

Design for Social Change

Co – Design as a method to approach education in a marginalized community in Mexico

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ABSTRACT

An important element of *Design* has always been associated with the aesthetic and the industrialization of objects. For the last decade, this discipline has gone through a phase of transition, where its main focus is not only design for consumption, but design for people's actual needs. In order to satisfy these recent transformations there has been an important emergence of new and different methods that involve the user in the design process in order to come up with better and more complete solutions.

The aim of this paper is to review the literature that surrounds this particular element of *Design* and discuss its role as a positive social change in the field of education. This is done by presenting the benefits and challenges of using co-design in a developing country, and state how can it be transferred into a method to approach early education in a marginalized community in Mexico. The areas reviewed were divided into two cores: a) The challenges and benefits of approaching social issues, such as education, using co-design in a developing country and, b) The effect of empowerment and community engagement as positive consequence of co-design in a developing country. Further on, it is discussed how these benefits can be transferred to the field of implementing co – design practices in improving early education in Mexico.

KEYWORDS: Co – design, Participatory Design, Challenges and Benefits, Empowerment, Community engagement, early education, Social Design.

1. INTRODUCTION

Through the last decades' *Design* as a discipline has been growing and evolving. *Design* is often associated with aesthetics and industrialization, but nowadays more and more designers are focusing on using design to address social changes. One of the main focuses of design has

turned to the use of methods that enhance complex social solutions and not leaving it in just the manufacture of a physical products [1].

This growth and evolution of design has led to new ways of designing towards a value-based process. Design is starting to be seen as a catalyst for positive change in areas such as education,

the health sector, transportation and many others [2].

The emergence of this new focal point of design is helping to try to understand the social needs and develop design solutions with this as a starting point.

This change of focus can be reflected in several fields of the academia. Different universities are developing and implementing new frameworks for design education. The framework suggested by Carnegie Mellon University is a good example of the transition within design as a discipline, where the main objective is changing towards a more inclusive design. This particular framework involves a chain of areas of focus such as: *Design for service*, *Design for social innovation* and *transition design*, -where each one builds into the next one and embraces the different fields-. They explain that each area of focus represents ways of framing and solving problems that lead to three types of change: moderate with service design, social with design for social innovation and radical with transition design [3].

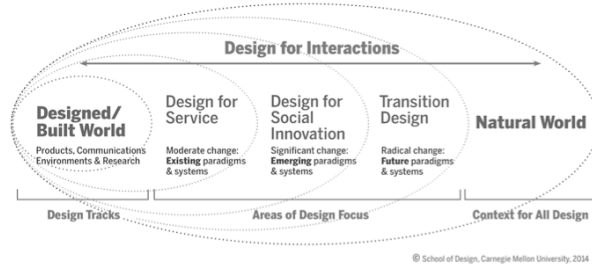


Figure 1: Program framework Carnegie Mellon University (2016).

By using design methods as tools to solve social problems we can cause a greater impact on society in different ways. The aim of this paper is to review literature and discuss the role of design for a positive social change in the field of education. This will be done by presenting the benefits and challenges of using co–design and

participatory tools and techniques in a developing country, and state how can it be transferred into methods to approach early education in a marginalized community in Mexico. Could co – design as a method to approach education affect, contribute and improve strategies and solutions that help children develop social, emotional and cognitive skills while living in marginalized conditions?

Improving education is important in all aspects and ages, but this review focuses in the importance of early education for children between 0 to 6 years.

1.1 Structure

The two main areas reviewed in this article:

- The challenges and benefits of approaching social issues, such as education, using co-design in a developing country.
- The effect of empowerment and community engagement as positive consequence of co-design in a developing country.

This article is divided into two main sections, although there is a correlation between them. The first section seeks to give the reader a better understanding of co-design and the tools and techniques used in the implementation of this method.

