface that offers a suitable structure to protect from cold weather, rain and beetle-like animals. On the other hand, the rawness and simplicity of felt as a material can reflect the simplistic thinking of Yörüks in utilitarian purposes in a sustainable way. Besides utilitarian use of felt, it has also been an income generator: until the last century, the majority of felted artefacts utilized amongst the country were produced by Yörüks (İnalcık, 2011). Felt making or felted artefacts are not specific of nomadic Yörüks or nomadic tribes, in fact they do not exist only in the Turkish Mediterranean. Yet, the coming together of these elements, namely felting, nomadic living and Mediterranean climate, form an interesting part of design entanglement in which climate proposes resources, materials and accordingly affect design practices.

4. Entangling climate, material and design

The genial Mediterranean climate enables a nomadic life to Yörüks who own no land property. This nomadic life develops living habits specific to Yörüks while proposing materials to maintain their utilitarian needs.

Accordingly, this encounter of Mediterranean climate, Yörüks, material and living habits result in designing felted artefacts.
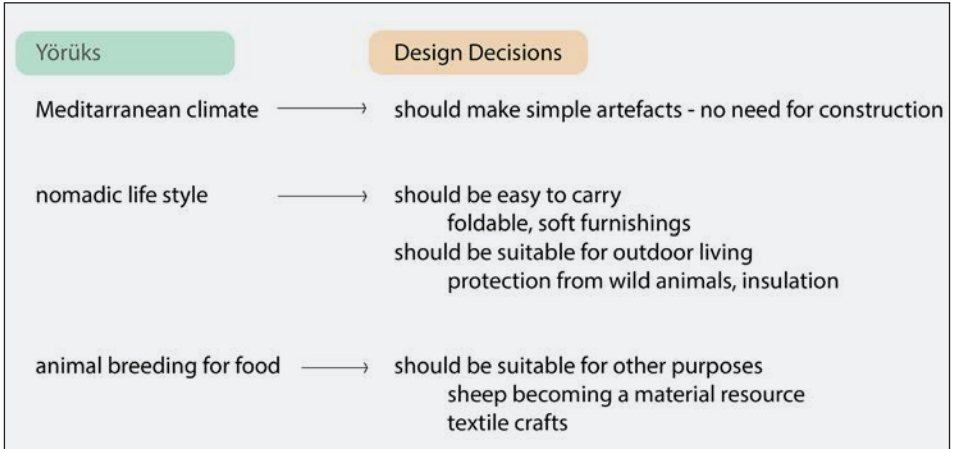

Figure 3. Some of the conditions that Yörüks have and how these conditions affected their design decisions. Most of these decisions are in fact affected by several conditions.

The conditions that Yörüks live with have informed their design decisions (Figure 3). However, most of their conditions in fact reciprocally affect each other. For instance, the climate helps them live as nomads. Therefore, the design decisions are made through the entanglement of several conditions. In a sense by entangling the features of the climate, everyday needs, accessible resources and creative thinking, Yörüks have managed to create an identity for themselves while maintaining their wellbeing. Therefore, studying these multi-layered interactions as entanglements can address implicit reasons for designing that can be re-evaluated and re-applied in the future. Understanding these decision-making processes can illuminate our need for nonhuman participants in constructing our lives. For instance, in Yörük felts, felted shelters are not

solely a result of designer's/maker's pre-intention, but rather it is an intentional response to what nature provides to them and requires from them to survive.

As Hubka (1979) suggests, while studying vernacular design examples, the examination focuses on the changing and unchanging and the relation between these. In this paper, the changing is weather and space the Yörüks settle down temporarily, and unchanging is their artefacts and goods to live with. Following, Bennet's (2010) concept of vibrant matter, both the changing and unchanging have their performative power within their independent or collaborative existences.

Figure 4. Entanglement of felted artefacts, inspired by Hodder and Doherty, 2012. The elements that are not in the focus of this essay is marked with grey to increase the readability. Illustration by the author, 2018.

Therefore, as this paper suggests, elements like climate and material, and other entities that are related to them such as living habits and material, gain active roles to affect our design decisions.

Within this context, Figure 4 illustrates the factors that reciprocally affect design decisions of Yörüks that result in soft felted furnishings. Although the initial perception of this discussion may appear as linear, beginning with the climate, which leads to material through sheep breeding, and then to design, I discuss them as an interwoven structure because all these elements have been evolving together. These relationships are not based on step-by-step development but rather a co-evolvement through time. For instance, if Yörüks could not have managed to breed sheep and make textiles, they might have changed their nomadic lives. Studying this landscape as an entanglement enables to illustrate the co-evolvement aspect of the design landscape.

