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Designing for bus stop experience: An emotion-driven project

Projetando para experiência em pontos de ônibus: um projeto orientado pela emoção

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ABSTRACT - The present paper investigates the process of developing an experimental design project for users of urban public transport in a large southern Brazilian city, Porto Alegre. This research, however, refers to a very specific aspect within this complex transportation system: bus stops. Its main objective is to evaluate the contribution of design process based on emotion-driven approaches on bus stop concept development. It presents three separate methodological steps and their respective results: (step 1) a preliminary in loco observation followed by a first design workshop; (step 2) an in-loco analysis of users' emotional experiences when using public transport; and (step 3) the application of this information in design workshops. The first step provided a general view of the phenomenon and fed the design process with inputs from real-world situations. The second step was based on Appraisal Theory (Desmet, 2008) and helped the researchers to understand that the most important emotions to work on would be anxiety and irritation, as well as the concerns that would trigger then on users. The third step, a three-day design workshop, was developed with the participation of 23 designers, divided into four groups. Three bus stop concepts, inspired by the experience-design analysis, were developed and are presented in this paper. The main results showed that all the designed solutions were able to offer alternatives to prevent unpleasant emotions, namely anxiety and irritation, based on a user-centered approach. The research also reinforced the view that, although it is not possible to design emotions, it is possible to design tangible conditions where emotions can be avoided or reinforced.

Keywords: urban mobility, bus stops, design for experience, emotion.

RESUMO - Esse artigo investiga o processo de desenvolvimento de um projeto experimental de design para usuários de transporte público urbano em uma grande cidade brasileira. A pesquisa, porém, refere-se a um aspecto específico dentro do sistema de transporte urbano: os pontos de ônibus. O objetivo desse trabalho é avaliar a contribuição do processo de design baseado em uma perspectiva orientada para emoção sobre o processo de desenvolvimento de conceitos de pontos de ônibus. São apresentadas três etapas metodológicas e seus respectivos resultados: (etapa 1) observação preliminar *in loco*, seguida de um primeiro workshop projetual; (etapa 2) análise das experiências emocionais dos usuários utilizando transporte público; e (etapa 3) a aplicação dessas informações em workshops projetuais. A primeira etapa gerou uma visão ampla do fenômeno e auxiliou o processo de design com *inputs* de situações reais de uso. A segunda etapa foi baseada na Teoria dos Appraisals (Desmet, 2008), que permitiu a compreender as emoções identificadas como mais relevantes no uso dos pontos de ônibus (ansiedade e irritação), bem como as motivações que as despertam nos usuários. A terceira etapa, realizada em um workshop de três dias de duração, foi desenvolvida com a participação de 23 designers, divididos em quatro grupos. Três conceitos de pontos de ônibus, inspirados pela análise com base na abordagem de design para experiência, foram construídos e são apresentados nesse artigo. Os principais resultados apontam que todas as soluções projetadas no estudo possuem condições de oferecer alternativas para prevenir emoções negativas, a partir de uma abordagem centrada no usuário. A pesquisa também reforça a perspectiva de que, embora não seja possível projetar emoções, é viável projetar condições tangíveis nas quais emoções podem ser evitadas ou estimuladas.

Palavras-chave: mobilidade urbana, pontos de ônibus, design para experiência, emoção.

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Introduction

Design activity is strongly associated with the act of conceiving projects. Design projects, in turn, are epistemologically related to the concept of being able to look forward, to build artifacts that alter an existing situation. Every human being has the ability to design responses to the problems of everyday life. Design activity, however, has changed significantly in the recent decades. In the end of the 19th century and the first half of the 20th century, that activity was closely related to the designing of industrial artifacts. In the last decades, design activity has expanded. Nowadays, researchers and practitioners also focus on other fields, such as Service Design, Strategic Design, or even Design for Emotion. All these activities have in their essence, however, the concept of designing something that does not exist in time and attempting to reach a predetermined objective.

The present paper investigates the process of developing an experimental design project for users of urban public transport in a large southern Brazilian city, Porto Alegre. Considerations on urban mobility have already been made by many experts, such as traffic engineers, city planners, politicians, and others. This research, however, refers to a very specific aspect within this complex system: public transportation bus stops. Its main objective is to reflect on bus stop concepts that incorporate solutions identified and designed during the project, relating the essential concepts of design as process with design for experience and design for emotion.

Bus stops in Brazil, for the most part, tend to evoke negative experiences, and the situation is not different in Porto Alegre. Long waiting time, discomfort (e.g. lack of space), and insecurity (e.g. crime and accidents) are negative aspects often associated with these spaces and they affect the daily lives of hundreds of thousands of users. By addressing this problematic scenario, the present paper attempts to answer the following research question: *Is it possible to design for alternative experiences that would improve the waiting conditions as well as the users' perception of the quality of the transportation service?* The assumption behind this question is that an experience developed on the basis of avoiding negative emotions and/or promoting positive ones could qualify users' perceptions about the public transport system. Several experiments could be designed to bring about such experiences. In the case of the experience-driven research at hand, the main idea was to investigate and suggest solutions that could be used in future projects to modify the waiting experience for better, departing from previously investigated desired emotional states.