Later on, the benefits and challenges of using co-design practices in the context of a developing country are presented. For this section articles of research done in the field were analyzed in order to gain understanding of the experience. The second section presents the benefits and challenges of implementing co-design with marginalized communities, as well as the

empowerment and community engagement as a consequence of participation in the design process.

2. RESEARCH METHOD

This article is a literature review article, based in co-design and participatory design practices in developing countries. The term co-design, in this article, is used in accordance with Sanders and Stappers's reference. The authors refer to co-design as the collective creativity between designers and people not trained in design working together in the design development process [10] as well as the tools and techniques used to enhance communication and exchange ideas.

Articles and research done in the field of co-design were reviewed in order to understand and analyze the benefits and challenges of using this methods in the design process in the context of developing countries. In order to gather and present statistical information about challenges and conditions of Mexican population, different governmental and organization websites were consulted. Popular/non scientific articles and personal experience were also used to build a cultural context.

3. BACKGROUND

3.1 Early Education

Education is one of the pillars of society. It plays a significant role in the construction of each individual future. As human beings, we are constantly applying what we learn to our own perspective of life. The more we learn, the more tools we gain to handle upcoming events. Education is a human right and the base of a pyramid that helps eradicate other social issues such as poverty and improve health conditions; it

builds the ability of decision making of each individual in terms of society, politics and economics [4].

In their first years of life, children develop significant social, emotional and cognitive foundations. Being exposed to positive stimuli on the first 6 years increases the possibility of fully developing these skills and can contribute to a better lifestyle [5]. The brain's ability to adapt and change reduces with time. It is important to encourage education from the early stages of child development to provide tool for both social coexistence and individual development [6].

3.2 Education in Mexico

Education is an aspect in society that is always changing, but the quality and accessibility differs from one country to another. Unfortunately, Mexico is a country where children face several challenges in their journey through education. Mexico has a population of 122.3 million people where 19.4% are children between the ages of 0 and 9 [7]. 56% of the children under 5 years old are currently living in poverty and 1 out of 10 are struggling with malnutrition. These living conditions with negative stimuli reflect in a slow brain development [8].

Basic education in Mexico is divided into pre-school (5 – 6 years old), primary school -with a duration of 6 years- (8 – 12 years old), and secondary school -with duration of 3 years- (14 – 15 years old). This means that there is no government institution within education that regulates and coordinates for the early childhood, children between 0 and 5 years old [9].

To be born under marginalized conditions should not predestinate a child to a life of limited opportunities and disrupted growth. This issue can be approached within various disciplines and

Design is one of them. Using design methods to address a social problem such as early childhood education can contribute and benefit in an extremely positive way.

The author’s hypothesis is that an educational strategy led by design as a discipline, could be used to provide and enrich children with a better development and preparation before they enter to primary level education, since it is important to take into account the context, culture and daily living.

4. CO-DESIGN

According to Sanders and Stappers the term co-design is a collective creativity between designers and people not trained in design working together through the design process [10]. Co-design can be understood as an attempt to facilitate people with different backgrounds and skills to cooperate creatively looking for one solution. When talking about co-design, users, researchers, designers, stakeholders, are all participants in the design process [26].

The practice of collective creativity in design has been around for a long time now, but was referred as participatory design [10]. Participatory design was originated in Scandinavia during the 1970’s. This practice emerged due to the necessities created by the evolution of technologies and the extension of knowledge needed to please these. This resulted in a collaboration between researchers and workers in the design process of computer technologies introduced into their workplace. The experience and expertise of the workers was found to be a great input and was used to determine shape and scope of new technology [11].

Throughout time the term co-design has emerged. Although it shares principles with participatory design practices the primary goal of co-design is to consolidate our understanding of making as a part of methods and tools within practices of participation (see figure 2) [30]. A key characteristic of co-design practices is the use of physical artifacts as creative tools to enhance communication between the participants. These tools are used as language during the design process to express different ideas and opinions, as well as evaluate and identify possible problem areas [27].

