Designing for Resonance by Evocative Objects: An Experiential Interaction Design Method

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Abstract. This paper presents a design method that enriches the quality of experiential interaction design. The purpose is to encourage designers to use their own experiences to create. In this paper, we describe how to use an evocative object as a starting point, bringing up a journey of memory, behavior, family relationships, and self-identity, and then translate the inspiration into core elements in an experiential interaction design. This method has six key features: (1) The choice of a designer's own evocative object, (2) The creation of narratives, (3) The creation of visual representations, (4) The search and transformation of the key emotion, (5) The creation of the physical interaction context, and (6) The public exhibition and the final meaning-making process. We claim that this method can establish a dialogue between the designer, the project, and the audiences. It can also enhance the meaning and the quality of the experiential interaction design.

Keywords: Resonance, Evocative Objects, Personal Experience, Dialogical Critique, Interaction Design.

1 Introduction

In discourses of human-computer interaction (HCI), there has been an increasing interest in personal experiences from both users and designers. User-centered design (UCD) has already become a standard in designing interactive technologies and systems in interaction design and Human-Computer Interaction [2]. Regarding the intimacy level with people, designers can create various artifacts with specific functionality, usability, as well as state-of-the-art innovative, superior and insightful, radical products via multiple sources based on designer's personal skills and judgment [1]. To meet user's needs, there are many methods that place users at the center of design process, such as field studies, interviews, and surveys [2], which are research-based ones. There are also storyboard, interactive simulations, user testing, and surveys [3], which are methods relating to prospective and retrospective use analysis.

As instructors in design schools, we deem that meeting user's needs and expectations is one of our educational objectives. To know the users, the attention to psychology and sociology is required. However, due to the lack of knowledge in the two disciplines mentioned above, it is difficult to ask students to understand users from these theoretical perspectives. Hence, we advocate that student designers can use their personal experiences as a design resource, which can facilitate designers' creativity, innovation [2] and ideation. Above all, such a resource could elicit the connection between user's experience and designer's experience, scilicet, the resonance, while enhancing the process of meaning-making and the quality of the experiential interaction design.

2   Background and Motivation

In design school, instructors and students are always looking for a starting point to generate new ideas. As an instructor, one is always looking for a stimulus to inspire students to create. On the other hand, a student is always trying to find a key element to make her work be innovative. To generate new ideas, people used to adopting traditional ideation methods, such as brainstorming, mood boards, card-sorting, and innovation games. These methods provide general association of ideas where the purpose is to meet users' needs and to match their expectations. However, these methods rarely encourage designers to use their personal experience as a resource for design.

For every design major, the process of forming and relating new ideas is the hardest part in the whole design process. At the initial phase of the implementation of a project, students need to find something relevant to rely on and to support them to proceed with their design process with passion. Therefore, it is critical for instructors to help students find the important "keystone". Currently, many designers follow the UCD process to create projects. The purpose of UCD is to discover and to understand users' needs and desires. Through a series of iteration and feedback loops, a thoughtful solution or artifact will be provided to the user by a designer. However, the relation between the user and the solution or artifact might not be strong enough. Once the user does not need the artifact or the solution, the relationship disappears at the same time. To strengthen this relationship and to elicit reflections on the design project, we develop a series of design activity that accomplishes this goal.

This paper presents a design method that centers on personal experience. Using designers' personal experience as a commencement, this design method calls forth one's personal reminiscence and enriches the quality of experiential interaction design process by creating new meanings of it. We argue that designers' personal experience can inform and should be a resource for interaction design, as well as will elicit other people's personal experience.

3   Evocative Objects

There must be some objects accompanying us as we move through different stages of our lives. For example, there might be a security blanket or a baby doll that we used to carry, otherwise we would not be able to fall asleep in our childhood. There might be a pen as a present from a high school teacher for us getting good grades. We get along with these objects during different phases of our lives. In the process of being with and using these objects, we develop affection for them unconsciously.