Design artifacts have always been carriers of meanings and have evoked emotions in people. Today, however, there is some consensus that these intangible elements (i.e. meanings and emotions) can be designed along with their emotional outcomes. Emotional design

is understood as being the field related to the professionalization of designing with the explicit purpose of awakening or avoiding certain emotions (Demir *et al.*, 2009). Likewise, the pursuit of optimization of the design process for conceiving significant experiences for users has been recently discussed and worked on in Design.

The relationship between users' experience and their emotions is unquestionable because, according to Pulmann and Gross (2004, p. 551), it is "inherently emotional and personal", being dependent on individual factors such as cultural background, previous experiences, humor, and personality traits. Forlizzi *et al.* (2003), along with Hekkert and McDonagh (2003), point out that experiences are unique, composed of small events related to contexts, products, and people. Still according to these authors, experiences themselves are not designable, but the situations of interaction with the users are. For Hekkert (2006), the affective content that is elicited by the interaction between the user and the product encompasses the degree to which the senses are gratified (aesthetic experience), the meaning attributed to the product (experience of meaning), and the feelings and emotions aroused (emotional experience).

The design for experience field has, according to McLellan (2000), the intention of "orchestrating" experiences that are functional, engaging, compelling, and memorable. This requires designing every detail related to both content and context in order to generate emotional satisfaction and pleasure that collaborates with the user's perceived experience (Kurtgozu, 2003). Well understanding design for experience goes beyond the simple development of a service or product. It involves a whole set of activities to project processes and systems that give support to the occurrence of the experience. And, even before the experience itself, it involves the earlier stages of its construction such as a clear view of the client's and the production context.

The present empirical research was divided into 3 steps. Step 1 was an exploratory research with the goal of better understanding the problem. It included direct observation and a design workshop. Step 2 involved the identification of users' concerns, based on *Appraisal Theory* (Desmet, 2007). It helped to identify the most important emotions expressed by users at the bus stops. Based on these results, a reference-orientated research was developed to collect cases and other general references related to the theme to be used as examples. Step 3 was a three-day workshop. It was organized with the participation of 23 designers, divided into groups. Three bus stop concepts, inspired by the experience-design analysis, were developed and are later on presented in this paper.

In loco observation and a first design workshop – Step 1

Aiming at understanding which kind of stimuli/artifacts people use to qualify waiting experiences in ev-

everyday situations, an *in loco* observation was undertaken with the help of a group of undergraduate design students. It is important to highlight that “to qualify” means to keep a relaxed/pleasant emotional state, even when being in a potentially unsafe, noisy, annoying situation.

The purpose of this first look at the phenomenon was to feed the design process with inputs from real-world situations. To this end, the students were asked to observe and report peoples’ behaviors in a popular park in town and at bus stops in its surroundings. They should register their notes in a diary and also take pictures with the objective of better understanding what people do to be in a relaxed/pleasant emotional state. This setting was chosen due to its potential for establishing a clear contrast: on the one hand, a potentially stressful situation (bus stops) and, on the other hand, a well-known relaxing environment (park). It is worth to mention again that, due to high crime rates and also the usually overcrowded and noisy environment, bus stops are regarded as quite stressful spots in most large Brazilian cities.

The key questions present in the observation guide given to the students were:

- What do people do during waiting times?
- Which kind of experience can you identify at the bus stops? Why? What seems to be pleasant / unpleasant?
- How do people experience the waiting time? Which kind of emotion do they report when you ask about it?
- Which artifacts are used during the waiting time?

The observations were carried out on a Wednesday, a regular working day, during working hours. One of this

paper’s authors was present at the spot, offering supervision to those students who wanted to ask questions about any topic in the observation guide at any point during the whole activity.

Again, as stated before, the students were asked to identify which activities and artifacts seemed to be used in order to evoke or maintain a relaxed/pleasant emotional state. These activities and artifacts should be classified according to the following model:

In brief, results have shown that several stimuli were used by people to evoke/avoid the emotional states along the two main axes seen in Figure 1 (unpleasant-pleasant and activated-calm). Sound was identified as one of the most important stimulus and, therefore, it should be taken into account in the projects to come. Figure 2 presents the activities observed by the students, organized in four quadrants. For instance, “walking the dog” is related to the activated – pleasant quadrant.

Even though the focus of this paper is not to discuss the role of sound in evoking a relaxed/pleasant emotional state, it may be interesting to highlight some insights offered by transport users and also observed by the students. Sound, for instance, was regarded as having the potential to dissociate individuals from their negative external environment (i.e. noisy, dirty and potentially dangerous bus stops) and also from their negative internal environment (i.e. thoughts about their current life problems). Moreover, artifacts that play music were perceived as empowering, since they were controlled by the users and allowed for personal taste. And, finally, the fact that sound can be used independently from others and the situation itself.