Inspired by Ian Hodder and Chris Doherty's (Hodder, 2012) illustration, Figure 4 illustrates the interwoven structure of the elements demonstrating one-way and two-way dependencies. In the illustration, the straight line refers to a two-way dependency: both elements at both ends depend on each other. The dashed line refers to one-way dependency: the plain end depends on the end with the bullet point. For instance, sheep breeding affects felt making since the material is generated through sheep breeding. In return, felt making can affect sheep breeding as well since people will need more wool to make artefacts and based on their needs they may increase the number of the animal they breed.

Therefore, between sheep breeding and felt making a two-way dependency exists (straight lines). Differently, the material affects the making space since it requires a certain organization of space for suitable ways of practicing. However, the making space can exist on its own without requiring a material or practice. Therefore, the relationship between material and making space creates one-way dependency (dashed lines).

The concept of entanglement enables understanding the interwoven relationships of design elements from the larger perspective since it enables drawing the extensive landscape connections. Analyzing the relationships in the figure illustrates that decisions of making are not isolated from our interactions with other elements. Naturally, humans may have more influences as their intentions initiate processes yet, realizing that our intentions may depend on nonhuman elements may provoke new ways of relating our existence to other entities. For instance, when the figure is studied, the climate's power as an influence explicitly reveals that design has direct and indirect dependencies on climate. This active re-forming relationship can re-teach us to design in nature compatible ways.

5. Connecting Past to Future

Although this study is conducted within the frame of a long-living nomadic culture, the current practices of Yörüks rarely involve handicraft making while the number of unsettled people has been decreasing for a long time. Therefore, the example to start this discussion may seem like a historical one. However, examining previous experiences can provide a basis to renew current understandings and hopefully behaviours.

Our everyday product scenarios have been changing, the way we relate our lives to our tangible artefacts and intangible culture can remain similar. Therefore, understanding the interwoven structure of long-standing practices can provide ways for reshaping tomorrow's design practices by re-learning from previous interactions within the design field to understand the current and future ones. Understanding the relationship between environment and designed artefacts can propose new ways of coexisting. This shift can propose renewed relationships between people and the environment in a way that can result in changing the future in nature compatible ways. Considering the climate change and its crucial effect in our everyday lives, development and promotion of nature compatible design practices gain more importance than ever. This discussion is to understand what kind of next steps we can take in the design field with materials and approaches that attune to the changing climate and naturally renewable resources. In a world that changes faster than ever, designers are obliged to develop new ways of existing as well as co-existing. This approach can ultimately advocate considering climate as an active factor for developing artefacts. Therefore, this discussion can be further elaborated as a part of post-humanist debate since it promotes a non-human-centred way of studying our design practices.

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Design and Culture of the Territory: *Ecomuseo del Grano e del Pane* in the Salemi Museum System

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Keywords

Design for Cultural Heritage, Ecomuseum, Culture of the Territory, Collaborative Design, Participatory Action Research

Abstract

The article deals with design experimentation in the complex and composite field of design for the culture of the territory, aimed at enhancing the particular resources common to the Mediterranean areas, through an incremental and collaborative design methodology.

The town of Salemi (TP) inherited an extraordinary concentration of cultural heritage from its history; in particular the preparation and display of the decorated breads for the Festivity of San Giuseppe, occurring on March 19th, which expresses a profound religiosity and a complex rituality, shared, handed down and recognized as an intangible cultural asset to be protected. In this territorial context, a vision aimed at encouraging increasingly wider cultural and tourist growth and interested in the quality of experience has led to the design elaboration and realization of an *Ecomuseo del Grano e del Pane*. This is an experimentation articulated through meetings with the various territorial actors, gathering experiences and testimonies, and laboratory activities. Together with the description of the project outcome, the article intends to describe and analyze the intertwining of the many aspects that have structured the design process, based on a multidisciplinary/interdisciplinary approach "necessary" for cultural elaboration and looking at design as a multidimensional and relational discipline.

1. Activating design in territorial realities

Once the concept of territorial capital has been defined, as a "complex of material and immaterial elements available to the territory, which can constitute growth opportunities" (Zurlo, 2003), today the designer is increasingly called to operate within the complexity of design strategies that are able to develop new ways of enhancing and using cultural assets and traditional productions rooted in the territories, and coordinating their multiple aspects (narrative, communicative, interactive, multimedia), also through open and collaborative design methods. Using this perspective, in 2018 the Department of Architecture of the University of Palermo, together with the city of Salemi has started an extensive collaboration program centered on design planning, to provide scientific support to the activities of an administration that is aiming to improve and innovate cultural services designed to exploit the rich heritage of this community. This has been an opportunity for the university to express its vocation to be not only an academic institution for research and education, but also a competent actor who works within territorial development actions based on goods and processes that produce culture, social cohesion and that strengthen the identity values of the community.

In fact, design can, in certain conditions, fill the role of effective activator of valuable processes of requalification and redefinition of environments, practices and knowledge, through forms of interaction with the community and with various territorial actors. The administration explicitly supported a real *community centered design* approach in the first project action of the collaboration program launched: the conception and construction of a "Ecomuseum", dedicated to a contemporary and

innovative reading of the territorial qualities of the city and in particular the complex practice of working ritual bread for the Feast of St. Joseph, which occurs on March 19th.

