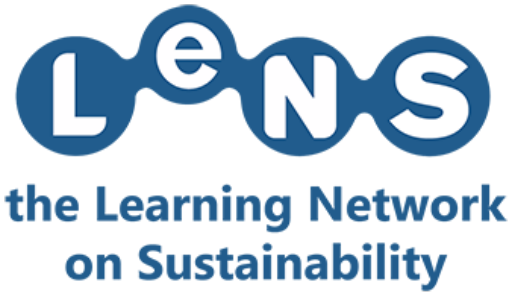

A DIFFERENT DEFINITION OF GENERATIVE DESIGN

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ABSTRACT

There are different definitions of "generative design", but this research is focused on the role of generative design to support and provoke creative thinking; it means, as a developer of a common language that everyone can use to express their ideas —"everyone" includes all social stakeholders, even whom Ezio Manzini calls "diffuse agents" or those who experience the problem and for this reason become a fundamental source for the creation of possible solutions.

An important fact to consider is: creativity does not happen inside a person's head but in the interaction between a person's thoughts and a socio-cultural context (Csikszentmihalyi, 1996); as Sanders (2001) has stated collective creativity can be very powerful and can lead to more culturally relevant results than individual creativity does.

Here relies the importance of studying this perspective as an important piece of sustainable development, which "embodies integration, and understanding and acting on the complex interconnections that exist between the environment, economy, and society " (Drexhage & Murphy, 2010).

Key Words: Social innovation, design research, generative capacity, creative thinking.

1. INTRODUCTION

There are different definitions of "generative design", but this research is focused on the role of generative design to support and provoke creative thinking; it means, as a developer of a common language that everyone can use to express their ideas —"everyone" includes all social stakeholders, even whom Ezio Manzini calls "diffuse agents" or those who experience the problem and for this reason become a fundamental source for the creation of possible solutions.

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The proposed approach take advantage of creative and innovative ideas that come from the most unexpected quarters: Insights emerged from common people. This shift demands a need (for designers) to nourish our "expert" mindset with "participatory" skills.

A previous advance of this research topic has been presented last year in Barcelona through the paper Generative Design as a Tool for Social Innovation: A Methodological Approach developed by Cruz, A., & Cortés, E. (ICDHS, 2018). The contribution of this paper is to explore experiences in order to open the discussion about important elements for facing systemwide projects, because as Findeli has stated design far from being responsible for solving linear problems, is responsible of proposing alternative systems to the existing ones. Remarking as one of the most relevant elements: generative design, applied to the creation and modification of rules or systems that interact to generate the finished design autonomously. The difference of designing this mood relies on mastering the relation between process specification, environments, and generated solutions.

2. DEFINING GENERATIVE DESIGN

"Generative design" from a theoretical-methodological point of view is a proposal that starts from the morphological processes in design as a fundamental unit of study, which usually is synthesized in a set of detailed instructions to determine the design shape and ends at unpredictable results (Casonato, 2012), depending on the context results can be:

1). a morphogenetic process that uses structured algorithms as non-linear systems that seek endless, unique and unrepeatable results generated by a code as in nature (Soddu, 1994 in Agkathidis, 2015), or

2). a process of design driven by geometry.

However, a totally different concept of generative design, defines it as a source that enables the collective, inclusive and horizontal creation - a "rhizomatic" approach (Deleuze and Guattari, 1980)—. This perspective include all the stakeholders involved at development of artifacts and interactions, in order to support or improve their ability to "generate.

Professional design practice today involves advanced knowledge. This knowledge is not solely a higher level of professional practice. It is also a qualitatively different form of professional practice that emerges in response to the demands of the information society and the knowledge economy to which it gives rise (Manzini, 2015), and also given the possibilities that the latter open. We are experiencing a constantly changing situation, therefore we cannot understand knowledge as a body of "finished knowledge". This would result unproductive; we need ductile and adaptable knowledge, nomad or rhizomatic[1], but above all cumulative[2], nowadays knowledge should be built from a number of interwined processes and stakeholders.