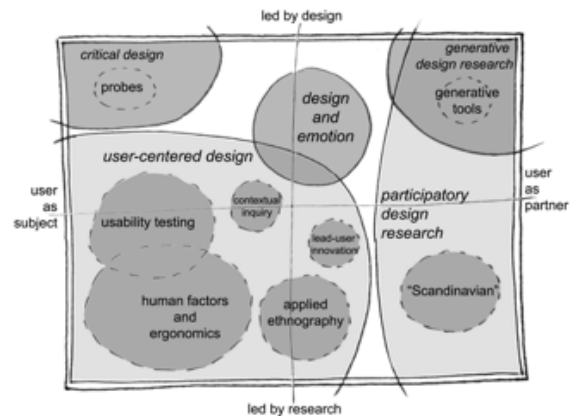


Figure 2: The current landscape of human-centered design research as practiced in the design and development of products and services. [10]

4.1 Tools and Techniques

Important aspects to take into account in co-design are the tools and techniques used to approach different projects. With time there has been research in the development of this tools. Sanders, Brandt & Binder have developed and suggested a framework based on engaging collective creativity in participatory practices. The framework is divided into three main activities: make, tell and enact [13]. This method facilitates communication between all the participants involved in the design process. It is a way to express individual perspectives and understand

others as well; This helps to gain the ability to empathize with each participant and develop ideas in a collective way [14].

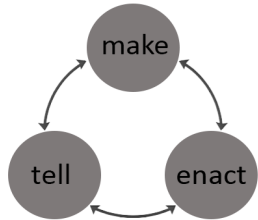


Figure 3: Making, telling and enacting as complementary, connected activities in co-designing [30].

The *make* section is about making tangible things such as, maps, models and/or prototypes, where people can express their thoughts, feelings, memories and future scenarios. The *tell* section corresponds to tools and techniques where the use of language -verbal or written- is needed to describe, present and sell their thoughts and perspectives. The *enact* section is built on pretending, improvising and performing situations, activities, scenarios, among other. These tools and techniques are mainly used for usability observations, detect behaviors and develop different roles [14] as well as developing ideas and concepts with collective creativity, throughout the whole design process. Each tool should be developed according to their characteristics and be applied depending on the purpose, which could vary between probing, priming, understanding and generating [13].

4.2 Co-design in Developing Countries

Since participatory design practices emerged there has been research on the different aspects of this approach. However, most of this research has been done in the context of developed countries. There has been limited research over co-design approaches and techniques in developing countries settings [15]. According to

different authors that have implemented participatory design practices in developing countries there are several variables that significantly change depending on the culture, context and lifestyle. The common methods used in participatory design do not always work if the context changes (see figure 4), most of the research done using this model has taken place in developed countries context. Therefore some variables have to be modified or taken into account in order to fulfill a developing country's needs.

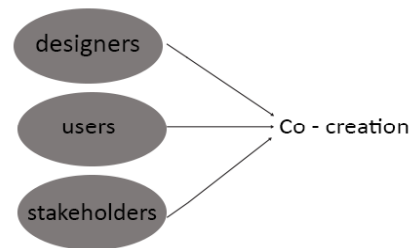


Figure 4: : Traditional Model for Participatory Design according to Hussain, Sanders & Steinert [16].

4.3 Challenges of co-design in developing countries

Despite the growth in literature regarding co-design in developing countries most of the research done is in the field of information system design [16]. In order to gain understanding of the challenges involving participatory design practices in developing countries different research studies were reviewed.

How it was mentioned in earlier paragraphs, in order to carry out a participatory activities throughout the design process it is very important to take into account and understand the context and lifestyle according to culture in specific countries. The decisions, the

participation, the methods, the tools and the techniques for carrying out design projects using co-design are shaped by the diversity of the socioeconomic, cultural and political situation of each country [28]. To approach a social issue using participatory resources it is essential to understand variables related to culture, religion and politics while interpreting responses or behavior. These variables may differ from country to country, so in participatory practices, it is important to be open to the possibility of changing and modifying things along the way as unexpected problems or conditions may come up. While doing a project in a developing country a previous research of the context can contribute to preview some variables be taken into consideration when taking decisions regarding logistics.