To reinforce this approach, Palermo's team of researchers and design professors, who led the experience, has extended the collaboration to the Polimi Desis Lab of the Politecnico di Milano, to activate in the project the specific contribution of services design for social innovation.

Desis Lab in fact operates in multicultural and multidisciplinary contexts, integrating various competences in systemic projects, with objective to explore how design can enable people, communities, enterprises and social actors to activate and manage innovation processes in order to experiment with sustainable and collaborative ways of living and doing.

2. The premises of the project: Salemi and its "dinners"

As a matter of fact, already in the initial meetings of the project, a common vision of the management of the city emerged among the partners, addressed to an increasingly wider tourist and cultural fruition and interested in the quality of the experience. In this scenario, the *Ecomuseo del Grano e del Pane* was born with the aim of starting an experimental path of participatory construction of a small but innovative museum device, in order to receive the different testimonies and elaborations on the theme of the Festival, reinterpreted with sensitivity and contemporary languages, in the wider territorial context rich in landscape, architectural and artistic interest.

Throughout its history, Salemi has inherited a particular concentration of material goods (historical, architectural and various artifacts) and intangible assets; in particular the preparation

and display of the decorated ritual breads for the Festivity of St. Joseph expresses a profound religiosity and a complex rituality that is shared, handed down and recognized by the Sicilian Region in its own Register of Intangible Cultural Heritage.

These are small and large shapes of bread used to cover votive constructions that host the ritual of the *Cena di San Giuseppe* in public or private urban spaces; for months, these high artistic handicraft works - before the date of March 19th when the Feast occurs – occupy families and women's associations, who dedicate all their extraordinary ability to produce large quantities of these particular edible artifacts.

3. Ecomuseum

At the same time, Unipa researchers have defined a "state of the art" of the notions inherent meaning, history and most pertinent declinations of the concept of "ecomuseum": from the early considerations made by Quatremère de Quincy on the importance of the museum's connection with its concrete historical-territorial reality, to the progressive definition and dissemination of *community museum* models, up to the analysis of a case study recently proposed on the same themes by a small Sicilian community.

> "The real museum is indeed made up of statues, giants, temples, extraordinary artifacts and objects (…) but nevertheless it is made up of places, sites, mountains, roads, ancient streets, geographical relationships, of the relationships between all the objects, of the memories, of the local traditions, of the still existing uses, of the comparisons that cannot be made if not in the same country" (De Quincy, 1796, p. 166).

When, in 1796 at the dawn of the museum as an institution, Quatremère de Quincy formulated this definition, he expresses, almost two centuries in advance, the inherent complexity of the concept of museum: the collection, conservation, exposure, and valorization of the works, kept in a place often detached from the context of origin, underlie the prerogative of a parallel narration of intangible stories, relationships and meanings. It is an extraordinarily anticipatory vision, which sets out features and principles of a multi-faceted concept, dialoguing with territories and communities in this evolutionary line we can also place the particular interpretation of the museum institution represented by the ecomuseum.

> "The art historian Jean Clair argues that the first ideas of what would become ecomuseology were elaborated by the museologist Georges Henri Rivière in 1936, as an extension of the idea of open-air folk museums, especially the Scandinavian model.
> He places Rivière's formulation of the ecomuseum theory in the early 1950s, reaching its first practical realization in the 1960s" (Pinna, 1997, p.110).

Conceived and imagined as a structure that should have a strong impact on society, the ecomuseum was defined by the archaeologist Hugues De Varine as "an institution that, for scientific, educational and cultural purposes, manages, studies, explores the global heritage of a certain community, including the totality of the natural and cultural environment of this community" (Pinna, 1997, p.111).
Peter Davis very effectively summarizes the ambits and keywords that characterize the ecomuseum (Davis, 1999); the

community museum is a tool for creative participation in the construction of an "open" territorial identity (Cersosimo & Donzelli, 2000) and community development.

The open identity consists in a strong awareness of all the data that we are given by history and geography, by the cultural context, by the accumulation and intertwining of cultural experiences [...] The open identity must assert itself above all against those representations that tend to unify reality and thought, but also against any claim of the positive or superior character of one's own specificity (closed identity) (Cersosimo & Donzelli, 2000, p. XV).

On the other hand, the concept of ecomuseum introduces the themes of landscape and territory as stratified entities, composed of environmental, cultural, social, architectural, anthropological elements; therefore, phenomena in progress, which require articulated reflections from the community on the relationships between past and present and the ability to project to the future.

