Design Absorption And Learning Processes: a study on designers’ perceptions about companies.

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Abstract: Design is a highly complex and sophisticated skill that must be learned (Lawson, 2005) and absorbed. Although most people define learning too narrowly, merely as a tool for “problem solving”, it can also be a double loop process, which forces managers and employees to look inward (Argyris, 1991) to make design go beyond learning. Few studies have developed theoretical background on how companies learn and absorb new knowledge. In this paper, our objectives are to understand how designers see the company’s absorption capacities, and to identify the interaction between the company and the external team. By adopting a qualitative approach (Gibbs, 2009), three designers in charge of projects in companies with no prior design experience were interviewed. Data were categorized (Bardin, 1977) and results showed Designers see companies’ absorption capacities as a challenge and we can affirm that companies still look for design when they have financial return on their first investment.

Keywords: Design Management, Learning Organizations, Design Absorption, Design Knowledge, Design Strategies

1. Introduction

Design is a highly complex and sophisticated skill that must be learned (Lawson, 2005) and absorbed. Although most people define learning too narrowly, merely as a tool for "problem solving", it can also be a double loop process, which forces managers and employees to look inward (Argyris, 1991) to make design go beyond learning. Wolff, Capra, Dutra & Borja de Mozota (2016), proposed that design management results could generate design double loop learning. In this context, the results would come from a process where absorption and, therefore, maturity, could modify design assumptions. In this model, learning and absorption have an important role. Even so, few studies have developed theoretical background on how companies learn and absorb new knowledge.

Acklin (2013) studied companies with little or no prior design experience and found that the adoption of design and design management is an active learning process. Based on Acklin’s results...
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(Acklin, 2010, 2011, 2013a) this study aims to analyze how designers perceive the learning process in companies where they acted as external designers.

Our objectives are: (i) to understand how designers see the company's absorption capacities, and (ii) to identify the interaction between the company and the external team. By adopting a qualitative approach (Gibbs, 2009), three designers in charge of projects in companies with no prior design experience were interviewed. Data were categorized (Bardin, 1977) and provided understanding on how design was introduced in the company and what was learned and absorbed from that. After the theoretical background, we present the results and discussion providing insights on how this relation can benefit the company, if designers can actually transfer their knowledge and abilities to the companies helping them to use design on their own (after the first design experience) or if the need for an external design firm will be permanent.

2. Theoretical Background

2.1 Organizational Learning Process

According to Argyris (1977) organization learning is a process of detection and correction of errors. In this context, organizational learning happens when the organization has the ability to create, acquire and transfer knowledge, especially if their standard behavior can be changed to reflect new knowledge (Garvin, 1993). The learning process in an organization involves the creation of new cognitive maps to facilitate comprehension about the internal and external company’s environment. It is also the definition of new behaviors that proves the effectiveness of learning (Fleury & Fleury, 2001). Although organizations themselves don’t have a brain, they have cognitive systems, memory and, most important, routines, which are standard procedures to deal with internal and external problems. These routines are easily incorporated in the organizations’ memory, sometimes unconsciously. The learning process seems to have taken place when processes change, new behaviors are adopted and employees are able to recover knowledge (Fleury & Fleury, 2001). Based on a theoretical review on organizational learning, Antonello (2005) identified six focuses or emphases that address the theme: socialization of individual learning, process-system, culture, knowledge management, continuous improvement and innovation, which are drawn from a broader perspective of the notion of change. Knowledge management is intertwined in learning processes in organizations and tied with three processes: acquisition and development of knowledge, dissemination and construction of memories, collective processes for the elaboration of the necessary competences to the organization (Fleury & Fleury, 2001). Therefore, learning organizations are the ones that take hold of skills to create, acquire and transfer knowledge, that are able to modify their behavior in order to reflect new knowledge in ideas (Garvin, 1993).

