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Participatory Design as an Approach to Social Innovation

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This paper will discuss two cases developed through an action research methodology in order to compare the approaches of ‘designer as expert’ and ‘participatory design’ for developing projects for service organizations that aim at social innovation.

In the first case we will describe the context, methods and results achieved by the ‘expert design approach’ proposed by Elizabeth Sanders,¹ where the designer is viewed as the unique expert who will help an ‘under-served’ community. We worked in a Brazilian low-income community aiming to find solutions that would help mothers with ill children work at home and improve their income. The design team developed a fashion product that could be produced by mothers with simple training. They also developed the brand, the catalogue, and the point of purchase to sell the products. We found out that although the project appeared to be a commercial success, the mothers didn’t engage in behavioral change towards improving in their income. One supposition is that the design approach didn’t understand the community needs, only the market needs.

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Her research is focused
design and social
innovation.**

The second case will describe the context, methods and results achieved by the ‘participatory design approach’, also proposed by Sanders, in which the design team acted as a facilitator of a multidisciplinary group of users and stakeholders. The service design project had the goal of redesigning a Brazilian public health service directed to diabetes type II patients. The design team used an experience-based design approach (that integrates the anthropological perspective to understanding the user experience and a co-design approach) to develop the new service design. They designed a service concept – an educational eating service and supported by a card game to help the diabetes patients change their eating behavior.

Presenting both cases, we intend to discuss the problems and opportunities of expert and participatory approaches for fostering social innovation.

On Social Innovation

The concept of social innovation may be understood from the perspectives of social means and social ends. In the first, innovation is understood as social to the extent to which society reorganizes itself to solve its problems in an innovative way; in this case, innovation is primarily linked to individual behavior changes towards more sustainable ways of life. The latter perspective is related to the search for new responses to social problems not met by traditional market logic.

It has been claimed that one characteristic common to all definitions of social innovation is the mobilization of the ubiquitous intelligence that exists within society that enables it to solve its problems and that provides the conditions for the development of new solutions.² However, if one uses such characteristics to define social innovation, one runs the risk of ending up with a very broad definition that is difficult to evaluate.

The Young Foundation has found a way to delimit the scope of studies on social innovation by focusing on innovations that become new organizations or programs, which can be replicable and, at the same time, change the power balance, giving to the relatively poor and weakened more control over their own lives, and thus moving social justice forward.³

In order to understand how to promote long-lasting social changes, James Phills, Kriss Deiglmeier, and Dale Miller have also delimited the focus to social innovation that results in value creation that brings more benefits to society as a whole rather than to individuals separately.

Not only ideas, products, production processes, or technologies, but any new solution for a social problem that is more effective, efficient and sustainable than existing solutions; moreover, a solution for which the created value is

mainly reverted to society as a whole, more than to individuals alone.⁴

More recently, Robin Murray *et al*⁵ revised the definition of The Young Foundation as to “what” characterizes social innovation and “how” it responds to social needs. An innovation may be considered social when it generates positive results for society and increases its capacity to act and, at the same time, promotes new social relations or collaboration.

Thus, we recognize that a social innovation is a *new idea* (be it a product or service) generated *by means of new social collaboration* (co-creation), capable of *solving social needs* in a more effective, efficient and sustainable way when compared to the present ways offered by the services organized by the State.

Besides the traditional fields of knowledge (social sciences, administrative sciences) that may contribute to foment social innovation, the field of design has been identified as a method to organize the process of generating, developing, prototyping and testing of these new innovations.

On the Scope of the Activity of Design

Since its origin, design has been linked to the system of industrial production. However, during the 20th century, as the system underwent transformations, the scope of the activity of design was sought to be extended in order to include it in the post-industrial reality, which is based on service economy. Nowadays, the practice of design is able to attribute meaning to solutions (both of products and services) by means of the establishment of its complex functions, which may be directly applied to the social context.

In the social context, the main benefit of knowledge brought by the field of design for social innovation is the use of a consolidated process (design culture), which organizes the creativity of individuals in the search for new solutions (problem solving) which importantly also includes the configuration of the problem to be solved (problem setting). This means that the first step the designer should take is to question the problem, investigating its real causes, and, from a human-centered view, to seek understanding of the entire context that affects the problem. It is only from this systemic view of the problem that designers generate possible ideas to solve problems.