Access to users and other stakeholders is a challenge, building trust is essential and it can only be done over time. It is not easy to engage with certain populations, especially when we talk about marginalized communities. Their priorities are others, and this might be an issue when it comes to engaging them with the project [29]. Designers cannot assume that people that are living in extreme poverty and have to work hard to have something to eat every day will prioritize their time to participate in design projects.

Unfortunately, the financial aspect is deeply involved in these types of projects and is one of the biggest challenges. Available funding and time have a great impact in how and which participatory activities can be organized and implemented [16]. Since these types of project address social change it is common to have a governmental dependence. In developing countries the government can sometimes increase the amount of thresholds due to issues such as corruption, to mention one.

4.3 Benefits of co-design in developing countries

Using co-design in developing countries has positive consequences for both, the design process and the community. This approach can improve social development through the inclusion of the user and stakeholders, who are affected by the development of design solutions [28].

As discussed above, in order to achieve participatory design practices, it is essential to consider social, cultural, religious and political aspects within the community. This broadens the designer's understanding of the actual living conditions in order to meet the community needs and develop a more complete design solution.

Gaining input from the users and stakeholders gives a wider range of information to work with in the design process.

Participant empowerment and community engagement play a significant role as positive consequences of co-design [16]. To Motivate people to participate and organize design activities can overcome great benefits. This statement is argued below more extensively.

5. EMPOWERMENT

Empowerment is the process of becoming stronger and more confident [17]. Empowering processes are those where people create or are given opportunities to control their own decisions that influence their lives [20]. These processes are a series of experiences in which individuals learn to see a correspondence between their goals and a sense of how to achieve them, gain access and control over decisions [18].

Co-design has the benefit of empowering process that can result in empowering outcomes [16]. It is useful to distinguish between empowering processes and empowering outcomes. Empowering processes are those that refer to how people, organizations and communities become empowered, while empowering outcomes refer to the consequences of those processes [18]. This psychological empowerment can contribute in a positive way the design process and the implementation of the solution. When designers undertake co-design projects in developing countries, the aim should be beyond providing a product or service, but to build local capacity to carry out future projects without being dependent on foreign designers [16]. In other words, to take advantage of the empowerment to go beyond a tangible solution.

Hussain, Sanders & Steinert discuss the three areas of Zimmerman's model *Nomological network for psychological empowerment* [19]: intrapersonal components, interactional components and behavioral components, transferred to the context of participatory research. With *intrapersonal components* we refer to the gaining of faith in our own abilities by being able to communicate our thoughts and ideas, and realizing that these may be valuable to others. *Interactional components* refer to learning design methods adapted to our own skills and level of development. *Behavioral components* Refer to the use of design methods that will and could develop solution that may and can improve the quality of life [16].

5.1 Empowering children with co-design

There has been little research on co-design with marginalized children in developing countries [21]. Nevertheless, there is literature that argues that participatory design can contribute to empowering children. When designing in the

context of social issues, the solutions should aspire for long-term effects and empowering marginalized communities can be a way to implement this effect [22].

If children are involved in research activities within the design process, their focus is often limited to their own surroundings and experiences. By listening to others, they develop an understanding of different points of view on the research topic and reflect on what is important to them [23].

Children have their own way of observing and experiencing life. If designers embrace the idea that users should take part in the design process, given they are the ultimate experts on their own needs [22], while approaching education children's perspectives and opinions should be an important part of the design process. One of the positive consequences of involving children into the design process while using participatory design techniques is the psychological empowerment [23]. This empowerment also builds up motivation and increments the positive contributions into the projects, as useful information.

