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## **SOCIAL INNOVATION THROUGH DESIGN IN THE TRAINING OF YOUNG APPRENTICES: EXPERIENCING SOCIO-EDUCATIONAL PROJECTS**

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### **ABSTRACT**

Considering design as a culture and a practice that suggest ways of living, its applications aim to launch different meanings to society. Social innovation through design, in the context of apprentices' learning shows new life perspectives and instigate their creative skills for transforming daily routine through innovative solution generation. The objective of this article is to describe the extension project experience that had as motivation instigating a new way of perceiving apprentice practice, suggesting new articulation and internal problem solving of their own institution concerning socioeducational materials for pre-primary children's education. The project enabled a thinking and process assimilation of designing from the youngster's perspective, who have identified new possibilities of applying the acquired knowledge for future use in diverse contexts. Furthermore, to the younger children, it has given the opportunity to access the diverse and creative material, under the light of designing.

Key words: social innovation design; socio-educational materials.

## 1. INTRODUCTION

Design artefacts, being tangible or not, are all about social interventions (Coutinho; Lopes, 2011) that can reach social innovation<sup>1</sup>. By aiming to innovate and propose life-changing interventions, one must consider the socio-cultural implications and the new meanings generate by it (Franzato et al., 2015). It is important to highlight that the innovation process demands a location and favourable conditions (Franzato et al., 2015). Due to the broadening of understanding of implications and potential of design role in society, it is a challenge to involve the characters of design problems in its solution, as well as to generate the favourable environment for innovation with new means of producing and consuming. According to Manzini (2017), the character's involvement guarantees that the designer's presented solutions dialogue with the community, generating meanings that evidence and reflect the sociocultural aspects of the community itself. At the same time, the designer has a mediator role in the innovation process aiming, with his own competences, positively transforming a context. The main interest of the extension project here developed is based, above all things, in social innovation and sustainability for a socioeducational institution that assists not only young apprentices but children from the Pre-primary Educational Centre (CEI as in *Centro de Educação Infantil*). It had as a proposition to articulate their own community in the making of socioeducational materials, through creative development and teenager capacitating in using design tools.

It is noted in Brazilian education context the need for exploring innovative ways of teaching and qualification of subjects that can handle the enormous social inequality (Coutinho; Lopes, 2011). Still, according to Coutinho & Lopes (2011), the basis of Brazilian education has developed from foreign experiences, including the imagetic universe of didactic materials that in their majority do not correspond to Brazilian reality. It is therefore seen the opportunity of proximity of design and education. It is believed that through design intervention in the context of learning, one can contribute to the proximity of the school and the 21<sup>st</sup> Century complexity (Alves; Borba, 2016; Zorzal, 2016), to the Brazilian reality and social transformation in the student's life, which can extend to the surrounding community.

Design is a transdisciplinary field, because it has as characteristics to work complexity and to synthesize it (Filtro, 2004) in this way contributes to a systemic view (Albuquerque, 2016), that is necessary to handle contemporary needs for better citizenship. Therefore, it is understood that design can create a favourable social innovation environment inside learning and educational environments, being formal or informal. Having those as premises, the present article aims to describe the experience of an extension project developed in the socioeducational environment. The project had as objective to instigate a new perspective towards the institution's apprentices, proposing a new articulation and internal problem solving regarding the demand for socioeducational materials for CEI's children.

The implemented project had as baseline the meaningful learning<sup>1</sup>, bringing the project experimenting to the classroom, looking for real problem solution for real people. The teenager apprentices could experience design content learning in a practical way by applying concepts, methods and tools while looking for solutions for pedagogical needs pointed by the pre-primary teacher. In this sense, more than developing a product, the teenagers could experience the transforming potential of design.

The methodology used was applied research with a qualitative approach (Flick, 2009), having as objective to describe the extension project and its results to promote social innovation in the apprentice community and partner institution children. The implementation of the research was in the practical project which aimed to introduce design thinking, with its processes and tools, in teenager's upbringing and having as a result the development of didactic materials for the institutions' pre-primary education.

## 2. DESIGN CONTRIBUTION IN THE SIGNIFICATIVE LEARNING PROCESS AND SOCIAL TRANSFORMATION

Design is a field in which a professional uses fundamentals, specific tools and methodologies, and follows some principles for interacting in forming a material culture that orients society in conceiving new artefacts that interferes in it (Fontoura, 2002). Those new artefacts are generated through handling technologies and materials, which are provided with aesthetic, functional and practical meaning and dialogue in the environment that are inserted. By its configuration as a professional field, Fontoura (2002) defends that design becomes a complementary asset in teaching and education. It is added, therefore, the potential to contribute in meaningful learning. Still, the insertion of design in pedagogical proposals dialogues with the new educational philosophy due to the approach that instigates the diverse creative, critical, aesthetic thoughts and developing the senses, the perception and the motor coordination (Fontoura, 2002).