Elisabeth Sanders⁶ has identified mental models in the conduct of these project processes: one is named “expert” and the other “participatory”. The expert mental model describes the project culture characterized by the search of solutions for persons, developed by an expert that sees them as research “subjects”. In this model, the role of subjects is only to inform experts about their needs and life contexts. And the role of the designer, as a project expert, is to interpret this information and seek an adequate

solution capable of meeting the needs of subjects. On the other hand, the participatory mental model describes a culture that seeks to develop solutions with the persons. In this mental model, designers see people as project “partners”, since they are the true “experts” of everyday life experience. Here, the role of people is to collaborate in the creation of solutions, and they are seen as co-creators. The role of the designer is, therefore, to facilitate the involvement of people in this process of creation.

From Linearity to Co-Creation in the Innovation Process

Cartesian understanding, related to modern rationality and to analytical thinking, suggests the understanding of the whole from the thorough analysis of basic elements existing in the system. This modern rationality springs from the scientific revolution that took place in the 16th and 17th centuries; it generated the mechanist metaphor which was of great importance to scientific evolution. Subsequently, different approaches have been developed seeking to understand the complexity that exists in social systems. According to Ackoff⁷, theories related to systemic thinking seek to understand ‘organized complexity’ as dynamic networks of interactions from the notion of system. Forrester⁸ one of the precursors of the theory of systems, defined a system as “a group of parts that operates together seeking a common objective” To Ackoff⁹, this concept is basic for the understanding of existing relations in social and organizational reality, highlighting the importance of structure (or theory) for the understanding and interpretation in any field of knowledge. Thus, without an organizational structure, knowledge is only a collection of observations, practices, and conflicting incidents. Forrester¹⁰ proposes the existence of two types of systems to explain the dynamics of these relations: open and closed systems. Open systems are those whose outputs respond to input elements but do not influence them. Closed systems, or feedback systems, are characterized by a constant interaction between the results and the input of the system. From these concepts, the author highlights a series of social systems as systems that have feedback, translated into cause-and-effect relations.

The understanding of process as a chain of activities refers to the Mechanicist metaphor described above. However, this process has evolved in time to a recursive and systemic process. If one considers the linearity proposed, one may realize that any given activity clearly depends on the previous one. Moreover, actors are called to the process, as their specific activity is demanded. This process takes place, for instance, through the concept of co-design.

On the other hand, based on the perspective of co-creation, the processes of product development broadens the complexity of the model proposed, overlapping the temporalities and competencies

of actors during the chain of activities. Thus, one seeks the construction of multidisciplinary teams, with complementary competencies, participating in all activities of the process. Similarly, clients and suppliers, as co-creators, become an integral part of the process.

This shift in paradigm is centered in the perception that the interaction between the parts defines the dynamics of the system¹¹. Therefore, the process cannot be perceived as being linear and is the major propelling source for learning in the organization.

From the context described above and the innovation processes guided by design, which take co-creation into consideration, different authors have presented methods of innovation adequate to the present context.^{12,13,14,15}

The figure 1 shows one of this process, in which one perceives the relations between clients, company and technology, focusing on an innovation and a project process, one that is cyclical, non-linear and has increasing complexity.

Based on the concepts presented above, the following section of the present paper seeks to describe the method used for the practical evaluation of different approaches of design, considering the linear perspective and the systemic perspective.

Method

The primary data were obtained by means of interviews with participants of projects and observation. The secondary data were collected by means of the evaluation of the available literature as well as documents that describe the institutions studied and successful cases of application of design with social focus. The method of analysis proposed was content analysis to describe its process and results. Next, the two cases are described considering six dimensions: context, discussion, discovery, definition, development, implementation, and results.

