Strengthen Ties of Social Bonding Through Design from and Emotional Perspective.

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Abstract | Emotional perspective of design has pursued until now mainly economic, and commercial objectives, however has a great potential to benefit society, because human emotions, have a central role in the determination and construction of human social relationships, also are elements that shape certain human behaviors that can produce pro-social effects, much needed in the current context.

This paper presents the most relevant studies of the research project which aims benefit society from the emotional perspective of design, through them, the paper responds questions as, what role do emotions play at the social level? what are the emotions that could be useful to achieve ends in favour of society? what could be the paths that allow the development of a design from the emotional perspective and the benefit of society?. Finally, is presented design set up categories of application, to materialize design from the emotional perspective with a social accent.

KEYWORDS EMOTIONS, SOCIAL BENEFITS, SOCIAL DESIGN

1. Introduction

This paper presents the most relevant studies of the research project, which aims to take advantage of emotional design in favor to contributing solutions to some of the complex social problems of our time, as social fragmentation, as intercultural tensions, social discrimination, and civic burnout.

The potential role that design plays and could play in collective problems of our time, is an issue that is not new in the area, since it has been discussed in a variety of studies from different approaches; such as the social responsibility of designers from a historical and ethical point of view (Papanek 1984, Madge 1993, Margolin 2007, Woodham 1997); or the potential damage of the design in terms of the damage caused by leading users to constant consumption and by extension to a huge generation of waste (Whiteley 1993, McDonough 2002, Chapman 2005), and how to change people's wasteful behaviours through design (Lockton, Harrisson, & Stanton, 2008, Bhamra, Lilley, & Tang, 2008; Lilley, Lofthouse, & Bhamra, 2005; Lilley, 2009)

Considering the studies mentioned, an aspect that needs to be discussed widelier and even to extend the study perspective, is by one hand the question of how far the use, of rather than the production and disposal of products design of all kinds (objects, services, spaces, etc.), has led to unwanted social implications. By the other hand and above all, it is necessary to reflect on the potentiality that is offered by the design to, through its use and interaction, guide people to have prosocial practices and behaviors lead in a relevant way to improve the current social context.

There are few studies with this perspective, this means, to encourage a change in behavior through design, we can mention by its relevance the Tromp (2013). It points out that the human perspective from which the industrial products have been developed by now, has led to the effective satisfaction of the individual user's needs, but has ignored or even been detrimental to the collective goods. The influence that undoubtedly the design has carries important social implications, this influence considers Tromp (2013), is often hidden and is involuntary by the designers, so that's why it becomes an important study object.

Design perspectives as emotional design, are still young, so they mainly respond to economic and productive considerations. These considerations are based on the power of emotions to seduce and change human behavior. In this way, the emotions induce to consume products.

Emotional design has a great potential to benefit society, from the basis of human emotions it has a central role in the determination and construction of human social relationships. In this way they are also raised as elements that guide, motivate, shape, certain human behaviours and interactions. In this manner emotions can lead pro-social implications, much needed in the current context.

There are important contemporary examples of collective human situations, that demonstrate the pro-social implications of emotions which are experienced collectively. The

potential of emotions to modify behaviours, seduce or motivate could be exploited from the design for other objectives such as human and social purposes.

In this manner, exploring the topic from other disciplines, allow to propose its theoretical bases, and at the same time conceiving specific guides to design´s developed with the purpose of increases the designer's understanding on how to actually materialize this positive influence of a design from the emotional prosocial perspective.

Based on these ideas, three relevant studies on the subject which are presented in this text:

- The study of the role that emotions play in determining the human social dimension

- The identification of specific emotions that can lead to behaviours with clear pro-social effects from examples of contemporary social situations

- An initial proposal of specific modalities to develop and materialize design from the emotional perspective with a social accent. The objective is to guide interactions and behaviours for the benefit of society.

2. The Emotional Design

The emotional perspective of design can be said that formally begin in 1999 with the foundation of the International Design and Emotion Society (1999) at the University of Delft based in the Netherlands. Later, in 2004, it becomes widelier known with the approach and conception of the term by cognitive psychologist Donald Norman through his book Emotional Design (Norman 2004).

The emotional design in Latin America is also a subject of a great interest as it is that the academics who work on it have formed in 2014 a network dedicated especially to the study of the subject, called the Academic Network of Design and Emotions (RADE 2014).