2.2 Absorption Capacities in Design

Acknowledging the value of new external information, assimilating it and, using it commercially in a strategic way based on innovation is what researchers understand as absorption capacities (Acklin, 2010, 2011, 2013b, Cohen & Levinthal, 1989, 1990; Lane, Koka, & Pathak, 2006; Zahra & George, 2002). In this sense, the company’s absorption capacity is based on their employees capability, which underscore the idea that we need to know which aspects are clearly organizational when it comes to absorption (Cohen & Levinthal, 1990). Two levels of absorption are acceptable (Acklin, 2011; Cohen...
Design Absorption and Learning Processes: a study on designers’ perceptions about companies. & Levinthal, 1990; Jones, 2006; Zahra & George, 2002). The first is the Potential Absorptive Capacity (PACAP), which is the ability to acquire and assimilate knowledge. The second level is the Realized Absorptive Capacity (RACAP), which involves the ability to transform and exploit new knowledge. It is not only about acquiring or assimilating information, the company needs to have the capacity to explore it. Besides the environment interaction, the absorption capacity depends on knowledge transfer from a company to its teams (Cohen & Levinthal, 1990).

The adoption of design and design management by companies with little or no prior design experience is an active learning process, because their knowledge is not sufficient to build and understand design and design management values (Acklin, 2011). Based on design knowledge, Acklin (2013) explores four moments of absorption capacity: acquisition, assimilation, transformation and exploration. Acquisition consists of recognizing the value of design and identifying its specific contribution to the starting point of the company. The initial activities of this stage involve learning about the added-value of the project, gathering different knowledge sources, concentrating them, and analyzing the current use of design in the company and understanding where it fits. Assimilation implies a deeper commitment to new design knowledge, linking it to engineering and marketing processes and projects through the recognition of working with complementary sources of design knowledge. During transformation, new design knowledge has to be effectively deployed to improve offers such as products, brands, services, communication, experiences, or efficiently for manufacturing or innovation processes. Exploration involves the implementation of design knowledge throughout the company through integration in relevant processes, coordinating functions, aligning fundamental values, and training the personnel and by delivering a consistent customer experience at all points of contact.

3 Research Design

To achieve the objectives of this paper a qualitative, traverse research was structured, and convenience sampling was used (Malhotra & Birks, 2006) in southern Brazil. A qualitative approach is recommended when looking for the perspective of participants on a given issue (Sampieri, Collado, & Lucio, 2013). Our focus is on understanding how external designers see the industrial learning process in design projects. Convenience samples are good for non-probabilistic studies, in which the elements at hand are selected (Gil, 1999). By using this research method accessible companies interested in the study can be selected.

Therefore, three designers that act as external team were chosen. In-depth interviews were conducted following a semi structured questionnaire. According to Malhotra and Birks (2012) in-depth interviews are unstructured, direct and personal. In this type of interview a single respondent is probed by an experienced interviewer to uncover underlying motivations, beliefs, attitudes and feelings on a given topic.

Data was analyzed following three steps: (i) data reduction, in which the relevant aspects were defined; (ii) data exhibition, in which data visual interpretation was developed by using diagrams, graphs and matrices; and (iii) data verification, in which data were evaluated by associating it to the research question. Finally all data were categorized. For Bardin (1977) categorization is an operation in which elements are classified, built in groups by differentiation and then re-grouped by gender.

The next topic presents the results of the interviews categorized by analogy, followed by discussion, where we theoretical background, perceptions and results are crossed.
4 Results

Following Bardin’s suggestion (1977), all data were categorized. Five categories were identified: project demand, briefing, actor’s relationship, design knowledge and design absorption. We recognize ‘actor’s relationship’ as the central category of this group, considering that all other categories are associated to it. In this case, actor’s relationship refers to every aspect of the relationship between the design team and the company. Also, we grouped the first two categories (project demand and briefing), assuming that they refer to the pre-project phase. Finally, every design assumption that was already within the company is considered as ‘design knowledge’ and the learning process after the interference of the external designer in the company is the result of our study, classify here as ‘design absorption’. For this paper, the company’s knowledge was divided in before and after designer interference, everything that is known before is ‘design knowledge’, and what is learned after any relation with the designer is ‘design absorption’. Figure 1 illustrates data grouping and categorization.