The “Move Minds” Case

Context: The “Move Minds” project was developed by the Porto Alegre Child Health Association (called *Refflorescer*), which serves

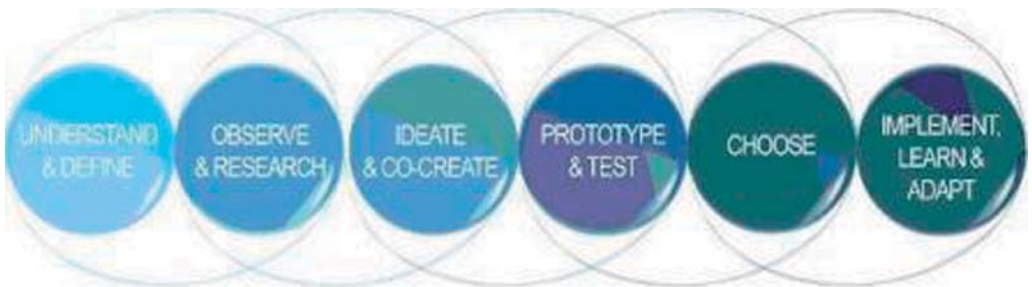


Figure 1
Design process.

a community that lives in conditions of social vulnerability in the north region of the city of Porto Alegre, Brazil. The mission of this NGO is to support the restructuration of families whose children are recurrently hospitalized. The NGO offers families services related to food, housing, hygiene, legal documents, health, and financial income. Although the organization has been conceived within a non-essentialist social methodology, a paternalistic view underlies its actions. In the beginning of the project developed by five designers, it was identified that, although the area of financial income was the leveraging point for the sustainability of families, this was not being worked on by the NGO; therefore, there was a project opportunity. The project took place from October 2009 to June 2010, and its results were evaluated within this context. The figure 2 shows the design process we identified.

Discussion: Project designers started their process by identifying the possibilities for generation of income for families who were being assisted by the association. Discussing with the NGO representatives, they identified that the female heads of family had manual skills; moreover, they were interested in doing craft works. Then, the design team, together with the representatives of the association, defined that the solution for generating income would be the development of handmade products (project briefing). After an analysis of the materials available in the association for the craft work, the design team defined that the production of fashion accessories, such as necklaces would be viable. This choice was based on the following three aspects: (1) low production cost; (2) low complexity of craft work; (3) high potential of sales due to its visual appeal for female consumers.

Discovery: After the definition of the project briefing, the design team began trend research, seeking elements to support the configuration of the product. During the entire process, the five designers worked collaboratively; all information obtained via research, as well as reflections and decisions were taken by the group. They also carried out a group activity with the community in order to try to understand their lifeworlds and identified a difficulty in the group in exercising creativity.¹⁶ From their understanding of the women's lifeworlds, the designers opted for defining materials (thread and fabric) and production techniques (derived from crochet). The choice of the technique was based on the ease of knowledge transference to the female heads of family.



Figure 2
Move mind design process – phases and goals.

Definition: Next, the designers defined the form of the products and made prototypes. After having evaluated the prototypes in a process based on reflection in action, they reached the final products, which would be worked with, with the group of mothers.

Development: The design team met with the representatives of the association and the group of mothers to present the product. At this meeting, the team used group work techniques to integrate the participants who would make the product and to motivate them to perform this activity. Although the level of participation was low, at this moment they presented the necklaces that would be handmade as well as the production process. The design team would carry out a four-week training period for the making of the necklaces. Moreover, the designers would develop the necessary support tools for the sales of the products (brand, package, catalogs, tags, sales points, and website) and would seek adequate suppliers for the production of the necklaces.

Implementation: The designers were faced with a series of difficulties related to the participants' understanding of the technique to be used for making the products. This difficulty may explain the low adherence of participants to the activity, with some of them giving up. As a result, the time initially estimated for the transference of knowledge had to be increased. After the production of the first batch of products, it was identified that the market valued this supply, for the product met the aesthetic standard of the (targeted) female consumers. Thus, the designers sought ways to consolidate the sale of the products. They had two challenges: first, to solve problems related to the quality of the final product by adjusting the techniques of manufacturing and, second, to establish a sales point for the products. The design team developed a sales point to be installed in a shopping center in the city and presented a new process for the making of the necklaces to the mothers.

Results: Product acceptance was good, for the whole stock was sold. However, the objective of generating income in order to bring sustainability to families was not reached because the mothers stopped producing the necklaces when the designers stopped participating in the project; the mothers did not perceive the value of what they were producing. Since they were not directly involved in the creation of the products (although in some moments the designers tried to include them in their improvement), they did not identify themselves with the product they were making. Moreover, the solution proposed by the design team for the generation of income considered them only as hand labor for the production of the crafts. They were not involved in other stages of the value chain, such as the creation and commercialization of products.