At being recognized that the success of an object in the market can be determined largely by its appearance, the pleasure and satisfaction it produces in the user, the emotional human field has become a relevant issue and of a great interest, in general, in design of mass-produced products (Helander 2006). Donald Norman has underlined this fact by pointing out that emotions have the power to change our perception, as a result of the interaction and emotional relationship with the objects in which we coexist in our daily environment (Norman 2004).

The identification and explanation of the process in which objects generate emotions, was explained by Desmet who, from the discipline of industrial design and based on the tradition of the three cognitive theories of emotion (Lazarus 1991, Ortony, Clore, and Collins 1988, Roseman 1996), conceives a basic model to explain the generation of emotions through products (Desmet 2002).

So, from the great potential of emotional design to lead to the success of product in the market to now, it has mainly pursued economic, to mass production product objectives. Are many products and services which, have applied the principles of emotional design, so through the evocation of emotions by means of its design or advertising, associates the product with specific emotions and feelings and thus induces its consumption.

In order to maximize the view of the great potential of the emotional approach, we looked for projects with a social perspective in the design area. We searched for projects that in some way take advantage of the emotions. We explored different approaches of design like "design for social innovation" and could find examples of projects which involve in some way the emotional human dimension. An example of an academic project from this area consists on offering a sensible tourism services where the heritage, cultural and natural resources of a Brazilian lagoon were enhanced through the connection of fishermen´s memories, knowledge and traditions from the local community, particularly the fishing activity, and the fishermen themselves (Franqueira & Gomes 2017).

From the industrial design approach there is a relevant study, it is that of Tromp & Hekkert (2010). Describes a project of graduation of the industrial design engineering of the Delft University of Technology in Netherlands, in which it was developed a product with the objective of contributing to a social change.

The project called "design for social cohesion", we can say that involves the approach of emotional design, because it evoked to lead the integration of immigrants into a certain social context, through promoting an identification between the involved human beings, those who migrate and those who welcome them.

It was a proposal based on knowledge and affective identification among these actors as people as they are, since as human beings we usually have aspirations, desires, emotions and feelings many of them similar among us, although our geographical and cultural origins are very different.

This project was developed based on the assumption that receiving a gift from someone in the neighbourhood, accompanied by a personal message, could stimulate, or induce people, to a reciprocity. So that increases the possibility of that individuals responds positively to the issue and be encouraged to send a gift to someone else in the neighbourhood. The gift was also intended to offer a specific starting point of a conversation.

Another example which take advantage of emotions, is in the design area called "games for change"; the project called "iBeg" is a game that simulates the life of a homeless person living on the streets of Vancouver. In this game players step into the shoes of that homeless avatar and have to beg for money in order to survive. This game will hope raise awareness of them and also provide a mean for players to support organizations that help homeless (Worboys 2014).

By the other hand, in the field of advertising, a discipline that in some way can be considered related with design, there are countless social campaigns that could be taken emotions into consideration. We must say that the majority of advertising campaigns always have sought to move in some way, but recently emotional approach in that area has been highlighted and taken advantage of (Forrester 2018). These are examples that have clearly taken advantage of the emotional approach with some social objective. Some of them will be mentioned below, since they allow us to point out the potential of emotions in a meaningful human sense through specific examples.

There were advertising campaigns planned and presented in order to lead people to have pro-social behaviours. One example is a campaign developed by the advertising agency Neozink from Asturias Spain, called "Unicef Xanadú Action" whose objective was to encourage people to be generous, charitable, and donate small amounts of money to mainly help poor and disease children (Unicef 2018).

By the fact that almost 7 million children die each year from causes that can be avoided and through the questions, "would you help to save a child's life for what it costs you a potato chips? Would you help save a child's life with a simple gesture?", The Neozink agency designed, adapted and produced blue envelopes vending machine from Unicef, and placed it into a shopping center in Madrid.

3. The role that emotions play in determining the human social dimension

It has been widely noted in previous studies (Bedolla 2018, 2014, 2013), the great importance of emotions, that through design, lead to the improvement of quality and promotion of learning, care and increase human wellbeing, as well as to contribute to sustainability by strengthening emotional ties with objects.

This paper will pointed out a different approach of emotions, its potential as human subjective reaction analyzed from a social perspective, unlike the individual as has been done so far.

Emotions have a central role in the determination and construction of human social relationships, thanks to their ability to guide, motivate, shape, certain human behaviours and interactions that provide the possibility of producing prosocial effects, so necessary in the current context.

