Inter-Trans-Post-Disciplinarity:

Design Education in the Post-Industrial Era.

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Abstract: Design appears to be a young academic field without a clear and defined domain, when it is compared to other disciplines which are historically stabilized and acquired a better recognized disciplinary theoretical apparatus. Design thinking has grown often touching far territories of knowledge and always placing its line of research on the track of innovation, between material and immaterial, product and service.

As Design turns out to produce knowledge, while giving an interpretation to reality and being strategic for innovation, the following paper raises some questions: is Design a discipline without any given field? If we consider it as an open structure, what geometric organization is drawing while connecting other fields? Along with the occurrence of the post-industrial society of knowledge, should we still call the discipline industrial design? What are its epistemological assumptions?

From a didactic and research experience at Carleton University in Ottawa (Canada) with the development of a Master of Interdisciplinary Design, the paper is a theoretical contribution through an interdisciplinary net of references, to witness the accomplishment of design as an academic discipline while sketching its complex character in contemporary post-industrial societies. Far from reductionism, the research pursues a conception of knowledge as a non-hierarchical social construct, developed in an interactive collaborative process.

Keywords: Design Thinking, Research, Rhizome, Compossibility, Creativity, Interdisciplinarity.

1. Introduction

Design is changing its role in our contemporary society along the crisis of industry and the systems of production. At the same time, Design turns to be a critical activity looking for innovation for the management of processes and strategic scenarios. Contemporary products come to be the result of complex projects, involving a number of expertise, skills and fields, while paradigms of industry and mass production cannot anymore explain the complexity and the plurality of the experiences connected.

On another note, Design has expanded its territories of action and developed its methods to the point to constitute complex and cross-border fields while introducing a vast collection of objects, inventive projects, as well as highly specialized research. The transition from the old twentieth century "industrial design" to the contemporary "360 degree Design" has led to the multiplication and expansion of its fields of expertise. Design had to constantly innovate its tools and approaches in order to face every time a different scenario, in search of producing always new outputs on the line of innovation while redefining every time its tasks and boundaries.

These are new roles to discover, in-between material and immaterial factors, interaction and communication, service and product, experience and scenario vision, local and global, Design provides sense and direction to production, communication, interface, service, image, while reaching new challenges and playing new roles.

2. Science as Representation of Reality

When approaching to design as a scientific discipline, the matter of its method and objectivity is questioned. The deterministic concept of the scientific rigor and objectivity introduces the idea of the researcher acting as an external observer positioned outside of the environment and watching any phenomena from a standstill point of view. In addition, the possibility to repeat systematically the test in the same conditions substantiates the effectiveness of the results coming from any experiment. Then the job of the researcher is directed to funnel all the options and so becoming eminently selective. As a direct corollary, the discipline needs to trace a territory of research and to protect it from the outer distractions, which may pollute the scientificity of the results.

The outcome from an activity of observation is the representation of reality and there is no lack of examples where design research is adopting such approach. Albrecht Dürer nicely depicts in his ink drawings the action of the designer observing the reality from the outside, to develop a methodology for giving a systematic and objective representation of the perspective. The perspective itself should be considered quite a personal and singular experience, but the technique of its representation makes it an objective data, even anticipating the technology of photography. The invention of perspective will change completely not only the art of painting, including the tridimensional visuality in every art expression, which will follow up with the discovery of the landscape later on, but will also have a social significance while introducing a completely new visual culture affecting the way we observe our space.

The discovery of the perspective at the same time should be taken into account as the result of a real interdisciplinary methodology of research, in fact developing a new alliance between mathematics, geometry, architecture and design. Still the position of the researcher is out of the environment, watching from the outside its elements, but at the same time he takes a lateral position between the disciplinary fields of investigation, changing and adapting methodologies in order to explore new fields of intervention.

