The use of intuition during scenario building activities in design projects

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Abstract: This paper presents the results of a master’s thesis that aimed to provide a better understanding of the use of intuition during scenario building activities. The research assumes that design projects can be considered a process of knowledge creation. A special kind of knowledge refers to scenario building activities, which can be characterized as a space for strategic conversations. Protocols have been conducted to analyze collected data during scenario building activities. After the collection process, data was analyzed through linkographics, in which the use of intuition was identified in design moves. The results show that the use of intuition in scenario building relates to the ability of the designers to transform their procedures in immediate and experimental ways, emerging through associative and holistic connections. Intuition, therefore, is perceived as a project resource, a source of information used in approaching the unknown.

Keywords: Intuition, Scenario Building, Strategic Design, Linkography

1. Introduction

Design is an activity inherent to the human being. Therefore, design thinking is part of human cognition and does not require special skill (Cross, 2011). Simon (1981) characterized the nature of design as any action related to transforming an existing and problematic situation into a desired and satisfactory situation. According to Cross (2011), a design project goes beyond the search for solutions to a problem – actually, this is the starting point in an exploratory journey.

Throughout the project, the designer uses different forms of knowledge. In the category of individual knowledge is knowledge stemming from the designer’s experiences, as well as knowledge that is acquired through practice. However, they might also be considered as knowledge that becomes embedded in the design itself. According to Polanyi (1966, p. 82), the tacit knowledge gained through experience is ”[...] spontaneous, intuitive, experimental.” Intuition is therefore an important factor, both in the construction of tacit knowledge, as well as in the practice of Design.
This paper discusses how intuition works in the scenario building phases of the design process. During the design process, an action characterized as intuitive deals with the immediate, and the use of intuition involves discoveries and the creation of unexpected connections. However, it is important to highlight that intuition does not oppose reason. Moreover, reasoning and intuition are complementary cognitive processes.

The increasing development of research related to intuitive processes in other areas of knowledge proves the importance of expanding research about the use of intuition during the design process. For instance, business researchers understand that by using only logic, it is not possible to face uncertainty and information overload. According to Schultz (1999), without forgetting logic and reason, business administrators have to resort to a single quality that is able to face uncertainty: intuition. Thus, an intuitive structure of thinking becomes essential to keeping administrators within the flow of change. Through attempting to seek a theoretical approach to explain the occurrence of the use of the designer’s intuitions, Badke-Schaub and Eris (2014) point out that historically, design methodology was developed as a response to intuitive approaches, and that intuition usually involves the use of arbitrary choices. However, empirical studies conducted in recent years have suggested that designers use different strategies that go beyond structured methods, in order to achieve and develop new ideas and solutions. Dorst (1997) says that design is able to build models and methods, even though its activity can be rational and intuitive, abstract and concrete, analytic and creative. Design methodologies, however, seems typically to ignore intuition, as being an elementary part of designers’ thinking and acting.

To favour the use of intuition, and in order to allow designers to have more confidence in their intuitive processes and in their own way of thinking, it is essential to have a better understanding of intuition during the design process. According to Dorst (2003), to expand the rational model of design problem solving, a better understanding, and a more accurate concept of the design activity is necessary. Therefore, design methodology should adopt a more subjective approach, beginning from the paradigm of reflective practice (e.g. Schön 2000).

2. Intuition and Design

The present research sought to investigate the use of intuition in the design process, particularly during scenario-building activities. Scenarios are understood as spaces of conversation in which future worlds are built. Scenarios had their origins in strategic planning (Van Der Heidjen, 2009), but were later adopted in ways that were more oriented to design (Manzini, Jégou, 2003).

The project is based on Bergson’s (1984) study, which suggests that to think intuitively is to think long term. Unlike understanding, that is considered static for Bergson, change is the essence of intuition, which is determined by mobility, the unusual, and the ephemeral. Intuition means immediate consciousness, a vision that is almost indistinguishable from the object seen.

“Firstly, it means conscious, but an immediate consciousness, a direct vision that differs only slightly from an observed object, a recognition that it is both tangible and contemporary […] Moreover, it is a higher consciousness that temporarily exceeds barriers of the sub-conscious and that allows us to share the sub-conscious in quick succession of recurrent lighting and darkness.” (Bergson, 1984, p. 44)

Therefore, intuition is defined as reconciliation with the immediate. Deleuze, by interpreting Bergson, highlights that it is:
The use of intuition during scenario building activities in design projects

“[...] the movement by which we leave our own time, the movement by which we serve in our duration to affirm and immediately recognize the existence of other durations above or below us.” (Deleuze, 1999, p. 23)

Bergson restricted rational thought to the ability to offer new decisions, while intuitive thinking, by contrast, is not created from known components, but from different points of view, which are complementary and not necessarily equivalent (Bergson, 1984 p.46). In connection with this perspective, Bergson pointed out the importance of holistic thinking and a wide perceptive capacity of the creative process.