Initially found in some Italian regions, such as Piedmont, Trentino and Friuli Venezia Giulia, the institution of the ecomuseum, differently regulated at regional level, has become an increasingly widespread reality throughout Italy. It was in Catania in Sicily, in 2007, on the occasion of the national meeting *Towards a national coordination of Ecomuseums: a process to be shared*[1] that a *Charter of the Ecomuseums* (Charter of Catania) was drawn up and it formulated this definition: "The ecomu-

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1. As part of the conference *Ecomuseum Days. Towards a new cultural offer for sustainable development of the territory*, Catania 12-13 October 2007. Organized by the CeDoc (Center for Documentation and Studies on Complex Organizations and Local Systems) of the University of Catania and by the Ecomuseum Laboratory of the Piedmont Region.

seo is a participatory practice of valorisation of the material and immaterial cultural heritage realised and developed by an organized subject, expression of a local community in the perspective of sustainable development" (Garro, 2014, p. 10).

4. Valorization processes of traditional knowledge: a case study

It is important to note that in recent decades, awareness of the importance of biodiversity and the preservation of indigenous crop production has increased significantly, in part through research and field activities by scientific institutions and research centers. But it is mostly the communities and producers who mobilized to activate paths and initiatives for the recovery, enhancement and communication of traditional practices and knowledge linked to the production of food, which are often found in territories with unique characteristics. The involvement of the skills and creative abilities of multidisciplinary experts - such as designers - has proved to be key in the construction, often with minimal resources, of "light" but innovative, engaging and open communication devices for interaction with the local people.

A significant example of the emergence of design-driven processes in the Sicilian territory around the valorisation of food is the realization in 2016 of the *Micromuseo Immateriale del Grano e del Pane. Memoria, conoscenza, interazione* of Borgo S. Rita (CL), together with the contribution of a team of teachers and some young Sicilian designers[2].

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2.   F. Monterosso, ideation, preparation, direction and scientific coordination; D. Emanuele and M. Di Piazza, director and script anthropological documentaries; G. Dioretico e S. Farruggia, direction and script for educational documentaries; L. Di Martino, graphics and communication; M. Schifano and M. P. Erice, Arduino and processing; U. Di Piazza, sound design.

The initiative started in 2013, when the Santa Rita Cultural Association was established, composed of women united by the objective of redeveloping the ancient village of Santa Rita, and preserving its historical, religious, cultural and gastronomic identity, in order to reactivate the economy of the village and make it a destination for Slow Tourism[3]. The multiplicity of skills and interests that generated the project idea led to the development of an original design laboratory, characterized by an intense dialogue with the community of Santa Rita and focused on communication and museum education, in particular as a resource and service for the local schools.

Today the Micro Museum of Borgo Santa Rita offers visitors an essentially visual journey, animated by some simple interactive and narrative devices. It proposes an experience that combines the scientific-educational with the historical-anthropological dimension of the memory of the small community, linked by the sharing of knowledge accumulated over time around the production of wheat and the traditional processing of bread practiced in the Borgo. A place was found in the restored nineteenth-century baronial building, which now includes: a series of infographics (static and animated) that illustrate the methods of cultivation of wheat and the traditional processes of making and production of bread, determining the particular taste and food qualities; some short documentaries bringing the visitor back to the specificity of the "cultural land-

3.   To transform the objective into a concrete project a loan was obtained from the LAG "Terre del Nisseno" in the framework of the PSR (Rural Development Program) Sicily 2007/2013, which had the purpose of redeveloping and making accessible for tourism development rural, the building heritage, culture and traditional activities of small rural villages.

scape" and to the immediacy of the testimonies of the inhabitants of the village; and small interactive sensorial installations that stimulate involvement, especially of younger visitors. Also the project of the Micro Museum of Borgo Santa Rita integrates and develops the wealth of experience acquired through research and educational experiments carried out within the university, around the themes of scientific communication: languages, tools, technologies for information design and communication that make even very complex scientific content accessible. But its primary aim was to explore the potential of the collaborative design dimension, through the construction of listening and sharing practices with the various actors of the project; an experience that has contributed to disseminating co-design tools and methods for social and cultural innovation in territorial development processes.

Figure 1. Giuseppe Maiorana, Identity image of the *Ecomuseo del Grano e del Pane*, Salemi.

5. The *Ecomuseo del Grano e del Pane di Salemi*: objectives, methods and tools

As a matter of fact, the transmission of innovative and collaborative experiences facilitated by design, which emerged in the cultural and territorial context of Salemi, and the need to propose a new exhibition space dedicated to "wheat and bread", increased the awareness of citizens and visitors from the traditional ritual to the entire Salemitan landscape and to the various precious "stories" that are the foundations of the character of this community.

The Ecomuseum is proposed as a new section of the Civic Museum of Salemi; a real Museum System[4], divided into different sections (archaeological, historical-artistic, Risorgimento, legality museum). To accommodate it, a little-known space of great historical and architectural interest, built in the early 18th century, has been reopened to the public probably as the seat of the Congregation of the Holy House of Loreto, a building reproduced in the architevcture of the underlying Oratorio that bears the same name.

