Engaging Experience: A New Perspective of User Experience with Physical Products

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Abstract. Engaging experience is a specific kind of experience that a user acquires when and after using a product frequently, intensively, actively, vividly, and completely, etc. For example, if the appearance of a toaster is completely transparent, a user can see how the bread changes from white to brown. The transparent sides stage the toasting process as a visually engaging performance. To expand on engaging experience, this paper presents the definition of engaging experience, example products that engage users, the classification and instinctiveness of engaging experience, and product properties that foster engaging experience.

Keywords: Engaging experience, user experience, product experience, user-product interaction, user-product relationship.

1 Introduction

In this research, engaging experience is defined as a specific kind of experience that a user acquires when and after using a product frequently, intensively, actively, vividly, and completely, etc. For example, if the appearance of a toaster is completely transparent, a user would see how the bread changes from white to dark. The transparent sides *stage* the toasting process as a visually engaging performance. Another example is a tape dispenser with a simple odometer. In addition to acquiring tape, the user would notice how much tape has been dispensed in terms of distance. The odometer makes every pull a vivid experience. These two cases demonstrate how an individual product can engage users.

Engaging experience makes the users' interaction with products somehow more interesting. Engaging experience is a novel research domain in product design. It is different from the study of functionality, usability, aesthetics, interaction and affection. While these current domains are important to satisfying user needs, engaging experience is both different from, but potentially as significant as these domains. The author expects this research leads to a better understanding of how products can be designed to engage users, bringing another dimension of value to product design.

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2 Defining Engaging Experience

In The Experience Economy, Pine and Gilmore [1] assert that "when a person buys an experience, he pays to spend time enjoying a series of memorable events that a company stages – as in a theatrical play - to engage him in a personal way". "Staging experiences is not about entertaining customers; it is about engaging them." The Experience Economy concerns how to engage customers in commercial activities. Pine and Gilmore develop the experience realms, shown in figure 1, to illustrate four examples of engaging experience. The two dimensions, active-passive participation and absorption-immersion characterize how people engage. In a*ctive participation*, people become participants, actors or even players rather than bystanders in activities. In *passive participation*, people attend, appear in or are exposed to activities. *Absorption* means that people need to absorb information spread throughout in activities, whereas *immersion* means that people regard the spread information as the atmosphere or background unnecessary to be further processed. According to the experience realms, four examples of engaging experience are provided:

- *Entertainment engagement*: When a person pays to join in an activity, he is entertained by the activity through his senses and participation. The person has little disturbance to the activity, leaving it essentially untouched. Being a volunteer in a magic show, shouting with crowds in a baseball game, and rocking and beating in a Jazz Festival are examples of entertainment engagement.
- *Education engagement*: When a person pays to join in an activity, he creates something as a part of the activity and enjoys the result. For example, in a cooking class, the apprentices join in food preparation, practice cooking and eat delicious cuisine. Each type of participation is education engagement.
- *Escapist engagement*: When a person pays to join in an activity, he escapes temporarily from his normal, daily reality. The person is interested in the activity because it is not always available in his daily life. Examples of environments that enable escapist engagement include casinos, cyberspace, and theme parks, etc.

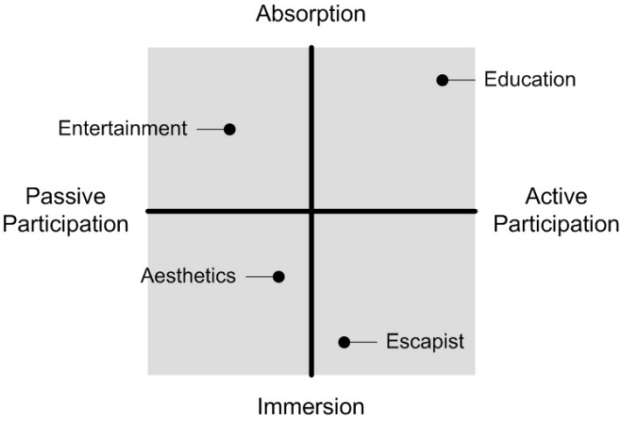

Fig. 1. The experience realms [1]

- *Aesthetic engagement*: When a person pays to join in an activity, he is attracted by an interesting aspect of the activity. The person has little disturbance to the activity, leaving it essentially untouched. Eating in front of a chef who is skillfully processing food, drinking coffee in Starbucks to enjoy the atmosphere, etc. are examples of aesthetic engagement.