The existence of these objects is of great significance to us. If we lose them or cause damage to them, we lose some special segment of memory as well. We preserve these objects with care, for they represent some unforgettable memories or experiences. We place all kinds of precious and irreplaceable artifacts above the fireplace in the living room or on the bedside table in the bedroom. Each of the artifacts has a lively anecdote about how it came into our possession. Just as we are collectors of things, things are collectors of meanings [7].

3.1   The Meaning of the Object

According to Borgmann's definitions, there are two terms that objects may refer to: commodities and things. Commodities are objects that have no other significance apart from their main functions. Things, on the other hand, are not just physical objects. They include emotional feelings and meanings that are associated with the objects [8]. In this study, we refer objects to things. Sometimes, the meaning of an object is predetermined by the dominant culture, such as family heirlooms, childhood toys, and travel souvenirs; sometimes, the meaning of an object comes from its aestheticized appearance. Some objects are intended to be interpreted, and some become interpretable accidentally. Once the objects are interpreted, the meaning will be given.

In most of the cases, the meaning of an object is not the value listed from the marketplace or in an auction. Its value is given by its owner. Like a talisman or a mascot, any trivial object can be someone's precious possession. To an owner, the meaning of the object is more significant than the net price of the object. In addition, the object signals a new understanding of who the owner is and what the owner may be interested in. It also emphasizes the inseparability of thought and feeling in our relationship to things [6].

The object itself often represents a certain person: the one who means the most to us, the one who leaves us, or the one who lives faraway from us. The object itself is also a reminiscence of a certain period in the past: a sentimental and ambiguous love affair during the teenage years, or a meaningful and memorable time serving in the military. French philosopher and anthropologist, Bruno Latour, claimed that many participants are gathered in a thing to make it exist and to maintain its existence [9]. When we see an old man kissing a gravestone in a cemetery or a broken doll sitting on someone's bedside table, we know that the objects have particular and unique meanings. They are ordinary things with extraordinary significance [7].

3.2   Personal Experience

Each person's life is a combination of countless wonderful experiences. These experiences are one's most valuable intangible assets. Whether consciously or unconsciously, one experiences something incessantly. There are no two identical experiences in the world because an experience exists in one's inherent unique cognitive system. When a group of people went through a same event, each one generates a unique experience. Even though the same person goes through the same event repeatedly, she will have different experiences because of the different circumstances, or different moods she has at the moment. For example, when reading a novel, different person might have different thoughts and gains, or be touched by different paragraphs from reading the same novel. The same person reading a novel for a second time might have different feelings about it and comprehend differently.

Traditional cognitivist and behaviorist ways of thinking about HCI argue that experience is a sequence of actions that designers predetermined, and they allow users to perform through interfaces [11]. Although this approach to experience does not fully summarize the richness of people's lived experience, UCD has already constructed various theories and methods to assure that designs meet user's needs and requirements. Experience was generated by various events and/or activities that one may gather knowledge, opinions, and skills. Experience is not a rigid and closed thing; it is vital, and hence growing [10], and it can be reflected upon. To understand and to make the best of experience is one of the most important issues to interaction designers. However, we cannot "design" an experience or control an expression that a person will experience via design, since the perception, sensation and the cognition of a stimulation of each person vary. To make the best of experience, we can treat the personal experience as a source for interaction design. In addition, the interaction design artifacts should be personal pathways that allow individuals to find and create their own experiences.

3.3   Resonance

Once the interaction design project is completed, the relationship among the designer, the project, and the participant is formed. The designer delivers messages or provides functions via the project. The participant understands and experiences the project through perceptual system and senses; furthermore, he or she reflects. Being different from senses, human's perceptual system can orient, explore, investigate, adjust, optimize, resonate, extract, and it comes to an equilibrium [12]. The termination of external stimulation does not end the cognitive process. Instead, the process of reflection continues over time.