Based on the observation results, a two-day workshop was carried out with the graduate design students

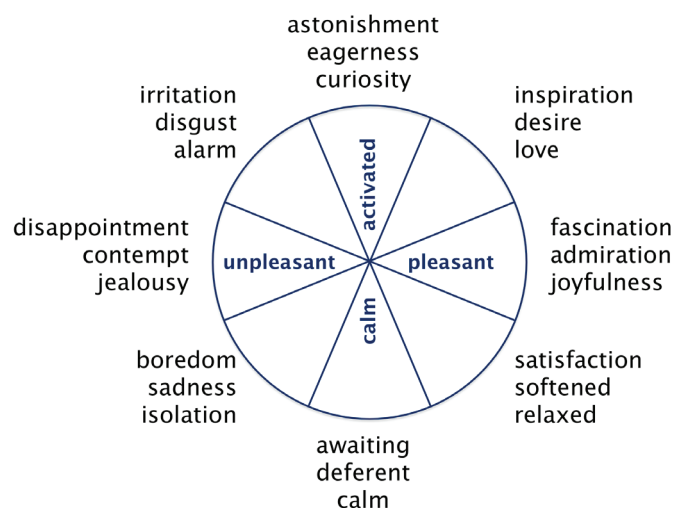


Figure 1. Circumplex Model of Affect.

Source: Desmet (2008) adapted from Russel (1980).

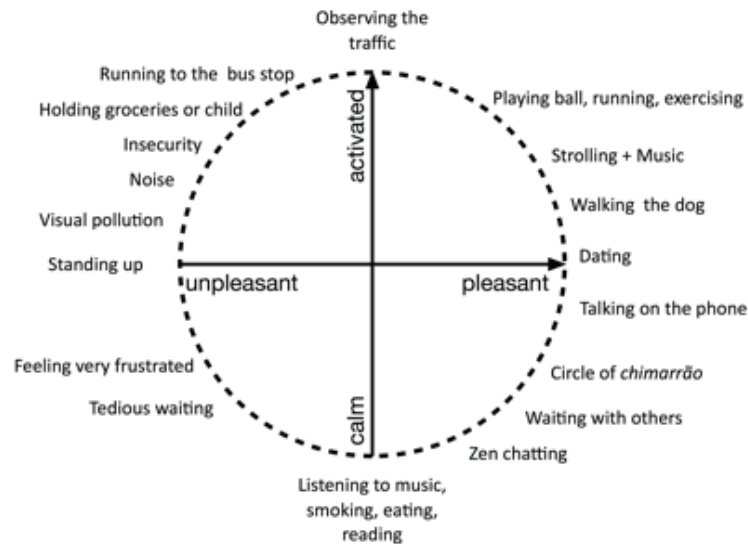


Figure 2. Possible organization of activities/artifacts regarding the pleasant and activation poles.

and the authors of this paper. The aim was to develop design projects with a focus on qualifying the waiting experience. The organization of the workshop was the following:

- Day 1
 - The first stage of the workshop, called “sensitization”, exposed the students to the concepts of design for experience, design for emotions and the observation results.
 - The second stage of the workshop, called “instructions”, familiarized students with the workshop’s structure and the general aim of the project (to qualify the waiting experience).
 - Briefing: *“Some stimuli evoke certain emotional responses in people. The objective of the workshop is to work with the stimuli identified in the first stage of the research. These stimuli, however, should be triggered by material artifacts. Thus, a secondary objective of the workshop is the idealization of these artifacts. Such artifacts will be used in future research trials.”*
 - After the briefing, the students formed 4 working groups and began the work under the guidance of the authors of this research.
- Day 2
 - Each group conceptually discussed what kind of artifacts would be developed. By means of brainstorming, the groups underwent processes of building and/or refining semantic maps. The results of these processes were presented in the form of graphical concepts. Some processes and results are now presented here.



Figure 3. Bubble wrap holder.

Note: In the picture, the text in Portuguese reads: “dry hands with only 2 sheets”.

The self-denominated “bubble” group based their work on the relationship between “calm” and “active”. They associated the word “calm” with the concepts of *individual, well-being, contemplation, distraction, safety, rhythm, silence, and observation*; and the word “active” with *routine, colors, history, challenge, change, anxiety, attention, curiosity, clock, and noise*. At the end, they proposed an artifact that, playing with the idea of bathroom paper towel holders, would offer bubble wrap (commonly



Figure 4. Concept maps and mood boards.

Note: The words in Portuguese on the “unpleasant” concept map read from top left to bottom right: bad mood, individualism, stress, cold, inconvenient, poor service, dull, boredom, abandonment, hyperstimulation, disharmony, dyssynchrony and excess. And on the “pleasant” concept map they read: beauty, color, nature, harmony, interest, company, warmth, sympathy, fascination, leisure, liberty, good service, organization, fun and choices.

used for packing fragile products) to transport users during their waiting time. The proposal tries to bring about a surprise factor and plays with people's imagination. Transport users would ideally spend their time "popping" air bubbles (Figure 3).