The pre-project group relates to important phases that happen before the project actually starts, such as ‘project demand’ and ‘briefing’. According to the interviewed designers the project demand can come in two ways: they can find a company which they are interest in doing the job or the company can look for them. The designer finds a company for two opposite reasons: either they believe in the company’s philosophy or they approach a company with potential to invest in design and “sell the design idea” ensuring financial return. When a company looks for a design team usually they already know that they need a designer. For instance, their competitor is investing in design, someone indicates a design team, they have stationary machinery or even because of the style of the designer.

Although companies are aware of their design needs, they cannot provide a complete and full understandable briefing. Interviewed designers affirm that second projects are easier and the more the company knows about design, the better is the briefing. Designers understand that when a company is capable of doing a more complete briefing, it becomes easier to go through the project.
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research phase. The briefing phase also includes time and cost estimation. A too long deadline is not viable for companies, it is important to organize that phase and fit to company’s market time.

When a company doesn’t have any kind of design knowledge and, specially, when the designer is the one who approaches the company, the main point for these companies to understand the importance of design is ensuring, corroborating with Guo’s (2010) idea, return on design. At this point, what matters is to ascertain that companies know that design might guarantee financial return.

When a company approaches a design team, they already know that design brings financial advantages, but design knowledge can vary. According to the interviewees, design culture in Brazil is not a reality, business people have little understanding of design or designers’ role. Companies sometimes hire engineers or advertisers thinking they are the best option. However, it is not good if the company knows too much design as they might impose restrictions and implications in product development.

For the interviewees, it is easier to deal with companies interested in learning from design. If the company is interested, designers can find a way to explain how design develops and they can work together in a collaborative way. In this case, they do the briefing phase together, changing requirements, focusing on fitting and adjusting the product to the reality of the market and design possibilities.

Finally, when a company already works with designers, or really knows what design is and does, the product development process is usually easier and more certain. These companies know that a design team can shorten project cycles and finalize products with more assertiveness. Also, when the companies really understand design, they became co-creators of the product and participate more actively in all design processes.

Design absorption appears as one of the most important categories to reach our goal and understand what kind of knowledge designers leave for a company when a project is finalized. First, designers need to explain targets, suppliers, the role of engineers, sales channels and some other project aspects. If they fail to do so, these unknown factors will appear in the middle of the project and might delay or compromise the results. Besides, poor briefings, leading to undirected researches are not a reality when a company learns what design can do. According to the interviewed designers, all of these aspects can be absorbed by companies in the first project they do together, facilitating and streamlining the process in the next projects.

This means that sometimes, in the first contact with a company, designers need to show that they might be competing with themselves and by changing small details in their product a different target could be reached, without increasing costs. By doing so, companies can realize that design is much more than a beautiful drawing, it is about markets and targets, and about adjusting a product accordingly. Companies also learn that design return (ROD) is much more than only financial. The project needs to work and can bring several types of increments, such as a new market, and even prizes. Design products could give a company new features in a busy market and prizes can help them to see the importance of design.

The interviewed designers consider design absorption has internal return for the company. The next time a company needs to choose a designer, they will be more prepared and critical and will probably hire better professionals. Companies learn that design contributes to take them to a new level, that they could be known through innovation and design, not only by commodities and things that any company can do. They absorb from designers how to deal with problems in a more structured way, as if there was a script to follow when it comes to wicked problems (Buchanan,
1992). Consequently, in the next project, cycles tend to be shorter and cost and time can be better estimated, acknowledging the benefits when the next step is familiar for the company.

It is possible to see this absorption when a company looks for designers for a next project. They perceived some advantage in that product portfolio, they are competing in a new market or just selling more and feel comfortable in launching something new. When designer and company have already worked together, besides an easier process with a more complete briefing, other sectors of the company also go through dynamic changes.

Summing up, when it comes to design absorption, designers realize that companies become less narrow minded, more open to general changes, more enlightened and tend to look forward. After all, every shared information can help to absorb and transmit knowledge.

Our last category focuses on actor’s relationship. By actors we understand the design team and the company, the relation between them was assumed as the center of all other categories. Demand and briefing will directly depend on how this relation works, also the relation between them will transform design knowledge and increase design absorption.