The “Super Healthy” Case

Context: The project was developed by two designers in a Basic Health Unit (BHU), located in a socially-vulnerable community in the south region of the city of Porto Alegre, Brazil. In this community, people do not have access to the treated water and to the sewage treatment supplied by the city hall. Houses have illegal electricity connections and water supply. Moreover, garbage collection services are also precarious. The level of schooling is low. The mission of the BHU is to provide primary health care services to the population of this community, such as medical and nursing consultations, medications, first aid, inhaling, injections, vaccination, and prescription of lab tests. The unit is under the umbrella of the Brazilian Public Health System (SUS, in its Portuguese abbreviation) and renders free services to the community. The unit is also in charge of rendering services related to curative and preventive medicine as well as the promotion of health. A paternalist view centered in the person of the physician underlies the activities of the whole health team. From this understanding, the project team identified a great opportunity to create a radical innovation in the services offered to chronic patients, whose diseases had no cure and demanded lifelong treatments that were not being adequately given by the current mental model of the SUS, which focused on the cure of diseases and, as mentioned, centered in the person of the physician. The focus of this innovation would be to change to a service based on the health conditions of people. The project took place from September 2010 to February 2011, and its results were evaluated within this context. The figure 3 shows the design process we identified.

Discussion: The design team held meetings with the managers of the BHU in order to identify the specific needs of the community as to the management of chronic patients. After the analysis of the epidemiological enquiry of the BHU, it was conjointly defined that the project should develop a new service for the management of patients with type II diabetes. Diabetes is a metabolic disease that affects one’s capacity to absorb glucose via insulin, resulting in

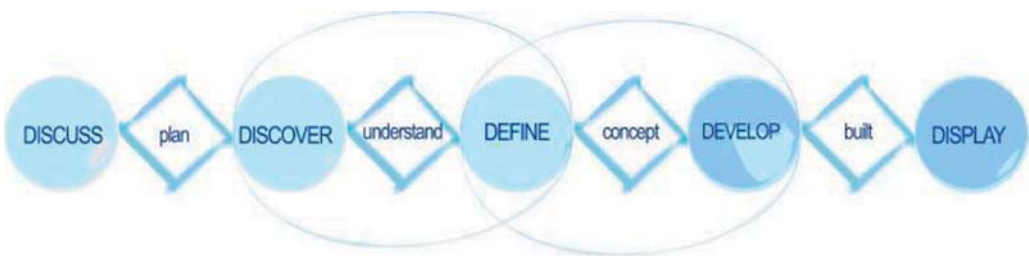


Figure 3
Super healthy design process – phases and goals.

excessive sugar in the blood. There are many types of diabetes: type I, type II, gestational, and other less common types. Type II diabetes is the type that increases most in the population, so much that it is considered by the World Health Organization as a world epidemic; type II diabetes is caused mainly due to changes in the life style of the population in terms of eating habits and physical activity. The most common causes associated to type II diabetes are obesity, sedentarism, and genetic propensity. It is one of the most deadly diseases in Brazil (along with hypertension). Moreover, it causes a series of damages to the health of the individual and is the main cause for hospitalization, due to its complications, such as, cardiovascular disease, dialysis due to chronic renal insufficiency, and amputation of lower limbs.

Discovery: The design team initiated two research approaches: desk research and participant observation. The objective of the first was to get to know the health system and the medical perspective on the disease. The latter sought to understand the everyday lives of people with type II diabetes and their relation with the services rendered by the BHU. It was verified that from the moment a person is diagnosed as having type II diabetes he or she needs to re-learn how to live, monitoring continually his or her blood glucose levels in order to avoid the complications of diabetes. Also, it was possible to understand that an efficient treatment of this disease is three-fold: medication, healthy eating, and physical activity. Moreover, it was identified that one of the main challenges for the control of blood sugar levels is a change in everyday life habits, mainly eating habits, because often people have difficulty understanding the nutritional components of foods and choosing the most adequate foods for their condition (i.e., foods with less glucose, fat, and sodium). Participant observation revealed that although in medical appointments physicians indicated a new diet to patients, the diet was not followed. Then, the design team sought to understand the knowledge that patients had about the foods suitable to their condition; they came to realize that eating is a collective act and that eating limitations imposed by diabetes could lead to a degree of “exclusion of eating together”. Consequently, many times diabetic individuals did not follow an adequate diet so as not to feel “different” from the rest of the group. These observations and analysis led to identifying the importance of creating a service to support the eating re-education of type II diabetes individuals, one that would include the family of type II diabetes individuals as supporters of this change. The design team decided to develop a design solution for diabetic individuals who could control their glucose levels without taking insulin