A second group went through a structured process in another direction. The group created two concept maps related to the words “unpleasant” and “pleasant”. Afterwards, these maps were represented in mood boards. Figure 4 shows the concept maps on the left and the respective mood boards on the right. The top left conceptual map is related to the word “unpleasant”, whereas the bottom left one is related to the word “pleasant”.

These representations led the group to imagine an environment based on the idea of fun, competition, and customization as a way of reclaiming the bus stops in order to make them expressive and give them an identity of their own. The development of the project was based on the concept of the 80s electronic game “Simon” (Hasbro)². The group proposed a space for games and touching panels, where users could freely create graffiti and, in this way, temporarily customize the bus stops. Another idea, still proposed by this group, was to create elements that would simulate natural environments outside the urban context of large cities (Figure 5).

The third group designed a sort of device intended to harness the energy contained in moments of irritation,

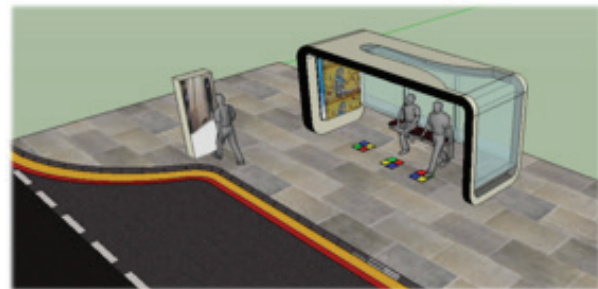


Figure 5. A space for games, entertainment, and with an identity.

such as waiting for some sort of service. The idea was to apply this energy into an instrument that would be made available to users. Instead of “naturally” seeking out manners of relaxation that would make up for the noisy and stressful situation, this group envisioned a kind of megaphone. It would be a way to dispel the so-called negative energies. To make this proposal tangible, the group picked up a different environment from the bus stops. They worked with a local snack bar that is well-known for its slow service. Their megaphone was called “the yell” (Figure 6)³, and users would be invited to express their hunger, due to the long waiting time, by yelling into it.

² In Brazil, this game was launched under the name “Genius” (Estrela).

³ The text in Portuguese that appears in the speech bubble next to the megaphone reads: "Are you hungry? Yell in here".



Figure 6. The yell.

This group worked with the emotion “irritation”. In the next section, this theme is further discussed.

Once the three concepts just described were determined, an attempt was made to explore the emotional dichotomy between the pleasant and unpleasant dimensions a little bit further. By using the observations on the way people spend their waiting time as a source of inspiration, it was possible to develop some ideas to qualify the waiting experience. The idea was to achieve a meaningful experience design project by using stimuli that were already present in the original context (bus stops/park) and that appeared to be used for the same purpose as that of the project. At this point, a new field observation, using a more precise method, seemed to be necessary. Departing from the assumption that bus stop experiences in Brazil tend to evoke negative emotions, two questions became important: which are these emotions exactly? And what provokes them? In Step 2, a particular approach, Appraisal Theory, was used to help identify these negative emotions.

Identifying user’s concerns – Step 2

As stated before, Appraisal Theory, an approach that has been adapted from Cognitive Psychology by Desmet (2007), was adopted in this second step. This approach explains the emotional relationship between people and objects (or situations). It is applicable to all possible emotional responses elicited in human-product interaction and it departs from three universal key variables in the process of emotion elicitation: (a) concern, (b) stimulus (caused by the products), and (c) appraisal.

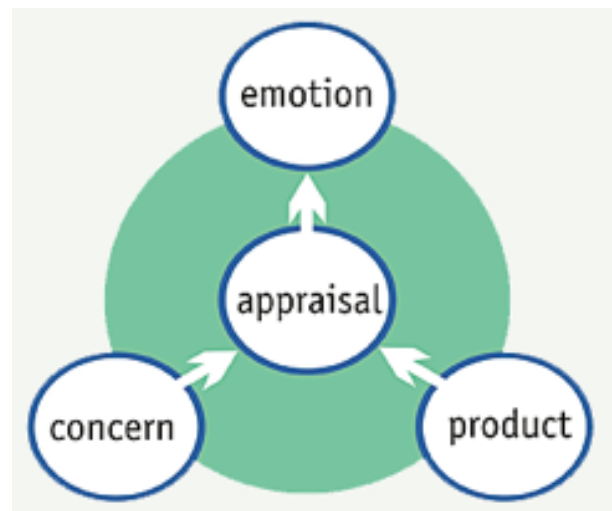


Figure 7. Basic Model of Product Emotions

Source: Desmet and Hekkert (2007, p. 6).