The municipal administration sought the contribution of design through the involvement of the University of Palermo and its design students, in sustaining and constantly discussing a path of didactic experimentation.

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4.   Located in the heart of the historic town of Salemi, the Museum System is housed in the monumental complex of the Jesuit College, built in 1652, and is located next to the Chiesa Madre (Chiesa del Collegio), whose outline of the apse is incorporated into the profile perimeter and volumetric of the museum complex itself. Born as "the dwelling of the Jesuit order", thanks to the initiative and funding from the work of Don Giuseppe Gangi, the College was over the years also the seat of the schools of Philosophy, Moral Theology and School Theology. Thanks to an agreement between the Curia Vescovile of Mazara and the Municipality of Salemi, in 1986 the complex was restored and adapted as a museum complex, cultural space and municipal offices.

This was articulated, firstly through visits and meetings with the various actors (in particular the women who make the loaves and belong to the cultural associations), and in the university seat through thematic laboratories, often interdisciplinary, which concerned the definition of a new visual identity of the Museum System of Salemi.
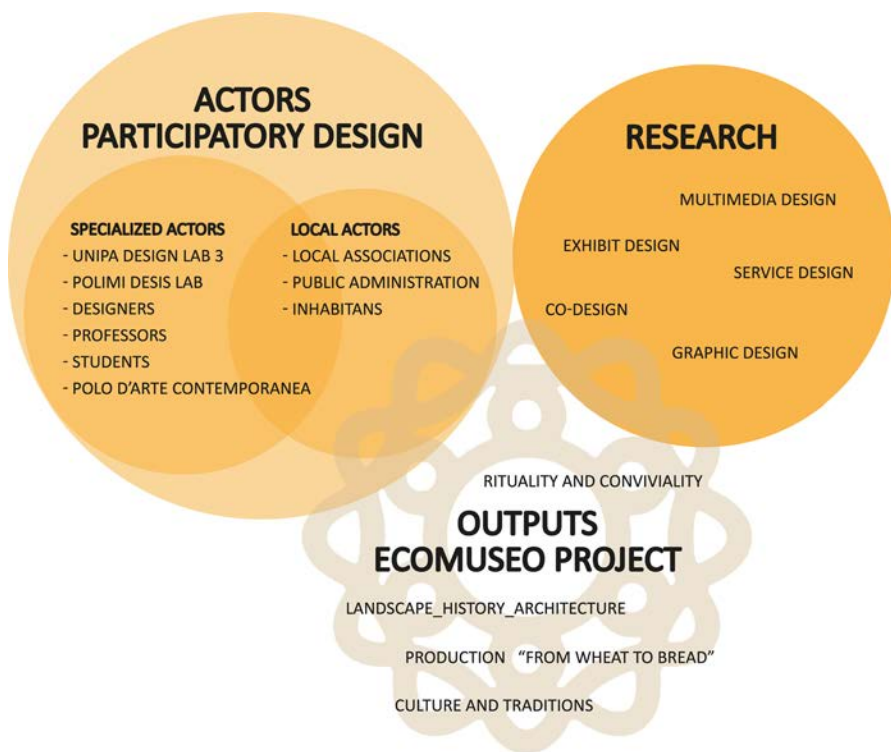

Figure 2. Diagram of process, themes and actors of the project of the *Ecomuseo del Grano e del Pane*, Salemi.

After a phase of research and exploration of the territorial context (graphic and photographic surveys) and the analysis of the results emerged from meetings and interviews with the various territorial actors (administration, associations, art-

ists, entrepreneurs, experts of local history and traditions), developed especially with the skills of the Desis Lab, the project team composed of teachers and students has focused on some specific objectives of the project:

- to organize a significant setting for the artifacts (videos, photographs, bi / three-dimensional works) born from the experiments carried out in recent years on the occasion of the celebrations of St. Joseph[5], especially through "artists' residences" curated by the Department of Culture, with the support of the Museo di Arte Contemporanea Riso of Palermo;
- to mend the works, different for techniques and languages, in a unitary space-time path, through the introduction of communicative, informative and narrative elements and essential exhibition supports, developed by the team of designer (students and teachers).

The first objective required the cataloging and evaluation of the physical and symbolic characteristics of the works of artists owned by the Municipality of Salemi, necessary for a first hypothesis of placement in the museum space. Whereas the second objective has seen the work of teachers, students and experts develop mainly on three themes, closely interconnected and dialoguing with each other:

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5.   Born from the desire to "promote a reflection on how to continue today, centuries later, a tradition, or how that same tradition can generate new forms that can be easily found in our everyday life" (Maiorana, 2017), the four editions, from 2015 to 2018 of the exhibition *Ritualità, tradizione e contemporaneità del pane. Verso la costituzione dell'Ecomuseo del Grano e del Pane*, curated by Giuseppe Maiorana, involved several artists in the reinterpretation of the theme of bread and ritual.