3. A Space of Compossibilities

The philosopher Gottfried Wilhelm von Leibniz, who lived between the 17th and the 18th century, introduced the philosophical category of the "compossibility": any individual can be described by its properties and characters, which at the same time entertain relations with other individuals. Such co-existence is not always easy and smooth, but may involve a number of conflicts and contradictions: nevertheless, they can generate an environment of compossibilities that is a space of individuals existing together while developing a number of configurations.

After Leibniz, also Alain Badiou borrowed the same concept for explaining the creation of heterogeneous truths (Badiou, 1989), and Gilles Deleuze used it in Cinema II to explain the problem of future contingents, also pointing to several mutually contradictory worlds (Deleuze, 1985). Design research is just able to draw such scenarios of compossibilities, through the creation of the new artificial worlds, which may affect the real life and the existence of people.

The project always has the power to conceive the small and the big changes in our society, through the modification of our environment and the creation of new artificial presences. These can be the vehicle of new contradictions and issues, which the project can still foresee in advance: it is the space of heterogeneous compossibilities that design has the chance to elaborate.

Out of the twentieth century big utopias encompassing an ideal global society, design research keeps an applied approach to give practical solutions while privileging the now and here, rather than an ideal tomorrow yet to come. Again, it is the space of the compossibilities, where to experience the management of a common good and a collective well-being through the experimentation of alternative forms of production, business, work, community.

While having the future and innovation as the horizon, the space of compossibilities is the field of design research, taking care of the scenarios of the new discoveries, and studying the interactions and consequences of its solutions.

4. Singing the Territory of Research

"There was hardly a rock or creek in the country that could not or had not been sung": Bruce Chatwin in his bestseller 'the songlines' tells about the nomadic travel of the aboriginals in Amazonia (Chatwin, 1986). As per his story, the songs are the knowledge and the memory of the space they cross, which at the same time is telling about their experience and perception of the territory, passed by oral tradition through generations.

When singing the territory, the aboriginal explorer is part of the environment himself, while on the contrary the map would establish an external presence mediating the experience. Furthermore, out of being objective, the singer takes a personal position in the exploration of the space, which can be slightly different every time according to the season or the weather, the animals he is encountering, the motion of the stars, and then he can add details to the song from his own experience. The aboriginal explorer is partial to the territory and is giving an active contribution to the development of the song, which become a collaborative project, so contributing and being the owner at the same time. The songlines become a collective research, where the experience of everyone counts in adapting the 'musical map' to the shifts of the space.

Unlike the scientist standing outside the reality that is observing, to give an objective representation, the designer is part of the environment itself and works with the elements he is encountering during his trip. While being attentive to the mutations in society and technology, design research is facing an ever changing landscape while adapting flexibly its tools and resources. Furthermore, design research privileges the interdisciplinary work in team, where there is no property of ideas and it becomes the catalyst for innovation. The designer takes a partial position and uses his own senses and acknowledge to wayfinding the best possible solution for the case, at the same time being aware that it is a choice which could be different according to the change of the references. He is singing the territory as his aboriginal relatives.

5. Design as Rhizomatic Research

Gilles Deleuze offers the concept of rhizome against the western arboreous structures of knowledge: the rhizome is a tuber, a horizontal creeping root that runs parallel to the soil. While the structure of the tree grows from the bottom upwards, through one or more central branch from which departs the ramifications, the rhizomatic design develops connections in every direction without any fixed path. Each element of the rhizome

can be connected with any other, while the tree has its parts always crossing in a given position. The rhizome does not contain points, but lines without a centre, whereas the arboreous structure is defined by points and positions.

Deleuze employs the metaphor of the rhizome to explain how knowledge and thinking may include multiplicity, connectivity and diversity in its practice: rhizomatic thinking proliferates in a decentralized and eccentric fashion, while being irreducible and free from any centre.

While involving creativity, design thinking is characterized by flexibility that consists in examining different solutions to a problem; by fluidity, in other words, the frequency and ease with which a number of ideas are produced; by the elaboration and the adjustment of an efficient strategy in the resolution of a problem, weighing and choosing the available opportunities. All of these procedures appear in the algorithms of scientific research, but they are not relevant only to it. Creativity, indeed, surpasses the boundaries of science and holds a privileged area in the artistic sphere: it is the fruit of intellectual ability and the basic traits of personality like aptitudes and interests and factors tied to temperament.