Affectivity is inherent in human nature and being a term derived from psychology, refers to the set of feelings, and passions of a person, as well as their preferences or aversions. Emotions are a central part in the construction of affectivity and have been defined (Dictionary of psychological terms 2016), as a temporary alteration of mood, pleasant or painful, which is accompanied by a certain somatic shock.

One of the most relevant studies that provided knowledge about the importance of human emotions, belongs to the area of neurology and neurosciences (Damasio 1994). It presents and explains extensively the mechanism by which emotions guide behavior and decision making based on the idea that the dualism proposed by Descartes is a mistake because it has separated mind and body, rational and emotionally.

The traditional concept of emotion from psychology assumes that it is an essentially internal and personal reaction of every individual; as a consequence it has been assumed that emotions can be better analyzed from an individual in a psychological or cognitive perspective (Parkinson 1996).

However, Parkinson (1996) proposes another perspective that leads to consider emotions more than as individual constructs but as social phenomena. Social psychology provides important theoretical foundations to understand other very relevant aspects of emotion; in this way the author does not deny that cognitive and physiological processes also contribute to the emotional phenomenon; the issue implies, rather, he says, the conceptual priority given to each of the factors involved in the emotional human process. In this way, the organizational principles of emotion depend ultimately on social aspects.

Parkinson identifies three modalities of social interaction that according to him clearly originate emotions in individuals:

- Social relationships, that is, emotions that are the result of real, anticipated, imagined, and memorable social relationships.

- Interpersonal influence, that is to say reciprocity and emotional contagion often unconscious and nonverbal among individuals of a certain social group.

- Cultural values, refers to the social establishment of emotion, based on the implicit and explicit objectives in which the individual lives.

Le Breton (2013) on the other hand, from the field of Anthropology, points out that emotions are relationships, a social and cultural construction. The author explains that an emotion is at the same time interpretation, expression, significance, relationship, and regulation of an exchange. They are collective expressions of the individual and the group simultaneously, and represent signs of a collective language; an open system of meanings, values, rituals, and vocabulary.

From the field of Sociology, Hochschild (1975), one of the three pioneers of the so-called sociology of emotions, incorporates emotions as a key access path for the knowledge of any phenomenon or social situation.

4.Specific emotions that can lead to behaviors with clear pro-social effects

Once the social relevance of emotions was clear, from the question, what are the emotions that could be useful to achieve prosocial purposes? the study of the classifications of social emotions was carried out.

Based on Shlomo et. al. (2008) there are various classifications made in this regard. One of them indicates that social emotions are not innate and that they are those caused by some kind of social event (Oatley 1987). Another classification indicates that they are simply those most frequently communicated to other people (Fridlund 1991). A third classification mentions that they are those that characterize social processes that are generally shaped by emotions (Frijda 1986).

The previous classifications said that the specific emotions indicated as "social" are many. The most frequently mentioned are: guilt, envy, shame, gratitude, admiration, pride, jealousy, sympathy, obfuscation, and crush. And then they will be those that make sense in relation to others and that arise in a particular social context. Based on this, Shlomo, Anat and Parkinson (2008) broaden the characterization of social emotions; they propose as a basis for identifying them, the nature of the evaluation or assessment that gave rise to them; which can be a direct or indirect social situation and not necessarily involve or make direct reference to another person.

From this idea, there are significant emotions socially experienced, which regardless of the direct or indirect nature of the social situation that create them, it is clearly seen the benefit in the community. In this way an example is social anger which is a social emotion that led people to agree, to organize and integrating the social movement called "de los indignados" that emerged in Madrid Spain, in May 2011. One of the participants of this movement, said that it represented a time when people woke up and began to identify, to feel together, and to talk about certain issues that were socially implicit and that worried everyone (Grueso 2012).

Another social situation which is socially experienced involve empathy and solidarity. Both are human capabilities that contain different emotions, mainly a certain degree of sadness and anger. An example of this case is a voluntary woman group self-designated "the Patrons" from the community of Amatlán de los Reyes, in Veracruz Mexico. They had a generous interest of helping immigrants in need, providing them food and assistance in their passage through Veracruz in the train called "the Beast" (Solis 2016).

Another example of solidarity and empathy is undoubtedly the experience lived by a large part of Mexican society in Mexico City. During the earthquakes on September 19, 1985 and 2017, in the face of the human and material disaster that occurred, a large number of the

city's inhabitants took over the streets to offer selfless help to everyone who needed it (Campoy 2017).