- the processes of cultivation and production "from wheat to bread";
- the rituality and conviviality in the "dinners" of the Feast of St. Joseph;
- the landscape, the history, the architecture of the Salemitan territory.

Within these three themes, thanks to the support of the Salemitan community and the various interdisciplinary experts (agricultural sciences, anthropology, sociology, architecture, history of the territory and landscape), the students have produced the communicative artifacts - infographics and multimedia - that completed the design process, which coincided with the construction and opening of the ecomuseum in March 2019.

Figure 3. Scheme of the three main themes of the project of the *Ecomuseo del Grano e del Pane*, Salemi.

Figures 4, 5. Processing of Salemi's decorative breads. Credits: Sandro Scalia.

6. Infographic and multimedia installations

The exhibition path starts with a graphic representation of the historical and productive origin of ancient grains in Sicily: through maps, timelines and other infographic devices, information regarding the cultivation of wheat in Sicily in relation to historical events is transmitted that have determined the diffusion and location, the variety of grains and the different characteristics of the species. This is followed by a panorama of the many forms and iconography of bread typical of the various sacred occasions. Finally, a display is proposed of the different elements of the process together with decorated breads of all sizes and shapes, and a boxwood structure that contains the ritual of the supper of St. Joseph. This provides the visitor with a visual synthesis that immediately communicates an important economic and symbolic centrality of the production of wheat and bread in Sicilian communities (somewhat declined in various sacred and profane aspects), which associate work, ritual and feast in the definition of community identity.

Another element of the multimedia narration, developed by a group of students, is the video *Salemi and its territory*[6], which proposes an excursion into the Salemitan landscape, through videos that the authors have developed in a sort of "dialogue" with the extraordinary photographs of Mimmo Jodice.
The flow of images through the rural areas narrates the richness of the material heritage located in the territory.

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6. Project by L. Mistretta and T. N. Anh Pham, Industrial Design III Studio, Prof. Viviana Trapani. The video takes the name and some materials from the book Venezia F., & Jodice M., (1991). *Salemi e il suo territorio*, Milano, Electa.

Figure 6. Mistretta L. & Anh Pham T.N., Screenshot series from the video *Salemi e il suo territorio* placed inside the *Ecomuseo del Grano e del Pane*, Salemi.

Against the background of the rural landscape, photographed in its purity and rawness, some viewpoints of particular historical and environmental significance are particularly highlighted: the important prehistoric site of Mokarta; the nineteenth-century villas in the countryside of Salemi; the grandiose *bagli*[7] which protected the fields cultivated with wheat, and that still today – even if only roughly – mark the topography of the landscape around Salemi. By integrating the aerial photographic views with written information, pictograms, ideogram and colored backgrounds, the large number and the widespread distribution of the wheat fields in the Salemitan landscape are highlighted; images that interpret and immediately communicate the complexity of the information on which the work was based.

7.   *Baglio* is the term used in western Sicily to refer to a farm, often fortified, which developed around a central courtyard.

Figure 7. *Cena di San Giuseppe* (1983), Fondo Mimmo Jodice, Municipal Library "Simone Corleo", Salemi. Credits: Mimmo Jodice.

The Festivity of St. Joseph, which has its own characteristic trait in the meticulous preparation of the breads for the subsequent realization of the decorated altars, culminates with the ritual performance of the *Cena*. In the past, this consisted in offering a sumptuous lunch to three disadvantaged children, who act the parts of Jesus, Joseph and Mary, as a fulfillment of a vow or as a thanks for a grace received. During the ritual dinner, the "saints" are served one hundred dishes, based on the preparation of ingredients closely related to the earth, such as traditional vegetables, flour and wild herbs, but with the exclusion of meat, forbidden during Lent.

This ritual made up of reiterations of actions, gestures and sounds is inspired by *Il Pranzo dei Santi*[8] a multimedia elaboration that "stages" the rite through a lively visual dialogue between the objects, food and hands of the guests, with the support of an essential scenography, consisting of a table, which houses the projector, and three chairs. In this case the set of a supper of St. Joseph was recreated, for a reinterpretation of the very personal and contemporary ritual: a culmination of all the phases, the gestures, the courses, the words and the sounds that accompany the dinner. Thus, the viewer is allowed to experience a dream-like and magical experience of ritual conviviality that still fascinates and involves them.

7. Conclusions

The experimental project of the *Ecomuseo del Grano e del Pane di Salemi* was based on a strong collaboration between different actors: public administration, inhabitants, associa-

8. Project by M. G. Martinez Tagliavia, Industrial Design III Studio, Prof. Viviana Trapani.

tions and universities. However, the processes of communication and interaction have not always been linear and have required, especially at the beginning, a phase of careful observation and listening by the designers.

As a matter of fact, while the collaboration with the administration was based on cultural assumptions and objectives strongly shared by the team of designers, the dialogue with the associations of expert artisans and with other local actors has been more complex and discontinuous. Complexity generated by their marked awareness of the centrality of their role and also of the stringent work times imposed by the deadlines of the feast.