Typical examples of artifacts made to facilitate reflection are art and music, especially as found in galleries and concert halls [13]. The stimulus of art or music doesn't persist on our way home from an art exhibition or a concert, but our perceptual system keeps working and making us reflect. In slow technology, Johan Redström proposes that we should give people time to think and to reflect in design. Reflection makes the human society various and pluralistic. These unique thoughts in our mind also help the progress of human civilization move forward.

Resonance stems from the theory of ecological or direct perception, and it is a rather unexplored area due to its complexity [14]. Gibson [12] clarified the principle of resonance by using a radio metaphor. When tuning the receiver to change the station frequency on a radio, if the current station frequency matches the frequency sent from a radio station, it resonates to that radio station. In experiential interaction design, the design artifact acts like a radio station that broadcasts information. Our sensory organs act as the receiving antenna on the radio, which must be transparent to the carrier's frequency to let the signal pass through and arrive at our perceptual system. The same process proceeds when a participant experiences an experiential interaction design artifact. When one grabs a puppet dog, touches and feels its fur, this experience and one's childhood memory of keeping a pet may resonate.

Hummels et al. [14] argue that resonance can be a concept that provides respectful and humanistic human computer and product interaction, which allows individuals to find and create their own experiences. They proposed two interactive installations and tried to find the salient aspects of resonance, and they reached some conclusions. First, controlling and experiencing the relation between cause and effect increase resonance. Second, temptation, intimacy, and engagement during interaction are generally considered essential to increase resonance, for they make a user feel in control.

4   Dialogical Meaning-Making

Critique is an important activity in design school. In the critique process, students first take turns to present their work in progress in the class. According to the presentation and the work, the instructors and the students provide the presenter with their opinions and thoughts. Generally speaking, an instructor gets to know a student's design progress through the critique and provides advice to the student to help her work become better. The student then takes the advice and uses it as a reference to improve her design. By implementing this critique process repeatedly, a student can finish her design project gradually with other people's advices and her own reflection. The whole critique process also corresponds to one of the design activities: Iteration. When a student describes her work during the presentation, she can always get a deeper understanding and comprehension via the oral narration.

Bakhtin argues that in this world, any unity is always a matter of work and is always accomplished dialogically. "Dialogically any unity is composed of many voices in unfinalized conversations that cannot be reified monologically [15]." The completion and interpretation of the meaning construction of an experiential interaction design project rely not only on the designer's creative thinking and execution, but also on the dialogue among the designer, the project, and the audience. The whole constructive procedure is an ongoing process that will not be stopped because of the discontinuity of the reaction and behavior of any one of them. People construct the meaning of the project by following through a number of real world contexts, as well as witnessing the responses of others [17].

People make sense of and give value to things based on their own previous experiences and dispositions, their understanding of other people's experiences, and the understanding of the fact that an experience is never terminated [16]. Every time we make a statement, it always remains open for others to discuss. Since the "others" might have different points of view, the true meaning of the statement is multi-dimensional and is open to change ceaselessly. The true meaning thus is always emerging through these dialogical processes. Leung and Wright also articulate that sharing experiences with others as well as telling others about oneself and self-lives is not simply an act of reporting but rather an act of co-construction of meaning.

5   Designing for Resonance by Evocative Objects

Habermas characterizes three primary generic human interests that can determine categories relevant to what we interpret as knowledge: the technical interest in controlling and manipulating our environment, the practical interest in identifying our social interaction and join in communicative activity, and the emancipatory interest in identifying our self-understanding or self-reflection [18]. Habermas argues that Hegel held labor, language and interaction to be constitutive moments of developing Spirit [21]. People use language to communicate and interact with each other and acquire life resources by laboring.