Definition: From these results, the design team sought to understand how the existing re-education services worked and what support could be used for an education service. After a brainstorm to

generate ideas for solutions, the team decided to create a ludic tool with which people could learn new eating habits in a fun way. Based on the understanding of the context of life and habits of the people, the project was directed to the creation of a card game that could be played both individually and in a group. This was based on understanding the activities and objects that were part of the everyday life of this community.

It was understood that the main objective of the system should be to teach about what type II diabetic people should eat and how much. The game would be a tool to be used at home, to support the self-management of diabetes. The designers talked with the different actors in charge of food re-education of diabetic individuals, such as physicians, dietitians and nurses, to understand eating restrictions and the relevant information for re-education, in other words, important information for the configuration of the card game.

Development: The development process was based on participatory design; different actors brought their ideas for the improvement of the solution presented. Participants incorporated their ideas in the project by means of changes in fast prototypes presented by the design team. Several iterations were made, and the different prototypes served as an interface of project communication between the different individuals involved. The game created consisted of a set of 56 cards that present information on food groups and the name of foods, amounts, score, and adequacy to the diet of diabetic individuals. It aims to help people understand the difference between foods that they can eat as much as they want (green card), the ones whose intake they have to control (yellow cards), and those that they have to avoid (red cards). The cards are divided into 7 groups of foods (beverages, cereals, legumes, proteins, dairy products, fruits, and vegetables), and each card is associated to a color (red, green, or yellow), according to the adequacy of the food and the intake of a person with type II diabetes. The objective of the solution proposed is to facilitate the understanding of the adequacy of foods to the diet, leading to a change in behavior.

Implementation: The game was presented for the group of patients in an activity mediated by an educator in diabetes, who used a colloquial language and a didactic approach to explain to patients how to play the game. Next, patients were invited to play a round of the game called Super Healthy. At the end, the results of each player were discussed, and players could take home a poster that illustrated the game.

Results: The solution proposed aimed to help the memorization of essential information to help change in behavior in the daily routine of diabetic individuals. The results found in the stage of ideation

were quite positive, and patients involved in the project showed a change in their eating habits. Patients stated that the hardest point to care for the diabetes was eating habits and that the game was an important tool for them to change their diet.

Analysis

The understanding that our actions are a result of our experience and of the mental models we develop is broadly discussed in the literature by Senge¹⁷, Capra¹⁸, Wind¹⁹, Meadows²⁰. In the present study, one may observe that different mental models could impact on the process of decision making as well as the construction of projected solutions.

In the first study, the Move Minds case, the main focus was the search for a means of generating income for the female heads of family. The mental model that defined the actions of the NGO were based on a paternalistic view in which experts brought their world view and experience to those that needed help. As a result, the design team needed to adopt a mental model of conventional design in order to provide the NGO with the results it expected to help families to generate income, in other words, a product that could be commercialized by the NGO and whose income could be reverted to projects and passed on to the mothers. Although the products were successful in terms of sales and the social need for generation of income was momentarily reached, the project did not stimulate participants to continue using the solution proposed by designers as a means for generating income in the medium and long term.

In the second case, although the current mental model of rendering health services was paternalistic, the people involved in the project were open to a different view for conducting the design project, one which would empower users in the management of their condition. Based on the presuppositions of participatory design, the design team was able to build a solution together with users, stimulating them to adhere to a new diet pattern.

By considering the value that the actions of design may bring to social organizations (in this case health service and social service providers) one may affirm that there are three types of possible results to be reached: first, value of design in product development; second, market value of design, and third, transformation by design.²¹ It was identified that the results reached by the Move Minds project were associated with the market value of design, while the results of the Super Healthy project were related to the value of transformation of design (see figure 4).