However – as already experienced on other occasions – the students were the essential figures of mediation between project and context, thanks to their ability to propose themselves not so much as project specialists, but above all as young people in search of their cultural and professional identity. And also as the natural recipients of a precious legacy of the past, multi-faceted and widespread in everyday life.

Experience has highlighted the importance of an interdisciplinary and inclusive approach, both in the interaction and collection of materials for the project, and in the more strictly didactic and design phases; the teaching activity has indeed promoted the direct relationship between the students and the different competences involved in the elaboration of the communicative artefacts in all the phases of the project. It has deliberately renounced to a homogeneity of the products to favor instead very personal and sometimes authorial elaborations. The Polimi Desis Lab, through various meetings and inspections, has constantly monitored the project and provided

scientific and educational support especially in the development of a coherent design methodology, with the aim of experimenting with models and practices of social innovation focused on design and adaptable for the different resources and territorial dynamics.

Some of the objectives of this project and in general of these forms of collaboration have already been achieved and appreciable, other certainly still need to be monitored and increased through subsequent activities and project actions. However, they can be summarized as follows: to encourage a new multidisciplinary design method, which refers to human and social development; to expand educational opportunities and opportunities for exchange and research; to renew the forms of research and teaching; to encourage a responsible attitude; and to develop skills, competences and new values in future generations of professionals and citizens, aware and ready to respond to the ethical challenges focused on the territory in which they live.
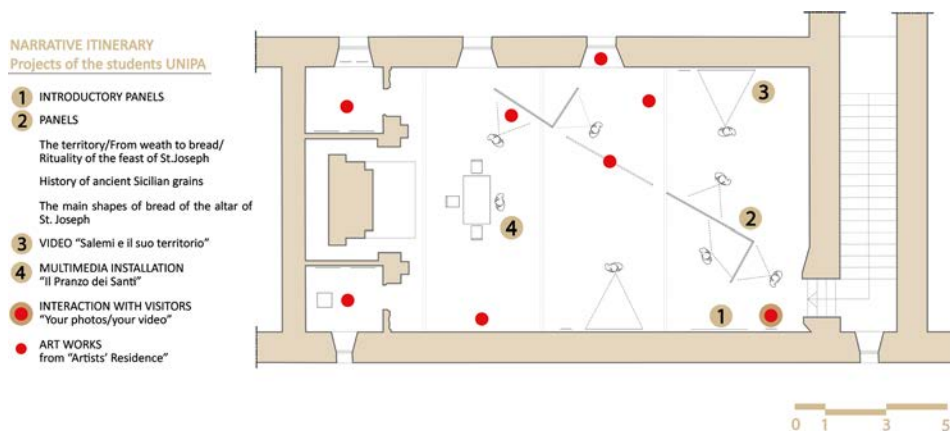

Figure 8. Design of the exhibition. Site plan of the *Ecomuseo del Grano e del Pane,* Salemi.

Figure 9. Trapani V., Del Puglia S., Maiorana G., *Ecomuseo del Grano e del Pane* Exhibition, general view. Credits: Viviana Trapani.

Figure 10. Trapani V., Del Puglia S., Maiorana G., *Ecomuseo del Grano e del Pane* Exhibition, view of the Tagliavia Martinez M.G. *Pranzo dei Santi* installation. Credits: Viviana Trapani.

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Acknowledgements

SUGGESTIONS FOR DESIGN

Giochi di Strada

Workshop with **Giorgio Laboratore**
for **G124 di Renzo Piano**

Photos by **Maddalena Migliore**

We publish the photos by Maddalena Migliore to present a beautiful design story, the "Street Games" project, carried out in the Librino neighbourhood on the outskirts of Catania. The project is the result of a workshop organized by the ABADIR Arts and Design Academy (Catania), coordinated by designer Giorgio Laboratore, in connection with the "Good Actions for Librino". This latter is a project by G124, the Renzo Piano's work group, in 2015 .

The Librino district, located in the south-western part of the city of Catania, was designed by Kenzō Tange around the mid-sixties as a model of satellite city. Here the new town design utopia is wrecked becoming a sad reality of degradation and social malaise. In the suburbs, there are no socializing places, as well as essential services. Children play in the rubble of an abandoned theatre, and organized crime is sometimes the only viable alternative. Here, a group of volunteers, the Librino's Rugby Brigands, take off children from organ-

ized crime by engaging them with rugby within the occupied sports area of San Teodoro Liberato. In addition, the courageous principal of the secondary school seeks to bring school normality into the Vitaliano Brancati school.

In this difficult reality, the G124 group, coordinated by Renzo Piano for the improvement of urban suburbs, has decided to intervene to trigger a virtuous process of urban regeneration, starting from the living and consolidated realities that guard the neighbourhood, and operating a mending between the parties through a local crowd funding operation extended to the city of Catania.