An appraisal, in the cognitive tradition of emotion psychology, is defined as a quick evaluation of a situation with respect to one’s well-being (Fridja, 1986). Stimuli evaluated as reinforcement for the user’s well-being tend to evoke pleasant emotions. In contrast, a negative evaluation (harmful to one’s well-being) has the potential to evoke an unpleasant emotion. The casual relationship between appraisals and emotions implies the possibility of activating a particular appraisal pattern that results in a corresponding given emotion. Thus, attempts to design

for a particular emotion may be facilitated by an understanding of the appraisal pattern that elicits such a given emotion (Demir *et al.*, 2009).

For experience-based projects, designers should first identify the target emotion of their project. Direct interviews with the users are a possible way to pinpoint individual concerns and to understand appraisals that evoke this specific emotion. With this information in mind, designers can later develop the design project, considering the elements associated to the desired appraisals.

Step 2 encompassed a user concern analysis, based on *in loco* interviews with bus stops users. This analysis is more thoroughly discussed in the following subsection.

Concern analysis

Nineteen *in loco* interviews were conducted in order to explore emotional experience related to the current bus stops in Porto Alegre. These interviews followed some guidelines, with the objective of understanding users' concerns regarding their emotional experiences.

At the bus stops, the interviewers first asked individuals to identify their main emotion at that moment, using an adapted Portuguese version of Scherer's (2005) "emotion wheel" (Figure 8). The wheel presented a range of emotions. One side of the wheel was green and displayed positive emotions, whereas the other side was red and displayed negative emotions.

After the first nine interviews, no consistent positive experiences had been reported. Two negative

experiences, however, anxiety and irritation, had been highly recurrent. Seven out of nine subjects interviewed reported one of these two emotions. These results pushed the researchers to shift the experience-driven project from a focus on "evoking positive experiences" to a focus on "avoiding negative emotions".

From that point on, the next interviews aimed at people who reported some anxiety or irritation. The interviewers kept conducting new interviews until the results reached a point of data saturation. That is, in qualitative research language, a point where the interviews stop bringing new results into the discussion. Later on, these results generated what the researchers defined as a Concern Analysis. According to Demir, Desmet and Özkaramanli's (2010) work, there are at least three types of concerns: (a) product goals; (b) activity goals; and (c) life goals. Nevertheless, in the case of the interviews conducted, all results converged into only two types: (a) goals with the use of the service (product goals); and (b) goals with the activity itself (activity goals). These two types are now more thoroughly discussed.

Regarding goals with the use of the service (product goals), users reported that the bus stops are always poor structures (Figure 9). They do not offer protection from the weather and/or a place to sit down while waiting. In addition, they are regarded as being too small for the amount of users. This concern is stated, for instance, in the following extract of an interview: "The bus stop is too small for the amount of people that use it. If it was raining, there would not be enough space to protect everybody".

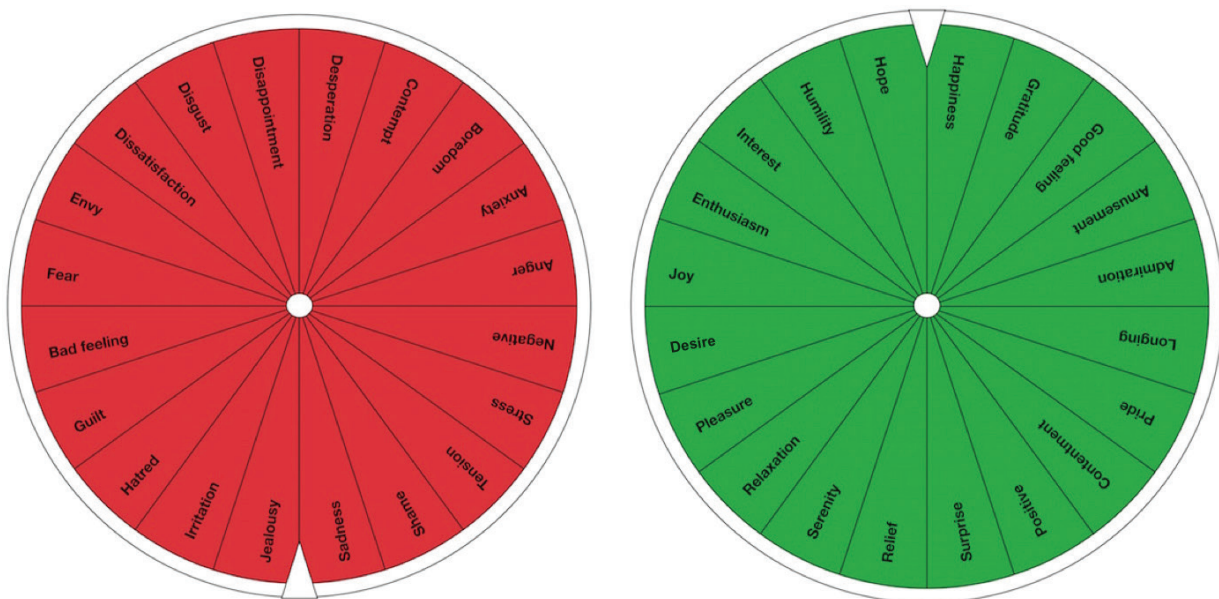


Figure 8. Emotion Wheel (both sides).