A possible explanation for this difference in results is the current mental model in the conduction of project processes, that is, designer as expert and participatory design. This explanation is in line with the proposition of authors in the field of design for services that consider the perspective centered in the community

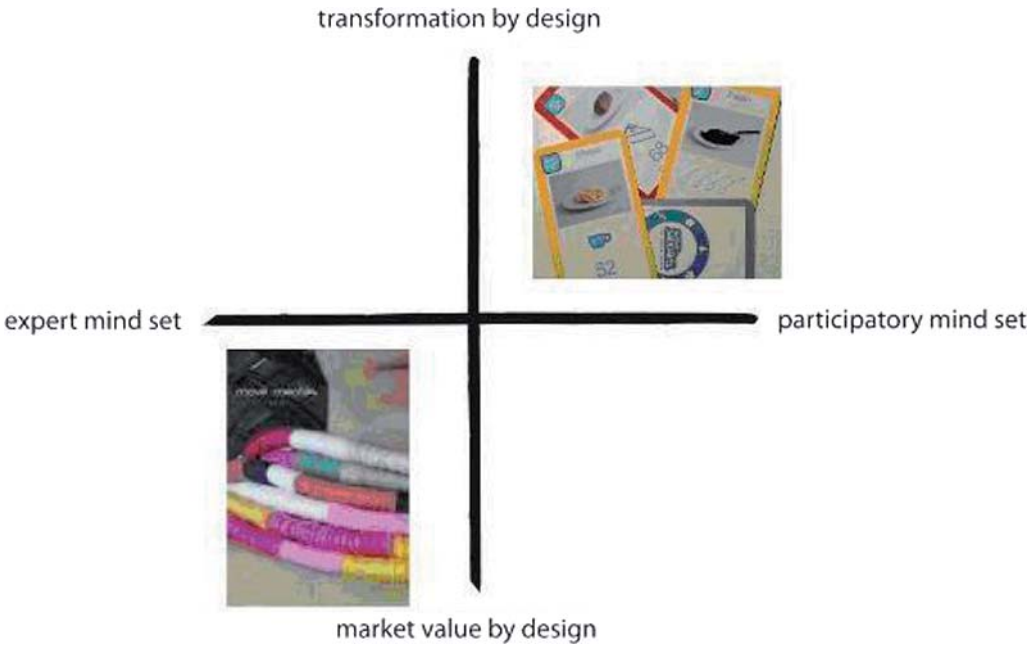


Figure 4
Project result versus designer mindset.

of practice (community centered design) as being more adequate to reach social transformation, since *“elective communities (defined by interest, geography, profession or other criteria) are sufficiently larger than the individual to impose moral restraints that transcend the individual will, but still small enough to be recognized as representative of individual interests”*.²²

Thus, one may consider that the participatory perspective on design is more adequate for social innovation in service organizations, which includes the community of practice, as *“services are deeply embedded and diffused in social ecologies, they have the potentials to impact individuals, families and communities by suggesting new behavioral and interaction models”* (p. 1). Therefore, design for services organizations could be seen not as an end in itself but as an engine for wider social transformations.²³ The main contribution of the participatory design approach to social innovation is to include different experts involved in the social change, from the ideation and analysis to the evaluation of possible solutions. In this way, the opportunities for change could be better understood; the concept development is built upon the understanding of diverse needs; and the development, which includes feedbacks from the multiple stakeholders, results in a solution perceived as useful, usable, desirable from the user’s perspective and feasible from provider’s point of view.

If one evaluates the three essential elements of project management (Kerzner²⁴), one perceives the impact of the different approaches on the following elements:

- **Deadline (Time):** Considering the technical and projectual capacity of designers, the dimension “time” for the construction of the project was accelerated. This happened due to the understanding that the solution would be defined by the designer, thus minimizing the discussion and construction of consensus.
- **Project quality:** The dimension “quality” may be interpreted in different ways. However, the quality conferred to projects built by experts tends to be higher when compared to the quality obtained when a project is built by people who have less theoretical knowledge of the topic.
- **Costs:** Working with specialists, the time for the conclusion of a project is shorter than the time of project when the designer seeks a process with greater participation; consequently, one may conclude that project costs tend to be smaller when a designer is present as an expert.