The relationship between design and company depends directly on company size and the organization of its departments. Sometimes the designer can talk with the company’s owner or a design manager, someone responsible for managing design decisions. If a company know nothing about design, the process could be really confusing, and interfere with other processes within the company.

This relation also depends on to what extend a company trusts the design team. They can be seen as partners or not. A problematic relationship can happen when there is an internal design team and they feel threatened by the external team. If the internal team feels intimidated by the external designers they can make the job more difficult. On the other hand, an internal team can be truly helpful, considering they already know the company’s processes and how design can be inserted in them.

Communicating straightly with the owner may facilitate the whole design process, mainly when it is connected with the company's strategic goals. Unfortunately we the same cannot be said about the sales team. If they are not well trained and are too focused on sales numbers, the design communication can be extremely difficult.

The interviewed designers affirm that normally companies are not interested in understanding design. They do know what design can do for them, and what is the expected financial return. Companies want to know how to compete through design and what are the advantages of investing on it.

In order to help companies compete through design, designers need to learn about the company's business. Hence, this is a two-way relationship. If designers do not know the factory floor and the productive process, they will not be able to help. The first contact is crucial to establish a connection between them.

Lastly, external teams can have a steady client, that pays a fixed price every month; can help the internal design team, when there is too much work or a need to improve or can be responsible for the entire product development process. Regardless the type of relationship, when a company intensively participates of the process, project error and rework are reduced and the chances of success and market fitting of products are increased.
5 Final Considerations

Understanding design absorption and learning processes is a work in progress and this study represents one step forward. In Brazil design culture is rarely perceived as strategy. Companies are only starting to realize how much design can do for them. Frequently there is a perception that design is too expensive and that it is only accessible for big-sized companies. Because of that, small manufactures do not even consider design to see if they can afford it. Sometimes, they can end up hiring someone financially accessible but not suitable for the job, whether due to inexperience or lack of knowledge. Cheap design is usually not best one. The same way that companies have different product quality, designers have different outcome quality. If one hires a cheap designer, one might have a cheap result. Also, for some companies, our economic reality does not encourage innovation. They rather buy from China and guarantee sales than innovate and learn how to compete through design. Companies that are not willing to learn design, probably will not do so.

According to Cohen and Levinthal (1990), an organization’s absorptive capacity depends on the absorptive capacities of its individual members. Also, for Zahra and George (2002), to develop design capabilities, companies need to acquire, assimilate, transform and exploit new knowledge. With poor design, companies probably will not get to exploitation.

If a company is really open to design absorption, designers can offer workshops and teach strategic thinking by using design. Our interviewed designers confirmed the importance of teaching design culture and state that some workshops have already been done inside companies, training employees in different sectors on how to compete through design. The importance of the workshops found in our data analysis, corroborates with Acklin's and Hugentobler’s study (2007), mostly when she affirms that this kind of approach has proved to be a valuable process to permeate design in a company, strengthen corporate culture and staff's identification with it.

The main complaints from designers regarding companies is that sometimes they do not know why they are hiring a design team, they are just doing it because their competitor is doing it. Firms should know about design methods and processes, they should understand that creation does not happen in a click, that a short deadline with a poorly structured and incomplete briefing are not going to result in a brilliant product and that projects need to be smart.

Regarding our objectives – to understand how designers see the company's absorption capacities, and to identify the interaction between the company and the external team - we can affirm that they were partially fulfilled. Designers see companies' absorption capacities as a challenge. At the same time designers see in companies that are returning for a second design project that they do not have time and opportunity to develop workshops and training for the companies to understand design better. As for the interaction between them, it is still confusing because it happens in three different ways: external design teams dealing with company owners, external teams dealing with internal teams and external design teams dealing with non-design professionals inside the company (marketing, sales, engineering). Our sample was too restricted to provide a full understanding and definition on how these relations work and how they should work. From our study we can affirm that companies still look for design when they have financial return on their first investment.