Source: Adapted from Scherer (2005).



Figure 9. Examples of bus stops in Porto Alegre.

Source: Photographers Cristiano Porto Klanovicz, Frances Danckwardt and Juliana Terra.

The users also mentioned that some bus stops consist of a mere sign showing that buses stop at that place. There are no structures at all.

It is important to highlight that the lack of space to sit down was mentioned as a single cause for anxiety/irritation and also related to a much wider negative evaluation of the bus stops. At times, some users might not have been too critical of the bus stops, but were pushed towards an anxious/irritated emotional state solely by the lack of seats. The same phenomenon was identified in regards to the fact that there is no protection from the weather, as the following extract illustrates: “When it rains, we get wet, and so many people together creates havoc”. In fact, “feeling cold” was reported as a specific cause for irritation. The open structure of bus stops offers no protection from the cold, as this user explained: “At the back there is no wall. If it rains or gets windy, you get wet and feel cold”.

Another cause for anxiety/irritation was lack of maintenance. Users reported that the bus stops are always in need of being repaired: “This one is rusty, ugly and needs painting”. And, finally, insecurity was reported as a specific cause for anxiety. Again, the open structure of bus stops combined with a lack of adequate street lighting, especially

during the night, seemed to make users report that “it is too dangerous to stay here [at the bus stop] alone”. As a result, they reported feeling anxious for the bus to arrive soon.

Now, in relation to the second type of concern, activity goals, users reported anxiety/irritation related to the unpredictability of the waiting time. They claimed that it is impossible to be sure when the bus is going to arrive at the bus stop. Such unpredictability seemed to prevent users from doing something useful with their time: “I can’t do anything while I’m waiting. I don’t know if it’s going to take long or not. I listen to my music, if possible”. And the availability of bus schedules did not seem to remedy this situation, as this user explained: “Even when there is a schedule, it [the bus] never follows it, then you don’t know if you can do something useful or not”.

Still on the matter of waiting time, some users reported that, besides the unpredictability, the service is in general slow: “It takes too long to arrive”; “I usually wait for about 15 minutes, doing nothing”; “If I am distracted, I might even miss it”. These examples show that, even when people know when the bus is due to arrive, the waiting time tends to be long in some city spots, making the whole experience poor.

Lastly, as for specific causes for irritation, users reported two: (a) other users' complaints; and (b) the act of being pushed. In the case of the first, some users reported that the constant complaints of other users while waiting might be a source of irritation: "It is bad. People just complain. I have never seen anybody say anything good about it"; "I do nothing and watch people complaining". In the case of the second, they reported irritation as a consequence of being pushed by the crowd of users: "Everybody pushes everybody. Sometimes we can't even take the bus".

Table 1 summarizes all the results regarding the two types of concern just described, with further examples. This table is an attempt to build a concern profile in the lines of Demir, Özkaramanli and Desmet's work (2010) previously presented. Again, all the concerns are related to the users' goals and they have to do with either the emotion of anxiety or irritation. As can be seen in Table 1, a total of ten concerns were identified. They are summarized in the same sequence in which they have been discussed. In the next section, this concern profile is used as a basis for a second design workshop. The rationale is that designing with these ten concerns in mind may increase the changes of avoiding anxiety/irritation at bus stops to come.

A second design workshop – Step 3

So far, Step 1 has provided a better understanding of the problem by means of both direct observation of daily waiting experiences and an initial Design workshop that aimed at qualifying these experiences. Then, Step 2, based on Appraisal Theory, has allowed identifying two

predominant emotions at bus stops in Porto Alegre: irritation and anxiety. These emotions were, subsequently, associated with concerns, such as the desire for protection, comfort, security and others. The identification of these two emotions and their respective concerns made it possible to develop a second design workshop. The goal now was to create tangible conditions in order to avoid the identified negative emotional states. The method adopted consisted of first seeking to materialize design concepts within a short period of time, departing from the preliminary research done (Steps 1 and 2); and, after that, spending time on critique and repositioning the design problem. This method has been successfully used in the Design courses at the institution in which the authors of this paper work, Unisinos. In this method, preliminary research is organized into two categories: (a) contextual research; and (b) references research not directly linked to the design problem, also called Blue Sky research (Cautela, 2007). These stages and the results obtained are presented as follows.

The workshop consisted of 23 participants, seven of which had already been working on the preliminary research. They were divided into three project groups. All the groups had to follow the project brief that asked them to build bus stop design concepts that would avoid the emotions of irritation and anxiety. Contextual research was introduced on the first day of the workshop, which, on the one hand, revealed the problematic reality of bus stops in Porto Alegre and, on the other hand, presented quite innovative possibilities of bus stops in other cities around the globe. The cases were presented through texts, photos and videos (Figure 10). In comparing the

Table 1. Concern profile.