In this design method, we first conducted several repetitionary and continuous dialogues between self and others through the choice of an object, the creation of narratives, and the creation of visual representations. Bakhtin articulates that discourse in life is directly informed by life itself and cannot be separated from life [19]. Gadamer also argues that questioning arises possibilities of meaning, and thus what is meaningful becomes one's own thinking on the subject [20]. We conducted the dialogues in an attempt to give utterance to evocative objects.

Second, we tried to find the key emotion hidden in a context of the language/dialogue built in the first part through the constant labor of one's body and spirit, which was then transformed into a central idea or proposition that a designer intends to deliver. Next, a designer was asked to build up the form of a project by laboring and endowing the behavior pattern, and then invited to present the design artifact in front of the public. Audiences resonated with the design artifact while/after interacting with it, meanwhile, establishing the dialogue with the design artifact and the designer, and then co-constructed the meaning of it.

In this design method we proposed, evocative objects play an important role in externalizing imagination. We emphasize the fact that evocative objects can evoke personal story, memory, emotion, family relationship, and self-identity [6]. We advocate that using an evocative object as a starting point for a design project is an effective design method that elicits rich personal experience. Sherry Turkle points out that most objects exert their holding power because of the particular moment and circumstances in which they come into people's life [6]. Thus, the personal experience elicited by evocative objects, which serve as bearing media of personal meanings, will stimulate focused imagination, and can be a good resource for interaction design.

5.1   Six Key Features

Feature 1: The Choice of a Designer's Own Evocative Object. Everyone must have some objects that accompany her for a long time. When a student chooses a particular evocative object, he or she entails a dialogue with it. The context of the dialogue reinforces the relationship and the emotion the student has with the object. This process mediates the conflicts between one's conscious and subconscious dialogues, and it makes the contradiction in one's mind no longer exist.

At the very beginning of establishing the dialogue between the self and others, a student needs to ask lots of questions for herself: "Where did I get this object?", " What does this object mean to me?", "Who does the object remind me of?" Some of the questions lead to unique answers and help the student to clarify the role of the object, while others lead to deep reflections and help them to establish narratives.

Feature 2: The Creation of Narratives. After students choose their own unique evocative objects, they are asked to write down narratives regarding their personal experience with the chosen objects. Through reflecting on the objects, the students reveal their connections with the evocative objects and other people in the narratives. By constructing the narratives, a student invites audiences to understand the story hidden behind the object.

Gadamer proposes that the art of writing letters consists in not letting what one says become a treatise on the subject but in making it acceptable to the correspondent [20]. By constructing the narratives the designer invites the participants to join the story hidden behind the object.

Feature 3: The Creation of Visual Representations. Based on the appearance of the evocative object and the narratives written in the previous stage, the students create visual representations. This is the last stage of the first part of the method. In order to clarify the utterance of the evocative object, the students make representation of their thoughts and emotions elicited from the evocative objects by all means.

Bakhtin argues that the eventness of an event and the livedness of experience can not be reduced to texts [15]. To have a dialogue with others, it would be easier to refer to an observable material; therefore, a visual representation is necessary.

Feature 4: The Search and Transformation of Key Emotion. In this stage, the students search for the key emotion hidden in the narratives and the visual representations they created in the first part through constant laboring, and they continue to set up internal dialogues to elicit new insights. In the meantime, through several dialogical critiques, an instructor's mission is to guide a student to induce her personal experience, to find a core concept and expression of her emotion, to work out a new interpretation of the evocative object, and to build an empathic relationship with each other.

Hereon, through the internal dialogue with oneself and the dialogical critiques with the instructor and other students, one can extract the key emotion elicited by the evocative object. One is then asked to transform the key emotion into an expression

or a statement – something that one wants to deliver to the audiences via the design project or the artifact one creates.

Feature 5: The Creation of Physical Interaction Context. Once the core concept and expression are ensured, a student starts to design the form of a project and endows it with the behavior, that is, the behavioral utterances of the project. Bakhtin argues that behavioral utterances can continuously develop a situation, suggest a plan, and organize for future actions [19]. The form and the behavioral utterances revealed from the project determine how participants will interact with the design artifact.