References

Acklin, C. (2010). Design-Driven Innovation Process Model. Design Management Journal, 5(1), 50–60. Retrieved from http://10.0.4.87/j.1948-7177.2010.00013.x

Acklin, C. (2011). The Absorption of Design Management Capabilities in SMEs with Little or no Prior Design
Experience. *Proceedings of the Nordic Design Research Conference*, 1–10.

Acklin, C. (2013a). *Design Management Absorption in SMEs with Little or No Prior Design Experience*. Faculty of Arts and Social Sciences Institute for the Contemporary Arts.

Acklin, C. (2013b). Design Management Absorption Model: A Framework to Describe and Measure the Absorption Process of Design Knowledge by SMEs with Little or no Prior Design Experience. *Creativity and Innovation Management*, 22(2), 147–160. https://doi.org/10.1111/caim.12022

Acklin, C., & Hugentobler, H. K. (2007). Design management for small and medium-sized enterprises: development of a design management guide for the use of design and design management within corporate r & d and decision-making processes. In *Proceedings of IASDR '07*.

Antonello, C. S. (2005). A metamorfose da aprendizagem organizacional: uma revisão crítica. In: Ruas, R. L.; Antonello, C. S.; Boff, L. H. *Os novos horizontes da gestão: aprendizagem organizacional e competências*. Bookman.

Argyris, C. (1977). Organizational learning and management information systems. *Accounting, Organizations and Society*, 2(2), 113–123. https://doi.org/10.1016/0361-3682(77)90028-9

Argyris, C. (1991). Teaching Smart People How to Learn. *Harvard Business Review*. https://doi.org/10.1162/152417301750474530

Bardin, L. (1977). *Análise de Conteúdo. Revista Educação* (Vol. 22). https://doi.org/10.1017/CBO9781107415324.004

Buchanan, R. (1992). Wicked problems in design thinking. *Design issues*, 8(2), 5-21. http://www.jstor.org/stable/1511637

Cohen, W., & Levinthal, D. (1989). Innovation and Learning: The Two faces of R&D. *The Economic Journal*, 99(397), 569–596. https://doi.org/10.1017/CBO9781107415324.004

Cohen, W., & Levinthal, D. (1990). Absorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, 35(1), 128–152. https://doi.org/10.2307/2393553

Fleury, A., & Fleury, M. T. L. (2001). *Estratégias empresariais e formação de competências: um quebra-cabeça caleidoscópico da indústria brasileira*. Atlas.

Garvin, D. A. (1993). Building a Learning Organization. *Harvard Business Review, July-Augus*.

Gibbs, G. (2009). *Análise de Dados Qualitativos*. Bookman.

Gil, A. C. (1999). *Métodos e técnicas de pesquisa social* (6th ed.). São Paulo: Atlas. https://doi.org/10.1590/S1517-9702200300100005

Guo, L. (2010). Product Design and Financial Performance. Design management Journal.

Jones, O. (2006). Developing absorptive capacity in mature organizations: The change agent’s role. *Management Learning*, 37(3), 355–376. https://doi.org/10.1177/1350507606067172

Lane, P. J., Koka, B. R., & Pathak, S. (2006). The Reification of Absorptive Capacity: A Critical Review of the Construct. *Academy of Management Review*, 31(4), 833–863. https://doi.org/10.5465/AMR.2006.22527456

Lawson, B. (2005). *How Designers Think* (Second Edi). Elsevier. https://doi.org/10.1016/B978-0-7506-0268-6.50018-8
Malhotra, N. K., & Birks, D. F. (2006). *Marketing Research: An Applied Approach*.

Sampieri, R. H., Collado, C. F., & Lucio, M. del P. B. (2013). *Metodología de pesquisa* (5th ed.). Porto Alegre: Penso.

Wolff, F., Capra, A., Dutra, F., & Borja de Mozota, B. (2016). Double-Loop Design Management Model. In *Proceeding of 20th DMI: Academic Design Management Conference*.

Zahra, S. A., & George, G. (2002). Absorptive Capacity, a Review, Reconceptualization and Extention. *Académic Management Review*, 27(2), 185–203.

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