Sustained by a way of thinking and by the agile process that orients the project development (Alves; Borba, 2016), designing contributes in the capacitating and formal or informal education of people and communities, orienting them towards a sustainable development. For Manzini (2017), experienced designers could explore their skills and capacitate people for having a better understanding of their own design potentials and the contributions that they can give to a determined context, making them main characters of change and, consequently, generating social innovation. It is recognized, in this sense, the transforming potential of the field and de capacity of acting and contributing alongside teachers to achieve meaningful learning - marked by experimenting and problem solving though

projects- better articulating shapes and functions to fulfilling educational objectives, proposing innovative ways of presenting content and concepts to diverse users and in diverse contexts.

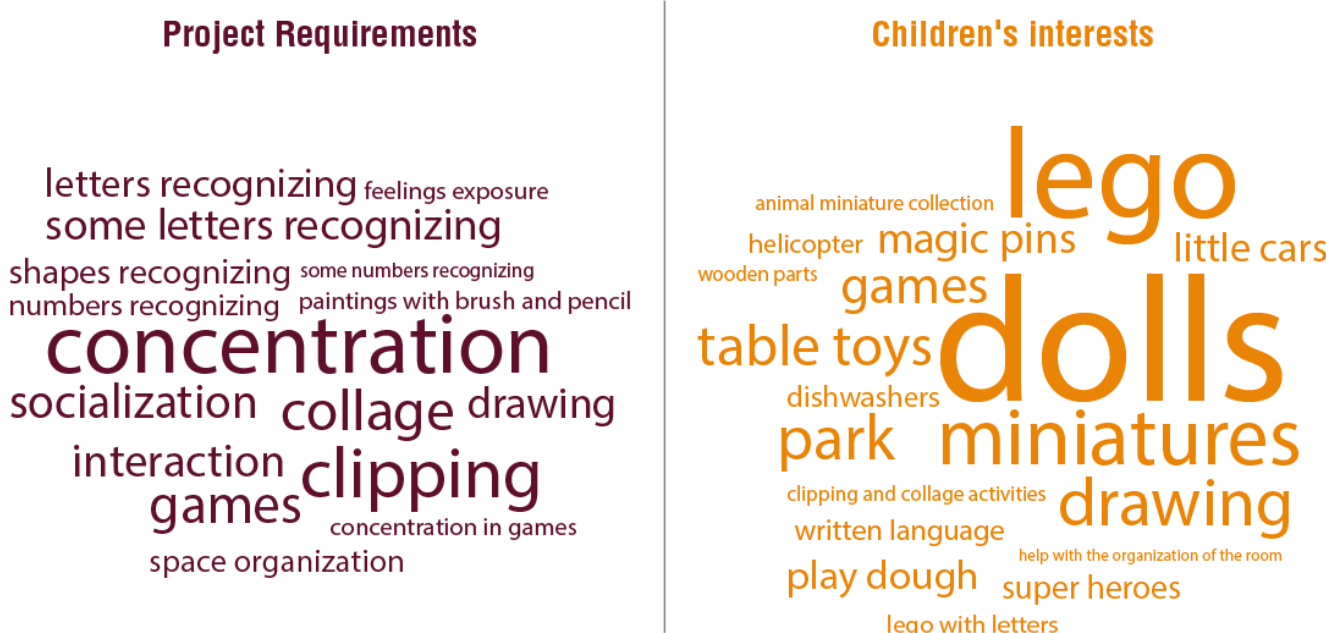
In the case of the present article, it reports the application of design in teenager apprentices' capacitating in the creative process of developing socioeducational material, destined to 5 and 6 year-old children. The relevance of this transforming, specifically, was to create an opportunity where both youngsters and children are part of a same institution, and youngsters have been qualified to make materials that help children's development. This connection wasn't noticed nor explored before the systemic view of design specialists.

### 3. METHODOLOGICAL PROCEDURES

The extension project described in this article was conceived through active-research, a method where the researcher participates actively with the group in which the project aims to solve a collective problem (Thiollent, 2008). The project parameters were aligning themselves during the meetings- called seminars in the active-research- among the NASDesign researchers and administration and pedagogical management of the partner institution who received the pilot project. The first interaction with the institution was through the principal, to whom the project was first presented and its intention to integrate de University and the institution's children. Since the first meeting, the institution was very receptive and presented some of the ideas that could meet the needs of the institution. The second meeting aimed to watch a pre-primary class with 5 and 6 year-old kids, so it could be observed the kids' routine during their arrival and permanence in the institution, use of didactic material by the class teacher, characteristic behaviour of the children and environment. After class observation two more seminars were made involving NASDesign researchers, the institutions' board, coordination and pedagogical counsellors. In these seminars it was observed the potential to involve the sections of the institution, defining that the project would capacitate teenagers from the apprentice sector so they could meet the demand for didactic materials raised by the pre-primary teacher, instigating empathy and social responsibility upon the teenagers. The next seminar would happen only among the NASDesign researchers to build the steps for the project's appliance.