Gestalt psychologists consider the very nature of thought to be creative because it does not photograph reality, rather it gives an interpretation to it. To think means to make connections and combinations between given factors within a perceptive structure in such a way as to discover new relationships, useful in finding the solution to a problem.

The development of rhizomatic inventive paths highlights the possible connections between creativity and design. An object's design can be born from its multiple uses: from relocating an object, a material, a technology, while moving it into another universe and giving way to a *détournement*; from the suggestions of a form, a gesture, a material, whether it is traditional or smart. The quotations and the journeys can be as numerous as the number of designers. Nevertheless, what defines their 'creativity' is its growth and focus on a precise design method that obviously changes according to changes in society, in technology, in the economy, in the aesthetic sensibility, in imagination, in the means and forms of communication (De Bono, 1992). It is a different way of seeing the reality of the things, coming from the capacity and the desire to dream and conceive design worlds.

Design research is rhizomatic in the sense that privileges lateral and unforeseen connections, always taking a different angle of view after a sequential logic, which may descend from obvious considerations. Then it can be a fresh, significant, and exciting way of looking at our artificial world, while innovating it.

6. Blurring the Scales of the Project

The different scales which a project may focus, played an important role in the construction of the specializations of design, even building the academic model we have inherited through the years, as the result of a process of cutting the project (and the reality we experience everyday) into a hierarchy of magnitudes.

According to such order, the product designer shapes the small objects and artifacts of everyday life; the graphic designer draws the illustration or the commercial design of any two-dimensional layout; the furniture designer looks after the mobile articles to be fit in any built environment to live in; the interior designer is the one who sets the living spaces; then, the architect is the one who mold the inner spaces and the built environment; next will be the urbanist, collecting buildings into a wider organic layout and finally, again following an increment of scale, the landscape designer would be the one who is in charge to turn the built skyline into a harmonic scenario.

In the former cases, it does not seem to be the practice of design itself and the knowledge skills involved in the process of transformation, to establish the methodology and the tools to organize a discipline and a knowledge approach. Rather, it is the consideration on what is big and what is small, often even with the presumption that the first is more 'complex' than the latter – as if the project of a building would involve more features than a spoon, without mentioning the contemporary technological artifacts.

And, in fact, it is just the multiplication of contemporary artifacts, many of them including very complex technological or social characteristics, to imply the gathering of different scales together and the meeting of a large range of specialism. This is nowadays seriously undermining all the operational and epistemic borders we used to rely in Universities and Schools. Then, nowadays we may state that different disciplines are seamlessly blurring one into the other, and this can be confirmed even easier for Design knowledge.

Should a museum be considered a deposit for absolute conservation than a place to access to the communication of culture? Or furthermore, packaging should be considered as a product or communication design?

Along with the end of the "Grand Narratives" (Lyotard, 1979), as we're living an era of redefinition of the meaning of 'knowledge', we can state the collapsing of the categories, the scales, the fields: can we consider the project of a Nike shoe an industrial product, communication or fashion? Moreover, can we consider a website as a big or a small scale?

7. Imploding the Disciplines

As a result, along the overcoming of the new technologies in every sector, we can testify the implosion of the classic disciplines of design, which has an important consequence both in the approaches, as in the methodologies and knowledge itself: can we consider interaction design connected with urban studies, architecture, product or communication? And what about info-design? And moreover, can we consider communication just as a form of graphic design or as a directorial practice?

The boundaries are blurring also due to the collapse of the disciplinary concepts that once were the flagships of Architecture (such as the concept of 'scale'). The question already started to become critical when facing the huge mass production of the Ford T Model (just think about how this influenced not just the mobility of people, but the design of the built environment in North America, through its highways and shopping malls).