Design is increasingly surrounded by complex and uncertain situations. The current context, characterized by the instability of events, enhances the search for transforming the unknown into something tangible. Therefore, more holistic strategic attitudes and thoughts are required, as opposed to ones that are mechanical and fragmented. For this reason, it is necessary to understand how design decisions are being made and to examine their intuitive elements.

Inside an organizational environment, design attempts to reduce the uncertainty and to limit the unknown, through reasoning schemes and approaches that simplify the different dimensions of reality. Thus, the complexity of the environment in which it is inserted is sometimes ignored and therefore, many ideas and issues are never formulated.

As previously mentioned, it is assumed that a better understanding of the role of intuition during the design process can enable the development of methods and strategies, which can favour intuition’s use. As Zurlo (2010) writes, designers are able to interpret complexity, capturing structures of meaning, indicating paths and making them visible. The translation of these signs are extremely useful for the development of organizational strategies, which are supposed to be associated with design’s intuitive dimension - to influence the decision making process and to generate new ideas.

Scenario building activity can be a way to translate these signals. The scenarios are built through the qualitative reading of the signs of contemporaneity, which may be capable of shaping the future (Manzini, Jégou, 2003). According to the strategic planning view, the scenarios are able to assist organizations during the decision making process, which can be considered a form of control during unknown situations. Thus, the scenario building activity can be considered a strategic conversation (Van der Heidjen, 2009). Moreover, this conversation is directly influenced by the way people view the world and is able to provide the expansion of the mental models that lead to different discoveries.

Scenarios can also be used to represent visually some design intent (Cautela, 2007; Celaschi; Deserti, 2007; Manzini, Jégou, 2003; Zurlo, 2010). For Meroni (2008), scenarios are visual narratives and shareable visions, that translate information and intuitions into perceptible knowledge. According to this perspective, scenarios are projected, and this act can be confused with "projecting" itself. Scenarios are spaces where the various actors will “act” in the construction of something desired that modifies the existing situation. Actors are not external "beings": they interact with the scenarios and are modified by that interaction. It is therefore possible to understand the scenario building activity in a design project as a way of creating knowledge. Thus, one of the major challenges of the research presented here was to seek a greater understanding of the various uses of intuition by the designer during the construction of scenarios.

S4577
3. Method

The design process is able to encompass different cognitive capacities such as creativity and the ability to synthesize and solve problems. Its activities assume a situational character, which makes it difficult to obtain definitive answers in relation to the investigated phenomenon. Thus, this exploratory research uses protocol analysis (e.g. Krippendorff 1980) as the main methodological resource.

Cross, Christiaans and Dorst (1996) consider protocol analysis one of the main methods of analysis used by design researchers to obtain information regarding the cognitive behavior of designers during the design process. This research used in a complementary way the retrospective and simultaneous protocol. In the retrospective protocol, the participants were invited to recall their activities in order to reveal information about the production of ideas and their decision making process. The simultaneous protocol sought to track the process of understanding the problem and defining the project. By means of the thinkaloud technique (Ericsson; Simon, 1993) the participants verbalized their thoughts, simultaneously, with their execution of the task. The records of the two protocols were coded and analyzed later using linkographics (Goldschmidt, 2014).

The process of creating a linkography is based on identifying design moves and their relationships – links. A design move is any kind of action, it can be a speech or a certain attitude of the designer, that can modify a given design situation. Considering the time elapsed between one movement and another, as well as the possible links created between them, one can identify the use of the intuition of the designer in certain instants.

For the data collection, the scenario building activity was divided into two major stages. The selected participants should identify and design a future scenario, answering a particular design problem. Thus, a comprehensive and complex theme was proposed, in which participants should identify and design the future of school education for children and young people. Professional designers and designers in the process of academic formation were selected; they were organized in pairs, with each pair having different levels of experience.