We also can mention collective sadness which is social emotion recently experienced in Venezuela, as a result of the social, economic and political situation by the population. Sadness was noted as the emotion that 95% of people lived. At the same time, the sadness of contemporary societies was described as a revolutionary power, as a direct consequence of the dynamics of the political and economic system of that country which it was also, it was identified as the germ that could overcome it (Impulso 2014, Tristeza 2017).

Collective joy is shared and guided by a group called "underground joy" which is a group of musicians and clowns. Originated with the objective of carrying out interventions in people´s world traveling by public transportation, mainly the subway in the city of Buenos Aires. They share music, dances, smiles and looks, with the aim of people disconnect from their internal dialogue (Alegria 2012).

By analysed these examples and others, of them, in an initial way (since it's a subject that starting to be explored), it was possible pointed out some of the pro-social reactions or effects:

A reaction of cohesion, cooperation, participation, and meeting mainly related to positive emotions. A reaction of awareness, concern, and interest in others, related mainly to negative emotions.

From this, four groups of social emotions were identified based on their effect in favour of the social field:

1. Social adhesive effect: Empathy, Solidarity, Joy, Anger

2. Social adhesive effect based on its great cultural load: Patriotism, Religiosity

3. Concern and concern for others: Sadness, Compassion, Anger

4. Awareness effect: Shame, Guilt, Fear

The examples that have been presented were not intended to be exhaustive in any way, but simply to show the social effects of the experience on certain emotions at the collective level. Thus, based on these social reactions, initially and incipiently, we propose the identification of emotions that produce clear pro-social reactions or effects.
Effects that are independent of whether they are emotions that are qualified as positive (for the pleasure and satisfaction they generate) or negative for the type of experience the individual lives. Both emotional experiences, stimulate in people attitudes that benefit society.

In relation to the qualification of negative emotions (as sadness, anger, and disgust), Fokkinga (2013) claims, these are also very useful since on one hand, they are also able to

lead a rich experience, which generates great interest, and by the other hand, they are especially able to emphasize the morality of our actions as they stimulate and focus people's attention.

5. Modalities to develop and materialize design from the emotional perspective with a social accent

Previous studies, were the basis to know the core of emotions and their social implications. Also point out that emotions could conduct people to pro-social behavior.

From that, the research project continuing into search a way to know how to materialize the positive social influence of design, from pro- social emotional approach. Which aims to increases the designer´s understanding of how to integrate this approach into design.

According to this, we carried out an initial proposal of specific modalities, which goal has been proposed a guide to engage pro-social emotions in design, and in this way, take advantage of the potential of social implication of it. Is an initial proposal, because it looked for taking advantage of social emotions to develop pro-social Design, is a topic that starting to be explored. For this reason, the needs to continue the research and widelier reflection ahead and mainly, develop projects with social objectives based on this group of modalities

Thus, based on the pro-social actions (like cooperate, share, and collaborate) that social emotions conduct, which were identified previously (empathy and solidarity, collective anger, sadness and joy), the way followed to conceive an initial proposal of the modalities, was based on searching some examples of ítems from Design, Advertising, Computer science or any discipline, which in some way, they accomplish lead to the prosocial actions mentioned.

The examples of items, were analysed to identified if they allow pro-social actions. The analysis was done independently if they were related with some emotion. In fact, this analysis of ítems done, was the initial approach in which we began to visualize and conceive, specific manners to conduct into pro social actions, that are related directly with social emotions that we identified.

The analyses of the mentioned examples were carried out through the identification of the following aspects in each of them:
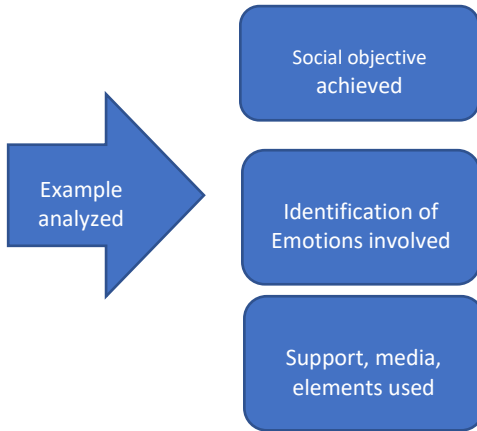
The goal of that, was to identified these pro-social actions through some examples of items, that is based on taking positive behaviour of social implications, in relation to coexistence and social integration, educational and communicative processes.