Type of Concern	Emotion(s)	Concern
Goals with the use of the service	Anxiety and Irritation	(a) "I want to be waiting at a place in decent conditions." (bus stops are always poor structures)
		(b) "I have the right to be seated, if I wish or if I am tired." (lack of space to sit down while waiting)
		(c) "I must be protected from the rain if I have to wait to use the service." (bus stops do not offer protection from the weather)
		(d) "I want to see a bus stop that is well-maintained." (lack of maintenance)
	Irritation	(e) "I do not want to be cold, if I am waiting to use a public service." (feeling cold)
	Anxiety	(f) "I must be protected at all times, when using the service" (insecurity)
Activity goals	Anxiety and Irritation	(g) "I have the right to know until when I must wait." (unpredictability of the waiting time)
		(h) "I should be able to use my waiting time as I wish." (doing nothing while waiting)
		(i) "People shouldn't be here complaining, or they shouldn't need to be complaining." (people complaining while waiting)
	Irritation	(j) "I want my personal space to be preserved, and do not want people pushing me" (people pushing each other)



Figure 10. Contextual research.

current bus stops with the world conceptual experiences, it was possible to observe that the bus stops in Porto Alegre did not, for the most part, provide users with the minimum conditions.

In the following stage of the workshop, Blue Sky research was introduced. This research seeks to build paths for innovation based on the assumption that ideas are often found outside the context of the design problem. Blue Sky research looks for examples and stimuli (within a wide range of formats) in order to obtain, through analogical reasoning, suggestions for constructing scenarios in the pursuit of answers to a design problem. The examples presented were the result of many conceptual discussions by the group of researchers, but all somehow related to the concerns expressed by the bus stop users who had been interviewed. This aspect is significant because the field research (Step 2), based on the appraisal and concerns concept, provided input for the organization of another type of research – Blue Sky research. In a way, this possibility of collaboration between research types may be read as initial proof of the relevance of the design method options adopted. Regarding the organization of the Blue Sky research, it was developed in the following sequence: presentation of a key concept; a brief textual definition of the concept; keywords associated with it; and, lastly, the presentation of photos and videos related to the concept. Table 2 presents a summary of this research. It is important to note that in all these stages the workshop participants were reminded that their design project should try to avoid the two negative emotions previously identified by taking into consideration the concerns associated with these emotions.

The initial presentations on Contextual Research and Blue Sky Research ended with a summary of three interviews with experts from the urban mobility sector:

a designer from an important office that develops public transportation projects; a transportation expert who works at the metropolitan agency that manages transportation; and a manager who works in a municipal urban transportation agency. The interviews brought forth different and highly relevant information regarding the use of materials (costs/maintenance), the problem of vandalism, major aspects of legislation, the relationship between private and public companies, the lack of resources and various experiments that had already been conducted. The reported interviews, in a sense, were quite of a reality shock for initiating the design process due to the multiplicity of issues they encompassed.

Building design scenarios for developing bus stop experience concepts

Following the previously described presentations, the groups started to reflect on the design problem. The objective of this stage was to construct design scenarios that would serve as platforms for developing the concepts. Scenarios can be defined as possible worlds. However, the goal is not to design the future, but rather place designers within these uncertain scenarios and, as a result, modify the mental model of those designing the project. The metaphor of “memories of the future” used by Kees van der Heijden (2005) accurately defines the central concept of employing scenario building as a possible and effective design strategy. Figure 11 presents one stage of scenario building. Based on the relationship between the two axes and the four polarities, each group of designers came up with a possible world for each quadrant.

In the last two days, departing from future scenarios, the three groups built design concepts for the bus stop experience. According to Celaschi and Deserti

Table 2. Summary of the Blue Sky research.

Positive idle time / Perception of time	
Idle time represents free time at our disposal. Amusement, cheerful moments and activities make time go by faster. Anguish, boredom and anxiety slow it down. We perceive time according to how we feel it.	
Space / Comfort	
Comfort is understood as the act or effect of soothing; well-being; or material coziness. Space is the three-dimensional extension, either unlimited or infinitely large, which contains all beings and things and serves as the stage for all events.	



Figure 11. Group 3 scenario building stage.

Note: The words at the polarities of the horizontal axe read from left to right: slow and fast. And, on the vertical axis from top to bottom, the words in Portuguese read: individual and shared. Now, within the four quadrants, they read as follows: (a) slow-individual quadrant: reflection, concentration, depth, introspective activities and individualized; (b) fast-individual: mirror, lift, fast food, simple, and express services; (c) slow-shared: net knot, soirée, interaction, and organization; (d) fast-shared: viral, flash mob, and meeting point.

(2007), scenarios allow designers to create corridors for innovation or visions, and these corridors lead them to concepts. In this method, a concept is not an abstract idea, which guides the project itself, but a tangible element. The concept is the gateway to the project. Its materiality, however, should not be construed as a form to be developed, but as an idea that is still open within the design process.