The pilot project involved the NASDesign researchers as trainers and mediators, a class from teenager apprentice group with 7 integrants and a teacher and, a pre-primary classroom with twenty-five children and a class teacher responsible for them.

The project's application happened with the capacitating of the teenagers in seven encounters of four hours



each, totalling twenty-eight hours. For this purpose, the pre-primary teacher has provided a list of her student's interests and pedagogical needs to be addressed (Figure 1). From this moment on, the teenager's training started.

[Figure 1] Pedagogical requirements and children's interests. Source Made by the authors.

In the first six capacitating meetings with the teenagers - schedule presented in Table 1 - they were presented to concepts, methodologies and design tools to be applied to projects as a way of developing creativity. From start, they were presented to the problematic and the project's context they were initiating, as well as its particularities, characteristics and children's needs for which they were going to project. After that the teenagers were divided in three project groups and the practical part started: tools like brainstorming, persona, sceneries and semantic visual maps were presented to help in the problem solving. The teenagers also had alternative generating activities, planification, technical drawing, prototyping, vectorizing and laser cutting. All of these activities were developed during the meet-

ings, which has made possible for them to experiment the creating design process. By the end of the sixth meeting, each group had a prototype and a project built.

[Table 1] Activity schedule done with the teenagers. Source: made by the authors

Meeting	Activity Performed
1 <sup>st</sup>	Design concepts and applications
2 <sup>nd</sup>	Understanding and applications of Design tools
3 <sup>rd</sup>	Deepening and application of Design tools
4 <sup>th</sup>	Vectorization techniques; Prototyping
5 <sup>th</sup>	Vectorization techniques; Prototyping
6 <sup>th</sup>	Vectorization techniques; Prototyping
7 <sup>th</sup>	Application of the prototype in real context

So, in the last meeting the prototypes were tested in the real context with children, their initial objective. In that meeting, the developed products were evaluated by the NASDesign researchers, the pre-primary class teacher, the apprentice teenager program teacher and by each teenager, where each individual has filled in a



checklist to evaluate items related to ergonomic and cognitive requisites, aiming to understand the quality of the product facing the context and incentive teenagers to adopt a critical view over their own creations, making improvements possible.

[Figure 2] Testing prototypes in real context. Source: Elaborated by the authors

After the end of the capacitating, a group interview was made to verify the teenagers' and the teenager's teacher project perception. In this interview a retrospective of the activities developed was presented and then they were interviewed, being questioned and raising discussions about strengths and weaknesses of the capacitating project, class dynamics and activities performed, as well as a vision about which design vision has been internalized by each one along the meetings, and if they think they would ever use what they have learned through the project.

#### 4. FINAL CONSIDERATIONS

The social innovation through teenager apprentices' learning pints to a new perspective of life for these people and instigate their creative skills to transform life and daily routine through innovative propositions. With the extension Project, it has been offered the constructive attitude (Manzini, 2017) in the teenagers by being trained to propose socioeducational materials. This attitude has also been built by the connection and empathy generated towards the children, who live in the same contexts that the teenagers. By approximating the different ages, the teenagers have had a differentiated capacitating, since it makes them co-responsible for the development and capacitating of other beings, in more susceptible situation than they are- for being small children. The pilot project's experience highlights this factor as an interesting strategy in empathy generation, articulating different learning levels. Therefore, it has strengthened the institution's relationships ad it highlighted the opportunity to think about an environment where this practice could be nourished, as an incubator or start-up, where the teenagers can learn about how to work by demand of developing socioeducational materials for CEI.

The application of the project has inspired understanding and assimilation of design thinking and practice to the teenagers involved by experimenting the content learned in a real situation, in materializing a real product to a real public. By that, the Project had as result innovative and meaningful solutions, developed by students and to meet the needs of students. Lastly, through the feedback received by the end of the pilot project, it was revealed that made possible for them a deeper understanding about design's role in society and how design thinking can help in the search for problem solving not only professionally, by developing products, but also in several areas of their lives.

Some teens reported that, because of the project, they have found new skills that combined with the knowledge acquired had broadened their view for new possibilities in their lives.

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