In opposition to another *idée fixe* of architecture and to the static notion of space, the liquefaction of the borders is also due to the rupture overwhelming of the category of time on the one of the space. This is finally imposing as a constitutive and leading parameter for the project while been required in every form of planning and process oriented design, strategic design and design management, but moreover for the bursting of service design, experience design and interaction design, as well as for the affirmation of participative design and sustainability.

The emergence of the process in design in every form has given the chance of opening its borders, not just in the hermeneutic or semantic sense, but also more factually in the everyday perspective as a profession and an academic discipline.

The organization of time becomes the main material to design: with the entrance of digitalization in every sector of production, it is not anymore the manipulation of the raw materials to be the main activity, furthermore the management of the relations between the different actors involved. The designer becomes a knowledge

worker who is dealing with signs and interfaces, but also the complexity of the organization and management of any process of transformation requiring creativity and vision. The action of designing itself is becoming indifferent to the shaping of the object to transform: form is still relevant, but it is just the crystallization of a number of activities coming together, where the designer assumes the role of facilitator for enabling the conversation between different disciplinary languages. Design becomes the science to make "tangible the intangible" connections between disciplines, rather than opening separations or including the differences.

8. A Discipline Out of Encyclopedia

While studying the birth of the discipline, Michel Foucault remarks how the encyclopaedic knowledge of the age of enlightenment had, as a result, the development of specialized practices through the classification of objective categories, in order to allow the division of the knowledge: "the disciplines characterize, classify, specialize, allocate along a scale, divide around a norm, hierarchize and, ultimately, disqualify and invalidate" (Foucault, 1975). As a result, the disciplines coming with the modern societies take on the task of stabilizing the blurring shapes into clear and tidy geometries, normalizing the multiplicities, classifying the diversities, containing the change. The outcome is the catalogued and cataloguing space of knowledge, able to measure the differences and to map an increasingly mobile reality.

While connecting reason and imagination out of any "hard" and "pure" disciplinary border, design is undisciplined while looking outside itself and developing a hybrid way to investigate at reality. This is due to its proper nature of being ceaselessly "in-between", dealing with knowledge and techniques from other disciplines, taking them into everyday life and translating into scenarios, communication, real and virtual artifacts, rather than elaborating its own principles (Imbesi, 2009, 2010).

Design always had the power to build relations with technology, materials, but also innovation, social practices and therefore its cultural evidence: then its complexity constantly implied a spread net of theoretical and methodological contaminations flanking design thinking through time. If innovation has to face the unknown, often hybridizing different factors and making connections which seem unlikely, design challenges the disciplines opening structures and blurring the recognized borders of knowledge, often falling beyond the conventions.

Design develops a structurally open field, which is at the same time flexible and has no fixed rules or inner need to be defined too rigidly in its various divisions. While contaminating skills and practicing cross-fertilization, Design displays a large capability through creativity to allow the perception of diverse and unexpected connections of ideas. In addition, similar to the methodology of the science programs, the proper way design operates is interdisciplinary and is out of the strict logic of the fields, playing out that "thinking differently" from which innovation occurs. Then, Design becomes a boundary or border field without a given character: if this can imply some lacking of recognizability or identity, at the same time its flexibility empowers to face the challenges of the new condition of life, while developing every time new tools.

9. Conclusions: Walking on the Rhizome

Here comes the need to analyze and map the change that contemporary post-industrial societies are bringing into the creative professions, while developing new tools to understand the cognitive products which come to be more immaterial, informational and virtual. Design research is challenging the disciplinary fields to understand the hybrid knowledge which is growing "in-between". Strategic design, service design, experience design, design orienting scenarios, brand design, design for social innovation, urban design, stage design, design for sustainability, critical design, interaction design, sound design, game design, packaging design, biodesign, public design, food design, are just few of the new hybrid areas coming from the merging of design into other fields of enquiry (such as anthropology of techniques, sociology of science, economy, marketing, socio-semiotic, cultural studies, knowledge economy, cybernetics, cognitive sciences, and so on)

Any young designer cannot anymore aim just to being a designer, moreover she/he has to take a position in the new markets of labour and to understand the interdisciplinary profile she/he may develop for her/his own career.