Even after working together for three days and having the same preliminary research as a point of departure, the three groups came up with very distinct results. Group 1 proposed four concepts, based on the polarities “more movement / less movement” and “digital & interactive / static & analogical”. The four concepts shared certain recurrent characteristics: the idea of modularity and adaptability to bus stop situations and a proposal for integration with services that would ensure greater safety (e.g. small businesses), thereby addressing the concern with protection that avoids “anxiety”. Group 1 also suggested the concept of a set of components such as shelves for books that could be added to the modules. These components could vary from bus stop to bus stop, unleashing a dynamics that could help avoiding boredom, one of the feelings reported by bus stop users. All three groups proposed protection mechanisms against bad weather, one of the main causes for “irritation”.

Group 2 showed great concern with the materiality of the proposed solution and even outlined the material with which the bus stop would be built. Two strong concepts were presented: the first one, a bus stop that would reflect the identity of a specific location in the city, for example, a bohemian neighborhood. This suggestion cannot be applied to all the city's bus stops, but could serve as an important point of reference for the city. The second concept played with the metaphor of a “planetarium”. A planetarium is a place where images of the universe are projected onto a dome-shaped surface creating a “starry environment”. The group's idea was to create different settings for the bus stops through lighting resources or digital screens. In the interviews, both with users and experts, it was often expressed that the waiting time at bus stops always seemed to be longer than it really was, and this is one of the main factors causing irritation. Thus, strategies that would help reducing the perception of time might contribute towards avoiding this emotion.

Group 3 worked with the movie “Transformers” as a metaphor. The idea was a mutant bus stop, which would transform itself according to the needs of users. It could, therefore, be adapted, for example, to weather conditions. By offering users the possibility of personally interacting with the bus stop venue, the concept frees users from passively waiting and helps avoiding situations that lead to anxiety and irritation. Group 3 was able to come up with a precise representation of the concept. As mentioned before, the four poles – slow/fast and individual/shared – contributed decisively to the construction of the concept.

Users can look for either a more individual and slower format or join up with other users in a venue providing greater integration.

Final thoughts

This paper describes a design process based on avoiding certain emotional experiences, more specifically, irritation and anxiety. The first field research and workshop were important to understand the problem more thoroughly, and they led to the application of a specific theoretical approach known as Appraisal Theory. At this stage, identifying the emotions aroused in users, as well as analyzing their concerns, brought to the design process developed during the second workshop a distinct dynamics that needs to be pointed out. That is, the design trajectory of the groups, based on the explicit goal of mitigating certain negative emotional states on the part of users, seemed to be somehow different from design trajectories observed in projects without an experience-focused approach. The assumptions involving the emotional impact of the design solutions raised questions about the creative process that worked as both an incentive and a restriction upon the free process of generating ideas.

Many practical and functional aspects of the proposals, elaborated in just three days, have not yet been defined and need to be more fully developed. For this reason, they are called concepts. They are not complete design solutions yet and could undergo different modifications or interpretations. At times, some groups seemed to have lost sight of the definitions put forth in the preliminary research, based on the declarations of users and experts. This should not be viewed as a problem, since it is part of the design process. As already demonstrated by Dorst (2006), there are stages in which the process is totally vague and barely within the control of the designers. The appraisal and concerns concept introduced an important guiding factor for the three groups. All regarded the concerns as a kind of “checklist”. The groups constantly questioned whether this or that solution would meet this or that concern. In this sense, the research presented here seems to demonstrate how originally different design strategies can coexist and reinforce each other in the pursuit of design solutions.

As in any scientific research, at the beginning there were some assumptions, pointing at some directions. Many aspects had to be thought over again during the process. Nevertheless, at the end, it was possible to see two major dimensions regarding the results of the present work. In relation to the overall goal, to reflect on the construction of a positive or less negative bus stop experience for users, several concepts could be conceived on the basis of avoiding the most negative emotions reported by users (i.e. irritation and anxiety). Although results cannot be generalized to all circumstances, this

research seems to provide quite strong evidence that it is possible to construct various contexts to avoid at least two negative emotions. At a subsequent presentation of this research to a company that participates in urban public infrastructure proposals, and also to the agency responsible for the urban transport in Porto Alegre, their positive reaction to the results seemed to indicate that the work was on the right track.

The second important dimension has a direct relationship with the first one just explained. Consistent results, presented in the final workshop, were only possible due to the use of equally robust design methods. Firstly, the use of Appraisal Theory allowed the reliable identification of two emotions reported by users of the bus stops. Therefore, this study did not set out from an abstract idea, based on a singular world view. In fact, this approach led to some creative responses observed during the second workshop. The openness of the design process and its creativity aspects were not neglected by the use of design methods. Design methods should be viewed as facilitators of thought, not as strict rules that provide a single solution to a given problem. The combination of typical design strategies and the concept of Design for Experience proved to be quite successful. The research reinforced the view that, although it is not possible to design emotions, it is possible to design tangible conditions where emotions can be avoided or reinforced.

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