In this way, three modalities are initially proposed to conduct to pro-social actions: cognitive modality, interactive modality and sensory modality; which are described below:

5.1 Cognitive modality

It has been proposed cognitive modality base on the analysed and the reflection of some examples of ítems, services and design products, which function is based on explicit and textual ideas. These ideas make a clear reference to affective situations which could conduct to pro- social actions, making reference to emotions or else directly to pro-social actions. In this way would have a notorious influence in people's behavior.

Below are presented the analysed aspects of some design items in a brief way, for space reasons (Table 1):

Table 1. Analysis for the cognitive modality

Examples of items analysed	Social emotions involved identified	Modality identified
-Product whose function is to make an audio recording of personal experiences	Recording personal experiences could generate empathy in others.	Cognitive: Influence through explicit emotive ideas
-A table game based on textual ideas	Textual ideas could promote respect, diversity, and tolerance	
-Digital networks such as Twitter, Facebook and others.	These allow anybody to see at any time the problems and concerns of millions of people. Which can cause empathy by helping users see other people's perspectives and thinking processes	

Since disciplines like conductual economy and cognitive psychology (Smith 2016) we can raise the theoric basis which can explain the relevant influence in people of explicit emotive ideas communicated through different ways.

Between factors that allow this, Smith (2016) claimed that the person´s formation of moral judgments, is raised, within the framework of a "natural order" of social extension.

On that matter the concept of sympathy has particular importance to Smith (2016), because is the principle that explains the formation of moral judgments, and over all, is also a method through which the individual expresses a favourable judgment of the neighbour´s behavior and expect others to do the same.

In the field of teaching the design degree, it is possible to mention very briefly a class exercise in which a conceptual application of this cognitive modality was proposed. It was a concept for a project whose objective was to promote solidarity between people. It started from the idea of looking for the most appropriate means to send a message to adolescents and young people about the importance of solidarity and mutual help in order to achieve a common goal. For this, video games were identified as an element of great popularity among adolescents and young people to transmit an explicit message; An existing video game that has some popularity ("Battlefield V, Medic Edition") was chosen for this, set in a warlike context, which states that a group of doctors help a battle squad survive and triumph.

Given that the game somehow already involves team support, the project simply consisted of redesigning its packaging, seeking to emphasize the importance and emotion of teamwork, help, communication and mutual support. ; in this way, the game's packaging presents textual ideas that stand out: "teamwork will lead to victory, if you go on your own you will find defeat."

5.2 Interactive Modality

It has been proposed interactive modality base on the analysed and the reflection of some examples of ítems which modalities of interaction lead in some way, to cooperate, share, and collaborate; which can offer the opportunity of coexistence and social integration. These items allow through them, a behavior that presented some positive aspect of social or collective interaction for the benefit of the community.

Examples of some design elements analysed are presented below in a brief way, for space reasons (Table 2):

Table 2. Analysis for the interactive modality

Examples of items analysed	Social emotions involved identified	Modality identified
- A collaborative digital table which modality of use is collective	Induce to collaborate, share, and considering neighbour. In this way invariably organize and conduct a collective teamwork in an educative or laboral context.	**Interactive:** User behavior can be regulated externally This regulation is primarily a logical consequence of restricting the operation of an object or space to a specific mode of use. Secondly, it represents an external influence element motivated by the design element.
- Products that perform their function through ludic or playful interactions, derived from basic games and devices from social psychology. These devices are a kind of games which set targets and challenges. Set an operant conditioning by means of reinforcements and unpredictable rewards, which manage to invite people to use them and through this they generate a social or even environmental benefit.	Ludic is directly related with joy, which is an emotion that Ekman (1972), pioneer in psychology in the study of emotions, classified like a basic human emotion and in this common sense to every human being. The ludic leads people to be solidarity with others.	

In the field of teaching the design degree, it is possible to mention very briefly a class exercise in which a conceptual application of this interactive modality was proposed. This is the proposal to apply the ludic approach, in exchange for donating some kind of humanitarian aid. The project application consisted of the conceptualization of a machine that offers the user to play a game of bowling in exchange for donating money to provide some type of humanitarian aid that the same machine describes and offers to provide. In this case, the ludic approach is used as the initial attractive element to interest and bring people closer together and later a donation is requested from them in exchange for said ludic experience: a bowling game.