Here comes the need to investigate the specializations which are multiplying in Design and which are increasingly more sophisticated and contextual, blurring one each other without close and rigid divisions. Understanding the new creative professions means looking into the plurality of languages and methodologies, which interact and make the design field even more pervasive and articulated. It is a rhizomatic exploration of a disseminated net of theoretical and methodological contaminations, which Design is experimenting, so implying the development of new professions to be considered in detail in their approaches, methodologies, tools.

10. References

- Bell, D. (1973) The Coming of Post-Industrial Society: A Venture in Social Forecasting. New York: Basic Books.
- [2] Badiou, A. (1989) Manifeste pour la philosophie. Paris: éd. Seuil.
- [3] Castells, M. (1996) *The Information Age: Economy, Society and Culture. Vol I, The Rise of the Network Society.* Oxford: Blackwell.
- [4] Chatwin, B. (1986) The Songlines. London: Penguin
- [5] De Bono, E. (1992) Serious Creativity. Using the Power of Lateral Thinking to Create New Ideas. Des Moines: The McQuaig Group Inc.
- [6] Deleuze, G. (1985) Cinema 2. L'image Temps. Paris: Les Editions de Minuit.
- [7] Deleuze, G. Guattari, F. (1980) *Mille Plateaux. Volume 2 of Capitalisme et Schisophrénie*. Paris: Les Editions de Minuit.
- [8] Foucault, M. (1966) Les Mots et les Choses. Une archéologie des sciences humaines. Paris: éditions Gallimard.
- [9] Foucault, M. (1969) L'Archéologie du savoir. Paris: éditions Gallimard.
- [10] Foucault, M. (1970) The order of things. New York: Pantheon Books.
- [11] Foucault, M. (1975) Surveiller et Punir. Naissance de la Prison. Paris: Gallimard.
- [12] Florida, R. (2003) The rise of the creative class: and how it's transforming work, leisure, community and everyday life. New York: Basic Books.
- [13] Gilmore, J. H. Pine, B. J. (1999) The Experience Economy: Work Is Theater & Every Business a Stage. Boston: Harvard Business Press.
- [14] Gorz, A. (2003) L'immatériel: connaissance, valeur et capital. Paris: Editions Galileé.

- [15] Imbesi, L. (2010) No More Lonely Heroes. From the culture of project to spread Creativity. In: VV-AA. (eds.), *Designer: careers and professionalization*. Bruxelles: De Boeck.
- [16] Imbesi, L. (2010) Hybrid in Design. Design as a Cultural and Collective Process. In: Borderline pushing design over the limit, Conference Proceedings of Cumulus Genk Conference. Katholieke Hogeschool Limburg, Media & Design Academie.
- [17] Imbesi, L. (2009) Design_Studies: Design in-between Theories and Project. In: Design Education 2050, Icsid Design Education Conference Singapore 2009, Section Future Epistemology. Temasek Polytechnic, Singapore.
- [18] Imbesi, L. DESIGN POWER. (2008) Design cognitariat at work in the organization of the knowledge capital. In: Design Thinking: New Challenges for Designers, Managers and Organizations, Conference Proceedings of the International DMI Education Conference. ESSEC Business School, Cergy-Pontoise, Paris.
- [19] Lyotard, J.-F. (1984) The Postmodern Condition: A Report on Knowledge. Minneapolis: Univ. Of Minnesota Press.
- [20] Rullani, E. (2004) La fabbrica dell'immateriale. Produrre valore con la conoscenza. (The Factory of the Immaterial. Producing Value through Knowledge). Roma: Carocci.
- [21] Touraine, A. (1969) La société post-industrielle. Naissance d'une société. Paris: Denoël-Gonthier.