A pedestrian walkway of about 250 meters was thus created. It connects the school with the San Teodoro sports area and the neighbouring urban gardens.
At this point, the Abadir workshop takes place dealing with the design and implementation of 15 street games on the pedestrian path. The workshop aimed to generate new life and interest to the area through decoration and street furniture. Urban design is directly related to behaviours, lifestyles, tradition and the rituality of contemporary and collective living. A ready-made intervention realized with low technology and easy to find tools. Young designers and architects revisited traditional street games and invent new ones to entice the imagination of children and their desire to have fun.

Abadir – www.abadir.net
Giorgio Laboratore – www.giorgiolaboratore.com
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Emilio Rossi

He until recently was the Director of Emilio Rossi Design Consulting (Italy) and an Adjunct Professor in Industrial Design at the Department of Architecture, University of Chieti-Pescara (Italy). From October 23 rd, 2019, he joined as a Senior Lecturer in Product Design (equivalent to Associate Professor) in the Lincoln School of Design at the University of Lincoln (UK). He got a Ph.D. in Architecture and Urban Planning, with curriculum in Industrial Design, at the University of Chieti-Pescara (Italy) in 2014. He carries out advanced studies in the area of industrial design and on products' technological innovations; specific areas of research and work are: Design for Social Inclusion, Sustainable Human Centred Design, Knowledge Sharing, 3D Printing and Innovation Design in/for SMEs. His researches have been published in several publications, including: books (as

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Progetto grafico is an international graphic design magazine founded in 2003 and published by Aiap, the Italian association of visual communication design. A point of reference for such design in Italy from its start, it has also been fully translated into English since 2012. • In December 2017, Jonathan Pierini and Gianluca Camillini became the current editors. • The new *Progetto grafico* offers a critical look at graphics and visuals through a narrative broken up into fragments. Its aim is to offer articles connected in different ways so as to foster a series of transdisciplinary, historical and contemporary considerations. This multiple viewpoint, ranging from very distant to very close, seeks to look at the real both in the broadest terms as well as in a more specialist context. Our belief is that observation, whether of artifacts or representations, as well as production of visuals or graphics can add to today's cultural debate. • Contributions can include visual material, essays and interviews. Each issue intends to explore the storytelling opportunities of the journal.
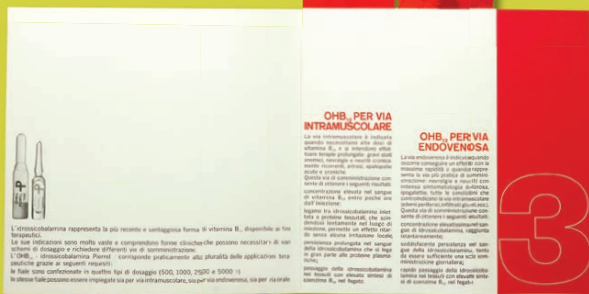
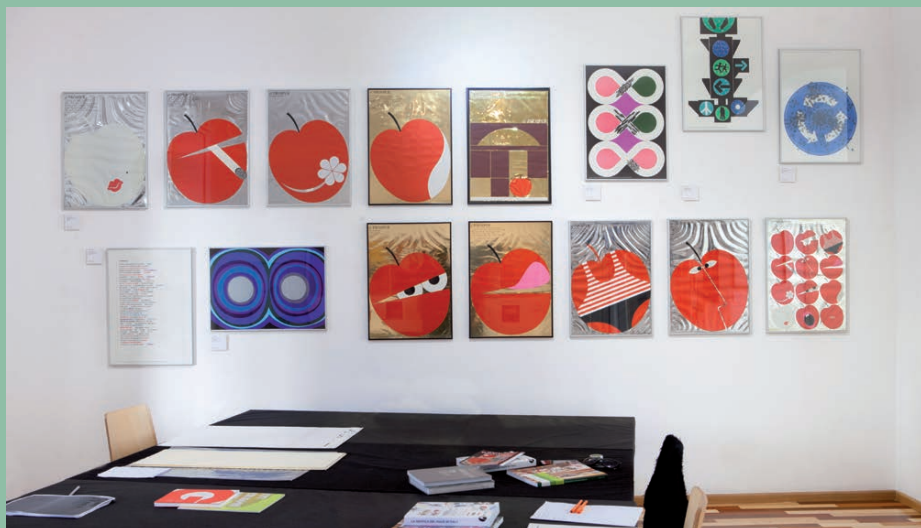# TI SENTI POCO BENE? AIAP HA TUTTE LE SOLUZIONI PER TE. SCOPRILE.

Aiap CDPG, the *Graphic Design Documentation Centre*. Working to collect, catalogue, archive, enhance and promote any documents related to graphic design and visual communication. These documents (originals as well layouts of projects, books, posters, prints, catalogues, correspondence, photographs) help reconstruct the history of graphic design in Italy and support research and educational activities, as it is the CDGP's intention to make these documents widely available.

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