Kolko articulates that, "Interaction Design is the creation of a dialogue between a person and a product, service, or system." He also argues that the dialogue can be found in the insignificant place of daily life and is nearly invisible [22]. Here, students try to structure this natural dialogue and elaborate it into the form and the behavioral utterances to create the physical interaction contexts for the artifacts of the design projects.

Feature 6: The Public Exhibition and the Final Meaning-Making Process. After the design project is completed, it opens to the public. To finalize the meaning-making process, the audiences meet, feel, interact with, try to understand, and finally resonate with the design artifact of the project. Bakhtin argues that each person occupies a solitary situation. In this situation, there is a unique perception that each of us has seen things that others don't see. Hence, we need others to consummate ourselves [15]. When the participants interact with the design artifact, our conscious minds would meet to co-construct the meaning.

5.2   Two Examples: My Monster Friend and Storyteller

My Monster Friend. Everyone spends her childhood with an invisible friend. It may be a doll or a volleyball. Although it is nothing but an ordinary object, we talk to it and let it be around us. This project combines furniture and puppet. When a participant sits on this project, it will become alive. Depending on the user's different movements, it will have different reactions. When the participant touches the back of the chair, he will smile. When the participant touches his cheek, he will blush. He is just like the monster we imagined when we were young.

The designer of this project uses a chair from IKEA as a basic structure. She first covered the chair with artificial fur and feathers and installed several sensors under them. Then, she connected sensors to a computer and a projector. When the participants interact with the chair, the hidden sensors will detect the motions. Meanwhile, the computer will generate different facial expressions and sounds. Through the projector, they will be projected onto the chair. At the same time, the participants resonated with the reaction of the chair.

Storyteller. This project is inspired by the LEICA of the designer's father. The designer's father is a soldier, who rarely expresses his concern for his son in words. The father's hobby is photography, and he expresses his love through taking pictures

of the designer. In this project, there is a gyroscope inside a camera, which is connected to a computer. When a participant picks up the camera and aims at one of the photo frames placed at various heights, a corresponding photo of the designer relating to his height during a period of time in his life will be displayed within the frame. This project reproduces the father's experience of standing behind a camera, documenting and looking after his son's growth. Through the camera, the relationship between father and son is formed. The participants resonate with the behavior of using the camera and the photos that display in the photo frames.

Fig. 1. My Monster Friend. (Left), Storyteller. (Right)

6   Conclusion

We present a design process whereby interaction designers structure a persuasive argument and then invite the participants to join the creation of a dialogue. The work is completed by the presence and synthesis of the audiences [22]. As Bakhtin argues that any unity is always accomplished dialogically [15], in the method we proposed above, the dialogues between the designer, the design artifact, and the audiences accomplish the unity of all meaning-making process.

In this method, we place designers at the center of the interaction design process, and we advocate that designers resonate with an evocative object first. After having a dialogue with oneself, a designer is then able to have a dialogue with others. Ultimately, the dialogue between the design artifact and the audience finalizes the meaning-making process. We found that using an evocative object as a catalyst elevates the resonance of the experience between the user and the designer from both cognitive and emotive aspects. The results of the experiments using this interaction design method show that an evocative object can elicit a hidden story from everyone effectively. This design method allows us to discover a new experience in interaction design.

We discover that this interaction design process evokes the audiences' reminiscences, and it elicits their emotional resonance. We argue that the meaning of an experiential interaction design project does not only rest on the technology applied to the project, but also lies in the reaction and resonance elicited by understanding, experiencing and interacting with the project. It appears that the meaning of the project exists relative to the existence of the audience. To enhance the meaning and the quality of the experiential interaction design, we would suggest that it is a must to obtain and increase resonance among the designer, the design artifact, and the audiences.

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