Although the understanding of the impact on the three main project indicators is relevant, their evaluation may lead to an erroneous analysis if one does not consider the long-term aspects involved in the process of social innovation.

It should be highlighted that one of the main elements to be constructed in innovation processes that seek the construction of social dynamics is the autonomy of those involved; in the medium term, this autonomy should allow for the sustainability of the projects, without the technical and structural dependence of professionals or even the State. In this sense, considering the time factors and the specific characteristics imposed by the dynamics of social innovation, we suggest an important change in the analysis proposed by Kerzner:

- **Deadline (time):** A broadening of the time of the project is essential, considering the passing on of information and participatory construction.
- **Project quality:** As participation and understanding of the project technique take place, the quality of the project tends to increase. Thus, in the medium and long terms, projects that involve users directly tend to broaden the level of quality perceived.
- **Costs:** Although costs and involvement may be higher in the short term due to the greater need of follow-up and discussion, medium-term costs of social innovation projects with participatory design decrease. This happens because, after the initial period of follow-up, there is a project independence that allows users to develop new practices and techniques that generate social dynamics.

To sum up, if one evaluates design in its most advanced stage, promoting social transformation, one should consider methods of design that promote collective construction and the dynamics of innovation in-group.

Thus, based on the literature researched and the cases described herein, one may verify the importance of participatory, collaborative and networked processes, which allow for a greater internalization of the process of design for the generation of social value.

This process of internalization happens in groups and, having design as a starting point, allows for the generation and conversion of knowledge, transforming the tacit knowledge of designers into explicit knowledge (explicitation), and the tacit knowledge of designers into the tacit knowledge of users (socialization). These concepts proposed by Nonaka and Tagueuchi²⁵ are the basis for understanding the learning process and are essential for the construction of sustainable projects in the medium term.

From the considerations made for the two cases, we may identify some similarities and differences in the processes developed, considering the profile and actions of the designer. Table 1 shows a summary of this analysis.

Conclusions

In this paper we have discussed the designer’s mindset during the design process as an important influence on the final results. When we are dealing with behavioral change issues, like almost every social innovation project, we argue that is imperative to incorporate the everyday knowledge of the people in question. In this case, the designer’s role is to articulate the information that came from different actors’ perspectives and built a common language to invite people to participate in the design process. So, the designer became a facilitator who enables the diffuse creativity to reach an appropriate solution. The evidence suggest that the participatory approach better suits social innovation because there is a balance of power enabled by people’s tacit knowledge about the issue. Formally, their role in the design process is to participate from the definition phase onwards, helping the design team to gather

Table 1 Comparing the two cases by stages.

Stage	Moving Minds	Super Healthy
Discussion	Development of product for the generation of income	Development of service to support self-management
Discovery	Focused on the consumer market	Focused on social context
Definition	Centered on the expertise of the designer	Co-created with the community involved in the use of the service
Development	Prototypes allowed designer to improve the product from the evaluation of production flaws	Fast prototypes allowed the insertion of different stakeholders in co-creation
Results	Product was well accepted by the market.	The tool enabled a greater adherence to an adequate diet

information, generate ideas, develop solutions (through iterative prototyping sections). So they are key players who have to be invited to participate in the design their new future.

This kind of practice should bring new possibilities for the future, allowing the construction of continuous learning and the reformulation of the design process. This process could be understood considering Kolb's learning styles model and experiential learning circle.

The results reinforce our beliefs that better results came from a deep understanding of the problem, and for this, it is very important to build collective knowledge from individual knowledge.

Finally, the main contribution of the participatory design approach (by building, prototyping and testing solutions with users) to social innovation is to address the values that perpetuate cultural habits. During the process it is possible to visualize the barriers to behavioral change (connected to cultural values) and with their contribution, it is possible to develop solutions that help people change their habits. In this way, designers can have a positive influence on systemic and political change, by two paths 1) promoting cooperation, discernment and collective wisdom; 2) allowing the testing and validation of new solutions in a small scale, with reduced cost, making the diffusion process more effective, efficient and valuable for the institutions.

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