3. GENERATE = CREATE

Design is not just about visualization and the application of individual creativity anymore. The problems that designers are being invited to help identify and solve cannot be addressed by individuals, no matter how smart or creative they are, the situation so far is too complex. We face significant challenges since the problems are wicked and the new landscapes and boundaries of design are fuzzy. But we can address the challenges of wicked problems and fuzzy pathways through collective forms of creativity and generative design thinking (Sanders, 2012).

It turns out that creativity is not some rare gift to be enjoyed by the lucky few—it is a natural part of human thinking and behavior (Kelley, 2013), generative design approach works on how to encourage this human ability among system stakeholders, using skills and tools.

The importance of creativity for generative design is essential. We need to help people rediscover and boost what they already have: the capacity to imagine—or build upon—new-to-the-world ideas. But the real value of

1 Deleuze and Guattari use the terms "rhizome" and "rhizomatic" to describe theory and research that allows for multiple, non-hierarchical entry and exit points in data representation and interpretation.

2 Increasing or growing by accumulation or successive additions.

creativity doesn't emerge until you are brave enough to act on those ideas. That combination of thought and action defines creative confidence: the ability to come up with new ideas and the courage to try them out (Kelley, 2013).

An example of this creative confidence can be seen in grassroots innovations which involve improvements on traditional practices, resources or skills, and traditional ways of knowing and experimenting.

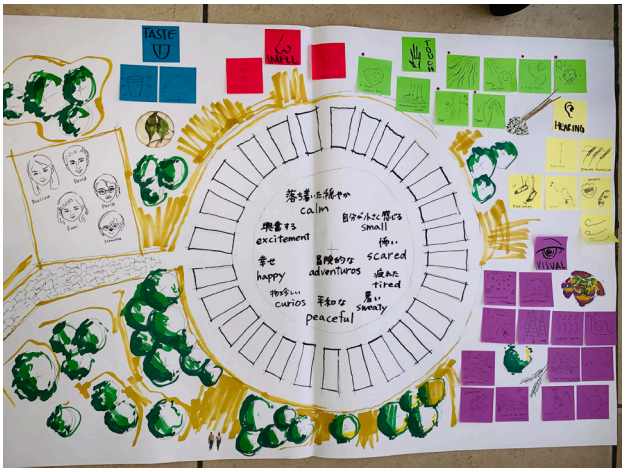
Due the complexity of the faced problems, multi, inter (Manzini, 2015) and non-disciplinary teams are required (Diseño Detonante, 2018): we need people enabled with skills for crossing boundaries[3], it is not only important to empower professionals, but the entire social body to work, listen and learn from each other while considering alternative scenarios as design tasks (Manzini, 2003).

Lined up as a result, and given the urgent need to conform specific forms of design understood as a know-how, participating in the complex chain of social innovation process.

3.1. Tools for Creation

For generative design is suggested that tools have to be shaped cooperatively, the exchange of ideas, instruction, experience and sometimes scolding for not listening carefully must have become imperative. Gestures, sounds and, slowly, words began to be formed. Sharing one's learning with others is done not just through oral or textual language but also artistically. Feelings became art. When feelings had to be understood even without explicit articulation, one needed to develop intuition (Gupta, 2016).

Through the use of transdiscipline[4], tools have been developed, an example are tools used by Raumstrategien (Spacial strategies) a German Master of Arts- programme that emerged from the vision of an artistic and urban design practice that acts on city space and explicitly promotes interdisciplinarity. One of these tools is senses mapping [Figure 1], a tool that combines observation, field immersion, sensory ethnography and graphic thinking, the aim of this tool is to develop intuition and capture a holistic view for first stages of field research.



[Figure 1] Senses mapping. Developed at PULI 002 project workshop. 2018

An insight— related to this topic— to remark is that analogue tools are more efficient at collective projects, because there is no need of a previous technological training, nevertheless, this does not eliminate the support of the latter, since they can be more rigorous and may strengthen the process from designers role.