5.2 Community engagement

Co-design is a way to encourage community engagement. While approaching social issues such as education, health, transport, among others, in a developing country it is important to think about a long lasting solution in order to really attempt a change [16]. It is essential to engage the community according to social, religious, cultural context in order to achieve psychological empowerment within the community and a sense of ownership. This empowerment can help to build a bond between tangible or intangible designed solutions and the community in order to aspire for a long-term

effect in the implementation of the product or service.

There is no point in developing and implementing strategies that attempt to improve social conditions if there is not an engagement with the community. There has to be some sort of connection between the project and the community in order to achieve positive change. In the field of education, the Mexican government has tried strategies that have failed because they leave aside the context and there is an obvious lack of community engagement. In 2014 the federal government implemented an educational strategy that had the objective of improve digital literacy. Students attending 5th grade of primary school were given tablets that contained complementary educational information and were supposed to be used during school time as teaching material. This strategy failed and got cancelled in 2016, the official reason was lack of budget [24]. Leaving aside the financial problems -and looking at this issue from another perspective- this was not really planned as a long-term solution. The socio-economical and literacy context of these children was completely and utterly left aside. Teachers argued that children were using the tablets for other purposes, such as playing online games and often forgot chargers or other accessories needed for school.

6. DISCUSSION

Design as a discipline is starting to broaden its scope by developing new methods and ways to approach design problems [21]. These new methods include new ways of designing towards a value-based process where the objective of the product is its services and experiences, which will create a greater impact while approaching social issues. Design for social change has become feasible within the discipline scope. Using design

as a catalyst for social change in a country with the characteristics of Mexico can bring positive results, especially in marginalized communities, where living conditions can be improved in many aspects.

Co-design has as many benefits as challenges when it comes to approaching social problems in developing countries. The main objective of participatory processes in social development is to involve economically and socially marginalized in the decisions that affect their lives [28]. When talking of using design methodologies to approach education in a marginalized community in Mexico co-design is a suitable way to follow. The government's corruption problems affect the whole population, but marginalized communities suffer the worst consequences. The benefits of empowerment and community engagement can be crucial to approach this issue.

The empowerment experienced by the participants can bring positive results into the design process and community engagement, as well as the implementation of solutions. By promoting creative creativity within the community can result in a sense of ownership and belonging. This could later result in collaboration within the community to approach other issues without the need of designers leading the sessions.

Children empowerment can result in confidence, which not only nourishes the design process with relevant information but also builds up psychological benefits. The early stages of education are very important for a child's development. During this stage, children learn cognitive, emotional and social skills that have an effect throughout their entire lifetime. Parents, siblings and friends can contribute to a child's development. It is known that children are constantly learning through social observation and repetition [25]. Using co-design to engage

with the community and create interaction and collaboration between members of the family and the community -with the purpose of encouraging child development- is forthright beneficial.

The use of co-design to approach social issues, such as education in Mexico is a feasible way to follow. Nevertheless it involves a radical change because it is part of the design transition focus, according to the *Program framework of Carnegie Mellon University*. This type of change can only have visible effects after a long period of time. It is important to know that radical change in education or in any field take a lot of time, research and motivation, but at the same time the positive outcome makes it a great investment.

There is limited literature about the use of participatory practices in developing countries and most of the research done is in the field of information system design, there is a gap corresponding to the area of product and service design [16]. Even with the limited research done in the field we can conclude that in order to achieve co-design in developing countries it is necessary to take into account the variables that differ from country to country and how the context dictates the differences of engagement depending on each community.

7. FURTHER RESEARCH

In order to state the challenges and benefits of using co-design practices with marginalized communities in the context of Mexico it is necessary to carry out a field study focusing in education. This field study can later on function as a parameter for future participatory projects in Mexico. It is necessary to consider the context of the Mexican communities in order to design

the appropriate methodology to approach social issues.

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