5.3 Sensorial Modality

The sensory modality was identified based on examples whose common element was to somehow take advantage of the emotional expressiveness of different elements that integrate the aesthetic language of the product. Aesthetic language composed of visual, tactile, auditory, and olfactory characteristics or attributes that can constitute the aesthetic language of some design ítem.

Examples of design elements analysed that led to the identification of this modality (Table 3):

Table 3. Analysis for the sensorial modality

Examples of items analysed	Social emotions involved	Modality identified
Multisensory language of the screens of different devices capable of causing sensations and emotions on a conscious and unconscious level. More than two senses favour on greater information retention. Use of color, images, shapes, sound, music, aromas or other sensory stimuli that manage to establish a particular emotional state for the interaction of a user with a system, space, or object.	May be made reference to color images, sound, music, that refer all together to social situations or collective events that generate positive emotions for example expressions of solidarity or empathy	**Sensorial:** The intervention of the senses in the human emotional dimension explains why sensation perception is the primary level of receiving information from the environment. There is a parallel level, which we find to the emotion, which will occur once the vision, hearing, touch, taste, smell have informed us of the colors, sounds, tactile sensations, perfumes, etc., for which both the sensation as perception have acted as a first filter in emotional unleashing.
System that based on hearing, reflects or mimics the mood of a user by voice, to increase the commitment that the user feels to an action or service (chatbots or computer programs with which it is possible to have a conversation, to request some type of information or to carry out an action).	Voice, sound, or music, that refer to social situations or collective events that leads to positive emotions, for example expressions of solidarity or empathy	
Characterized objects with a significant character to attract people's emotions, or make them emotionally connect with their behaviour	Emotions have the ability to guide, motivate, shape, certain human behaviors and interactions that provide the possibility of producing prosocial effects, so necessary in the current context.	

We can explain the emotional implications on the human being, of the expressiveness of the aesthetic language of the product, because human sensory systems, are integrated by processes that determine human emotions widely and deeply. This statement is based on previous work (Bedolla 2002), which study was developed based on disciplines such as medicine, and mainly experimental aesthetics.

In this case, the proposed application in the context of teaching the design degree consisted of an object that has the objective of encouraging the adoption of pets (dogs) that are in foster homes. The Project consisted of a panel that presents emotional images of dogs that need a home and the affection of an owner. In this proposal, the objective was to soften and visually and audibly sensitize people to these needs of these animals through the aforementioned emotional images and sounds of solitary pets, as well as an explicit invitation to dog adoption.

6.Conclusions

The study presented here has been an initial exploration. The modalities to developed design, in order to modify behaviors, for the benefit of society from the emotional perspective of design, are not definitive or exhaustive. They represent different modalities, to begin the identification on how to materialize pro-social emotional approach in design is necessary to explore its application and usefulness.

The emotional approach is based on a relevant human dimension, which by now has been studied from a social perspective in a very limited way. It is necessary to keep continuing the studies of this topic in a widely manner. Design discipline has already taken advantage of emotional approach of design but in an implicit, limited way, with commercial goals and in an individual and non-collective human approach.

As a strategy to modify people´s behavior, the emotional perspective proposes motivate, lead, influence, and guide people to change their behavior based on emotions. This is a proposal which aims encourage people to improve their behavior in a more human and sensitive way.

These are the characteristics that define this human approach, which are very different from others strategies that change behaviours, cited by some authors like coercitives or persuasive. (Tromp 2013, Lockton 2009).

From the human's innate affective dimension, emotional prosocial design approach claims that, people are able to get sensitizing, worrying, caring, love, and even outrage. Design ítems are presents in many ways in people´s or their neighbor´s daily experiences that could promote people to reflecting, responsibility, and reaction directly and indirectly to have a positive social implication in society.

Emotions studies from social approach are such an important topic for the current society. In order to successfully resolve social problems of our time, we would have to consider that people who conform our societies are the source and the strength to counteracting many of them. Global and local social problems are not only a governmental task, individuals play a crucial role on it. And everyday design ítems can represent the means for this.

On that matter, is necessary to study and reflect on the ways in which is possible through design change people´s behavior, mainly by emotional approach of design. We reiterate, emotions have a great potential, a great powerful to seduce, to move and touch people and in this way can encourage their decisions and behavior. Emotions can become a relevant tool to designing for social benefit.

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