We must imagine how we might create highly flexible, constantly evolving systems in which any exchange between participants is an opportunity for empathy, insight, innovation, and implementation. Every interaction is a small opportunity to make that exchange more valuable and meaningful for all participants (Brown, 2009) and, therefore, an iteration towards collective improvement.

Empathy or, the feeling that you understand and share another person's experiences and emotions, has become one of the top must-have soft skills for success in workplaces. Although contrary to the traditional competitive environment that has been the culture of many workplaces, empathy is unarguably necessary to create teamwork and collaboration. Empathetic people are more likely keep an open mind to others' ideas. As a consequence, empathetic leaders will also ignite creativity and innovation.

It is important to emphasize that deep empathy in the context of the design attitude is not simply a tool, an off-the-shelf methodology or a quick-fix consumer observation. It is a deeply held belief and an embedded practice that runs through the core of how projects are carried out and how decisions are made (Michelewski, 2016), empathy stands at the basis of collaboration.

3.2. Collaboration

Collaboration is a system of beliefs embedded into the culture, the minds, the tools of a (design) team to yield better work more effectively (Brown, 2013). Multiple perspectives will obviously offer several possibilities to enhance any process.

3 Related to sharing the global knowledge and the global responsability (Swäbisch Gmünd, Cumulus working papers, 2007).

4 Transdisciplinarity connotes a research strategy that crosses many disciplinary boundaries to create a holistic approach. It applies to research efforts focused on problems that cross the boundaries of two or more disciplines.

In different parts of the world, despite the efforts made to exclude certain sections of society from access to collective pool of knowledge, there has been a tradition to share knowledge openly (Gupta, 2016). Actually, there is an increasing interest of people to (re)discover the power of collaboration to augment their capabilities, and how this (re)discovery gives rise to new forms of organization and new artifacts on which they base enabling solutions (Manzini, 2015).

Nowadays grassroots organizations are becoming more open and flexible, consisting of differently motivated people: they are evolving into collaborative organizations. Larger groups of people are thus being asked to cultivate their design capacity, and becoming more competent in doing it. That is, they are adopting a design mode that can be defined as diffuse and competent design (Gupta, 2016). In fact they are not only proposing unprecedented solutions to complex problems, but are also generating new ideas (new ideas of time, place, relationships, and work) that are the cultural dimension of the actions they have taken to live and produce in more a sustainable way (Manzini, 2015).

An interesting concept aligned with these transformations is collective intelligence, which can be understood as a group of cognitive attributes that are shared by a collectivity and that allow to diminish uncertainty towards a problem or respond to the need of innovation through a series of practices.

According to Levy (1999), collective intelligence :

c). is distributed everywhere so it is not exclusive of one particular type of knowledge or sector;

d). is valued constantly so ignorance or contempt of other knowledge requires constant recognition and appropriation;

e). is coordinated in real time which implies constant adjustments of communication supported by all kinds of technologies, allowing collectivities and individuals to coordinate interactions; and

f). allows effective mobilization of competences on each of its members recognizing them on its widest diversity.

This is relevant as it emphasizes collaboration to benefit and empower the collectivity rather than individuals.

Empowerment is defined as where people, organizations and communities have control over their affairs (Rapoport, 1987), one of its attributes to take into account is that communities seeking to empower themselves can build active citizen participation by welcoming it, creating valuable roles for each person to play, actively reaching out to build inclusive participation, and creating and supporting meaningful volunteer opportunities (Sanoff, 2006).

4. CONCLUSIONS

Society becomes a laboratory and a communitarian organization that testifies in favor of vernacular culture linked to the present and to its constant transformation where ideas and practices emerge as knowledge; this represents the inclusion of daily ways of doing and thinking to design ideation.

Recognizing generative design means its democratization, since it also recognizes daily and empirical practices through which people give their own meaning to the world, to things, ideas and actions that are found far from a passive consumption, and that prefigure the recognition of knowledge that exceeds disciplinar conception.

The design has opened gaps, and has become a shared informed language among stakeholders involved in projects to develop. For the latter, we must use the joint generative capacity, in order to build and push beyond these languages in common, to increase ownership, cultivate empathy and exterminate indifference among communities.

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