The first phase of the proposed activity concerned the identification of driving forces, forces that can guide the projection of future scenarios. The standard way of representing forces is by means of difference poles. However, we opted for the prototyping of the driving forces, using a model developed for the purpose of representing three-dimensional conversations. This research was the first to use the model to build scenarios, being a process of discovery for both the designers and the researchers involved in the project. The model used is the result of a research between the The Design School of University of Vale do Rio dos Sinos and Institute of Design of Illinois Institute of Technology. The physical model consists of a set of transparent sheets - squares, rectangles and triangles - made of acrylic and with different colours. The sheets have magnets on their edges, which allow them to be connected to each other. It is believed that the interaction between the different actors with this model can help to generate new interpretations during the conversations. Figure 1 presents the result of this research phase, with two prototypes of future driving forces.
The second step referred to the physical representation of the future scenario. In this way, various materials were available, such as paperboard, styrofoam, pens, papers, dough, business origami, layouts for the development of storytelling and people. Generally, scenarios are represented by moodboards. However, it is emphasized that participants were asked to not use what is usual in scenario building activities, in the hopes that the novelty of the process would encourage the use of intuition. At the end of the representation stage, the participants presented the future scenario and also reported the process of how they arrived at the proposed representation. The video resulting from these two steps was segmented and analyzed through by two linkographics; the main results are described below.

4. Analysis

Intuition was analyzed in relation to three different aspects of scenario building: participants’ levels of expertise, moments of decision making and moments of idea generation. In order to analyze specifically the processes of idea generation and the decision making process, these moments were identified in the design moves, and later analyzed in relation to the links found, as detailed in figure 2.
When analyzing the use of intuition for the construction of scenarios, it was initially realized that this activity could be a facilitating space for the explication of personal knowledge. This fact is attributed to scenario building activity as a space for strategic conversation (Meroni, 2008). This space for conversation has a collaborative nature, in which it becomes necessary for the participants to explain their personal knowledge. It should be emphasized that in this research, the conversion of personal knowledge into explicit knowledge took place in both the generation of ideas and in the decision making moves. However, as observed through the analysis of the collected data, the use of analogies, metaphors and the sharing of previous histories and experiences were strategies most used by participants with less professional experience, as a way of justifying their actions.

The transformation of personal knowledge into explicit knowledge can be considered a way of expressing what is not usually communicated; in this context, the use of methods and tools that provide a space for conversation becomes relevant and essential in terms of facilitation, accessibility and sharing. In relation to the use of instruments that facilitate the process of scenario construction, it was noticed that the model available for the identification of the driving forces, through the creation of physical, three-dimensional representations, enabled the perception of new connections between concepts. The model becomes a support for intuition since it allows a new form of perception, which is immediate and collaborative. The three-dimensional aspect itself allows interpretations, in addition to being shared and created in a collaborative way, to be interpreted, as a result of the process of displacement of the participant’s field of vision, allowing a new form of understanding. Therefore, it is not just a question of "putting oneself in another's place", but of "seeing with the eyes of the other." The use of the model directly influenced the process of idea generation and decision making, as a means to allow the connection of concepts that were being identified in isolation, thus generating new interpretations about the project.

New connections and interpretations are consequences not only of the use of the model, but also of a holistic view of the situation, which can be associated with the use of intuition. Bergson (1984)
attributed the holistic view to the use of intuition. Moreover, the author emphasized the importance of the holistic vision and the broader perceptual capacity for the creative process. Due to the projection in time during the scenario building activity, the holistic view becomes necessary, since it is essential to perceive new connections.

Within the context of this project, the most intuitive participants played the role of "project leader", regardless of their level of expertise. Moreover, these participants conducted the progress of the project in order to both direct and encourage the actions of the other participant. Therefore, the attributes associated with the use of intuition can be understood in relation to the use and adaptation of past experiences to current situations, the use of the holistic vision enabling new perceptions and interpretations, the search for the new and the ability to enter into a given situation and seize it immediately.

5. Final Considerations

The design process can be considered a process of knowledge creation, in which knowledge is personal and reflects the individual's own experience. Personal experience, then, is a conditioning factor for the construction of knowledge (Polanyi, 1966). Design, by its creative nature, enables the designer to reflect reflexively with the materials of a situation, providing new discoveries, meanings, inventions (Schön, 2000). Building scenarios can be a way of reflection as it becomes possible to project oneself over time and use intuition as a way to create future memories to reflect on the development of the design process.

Through the design moves identified in the linkographics, it is perceived that the designer uses intuition throughout the entire project, and it is impossible to dissociate it from personal experience and the process of knowledge construction. Intuition is intrinsic to the individual and its analysis must start from the same. Therefore, the use of intuition is perceived as a resource of design, a source of information in the face of the unknown.

Instruments that facilitate interpretation and understanding from the point of view of the other, such as the physical model provided, help the scenario building activity. Therefore, the process becomes more collaborative. The model, besides triggering the use of intuition can be a complement to it. The model allows participants to shift their field of vision towards different interpretations, which are shared and co-created.

This research did not exhaust the themes developed; instead, it allows the emergence of new questions to be explored. New research related to the use of designer intuition can be developed from the premise that the designer is able to present different levels of expertise during the design process. Future research will also include a wider study of different design tools capable of triggering the use of intuition, like the model used here.
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