In addition, Pine and Gilmore also mention example products that enable engaging experiences. For instance, the Rawlings Sporting Goods Company of St. Louis, Missouri, introduced a ball that makes play-catching more engaging [2]. This "Radar Ball" has a microchip in it that digitally displays how fast the ball has been thrown after each toss. "Radar Ball" makes it affordable to know the throwing velocity. But the real value lies in the new social interaction generated between two children playing catch. From the previous definitions, "Radar Ball" enables entertainment engagement in which two players keep tossing and checking the speed of their fastball.

Another example product involves markers. Sanford scents markers to match 18 different colors [3]. Thus, each marker has its own fragrance. For instance, black has a licorice scent, red is cherry, and green is mint, etc. The scented markers enable aesthetic engagement in which users associate the scents with fruits when they scribble. Studies have shown that scent-cued memories are more emotional than the visual-cued and verbal-cued ones [4][5]. A particular scent can facilitate individuals to directly retrieve specific memories about the original event. Thus, the scented markers may please the users through bringing them back to their past experiences related to fruits.

The two example products suggest that individual products can engage users. They also indicate that engaging experience with products involves at least two activities. One is interacting with a product and the other is a peripheral activity. For example, the scents of markers are associated with fruits. This peripheral activity is instinctive and makes the user-product interaction somehow more engaged. Based on the experience realms and several examples mentioned above, engaging experience in user-product interaction is defined as:

When a user interacts with a product, he also participates in a peripheral activity enabled by the product. The user:

- is entertained by the activity through his senses and participation, or
- creates something as a part of the activity and enjoys the result, or
- escapes temporarily from his normal, daily reality, or
- is attracted by an interesting aspect of the activity.

As a result, the user's experience of using the product is reinforced.

3 Products That Engage Users

Playing digital games provides an exciting and engaging experience. Game stations probably are a good example of products that engage users. However, every digital product including software, programs or even a small LCD can engage users because there are vast possibilities in the virtual world. What is discussed in this section is more about "how a game station engages users without a game disc." That is, the discussion focuses on the physical rather than the digital design of products.

Actually, several concepts related to engaging experience have been applied to product design. Figure 2 presents four products that would engage users. “Baby Plane Spoon” not only makes a baby’s meal time more fun but also provides a more certain way to feed a baby [6]. This spoon has wings that realize the imagination of being fed. The baby could be fascinated with the food delivered by “air express” and open his mouth wide for the flying spoon. And interestingly, this product enables *escapist engagement* in which both parent and baby imaginatively escape from routine feeding and eating to playing.

“E-rope” is a conceptual design of an extension cord created by Kang et al. This student design won the bronze prize of 2006 IDEA awards [7]. “E-rope” enables the user to add or reduce sockets as needed. To better accommodate large bulky cords, each socket can be rotated at most 180 degrees so that adjacent sockets are not blocked. Apparently, the modular design is similar to Lego toys that engage the user to build his preferred configuration with creativity and fun. Similar to the “Baby Plane Spoon”, this product enables *escapist engagement* in which the user imaginatively escapes from using an extension cord to building toy bricks.

“Salt Glass”, a salt shaker produced by droog [8]. This salt shaker is also a double hourglass that displays the flow of salt as the passing of time. This display engages the user as a spectator. It is possible that the user would stare at it for a short while right after shaking salt. Thus, this product can enable *aesthetic engagement* in which the user admires the metaphoric aesthetics of a salt shaker.

“Glass Toaster” is a conceptual design of “Culinary Art Project” developed by Philips [9]. One impressive feature is the transparent glass that makes its internal toasting function visible. Therefore, the user is able to visually participate in the toasting process rather than passively waiting for it to finish. This product enables *aesthetic engagement* in which the user watches how the bread changes from white to brown. This concept is analogous with experience restaurants, in which customers can watch how a chef processes food when tasting delicious cuisines.

The four example products discussed above include both tableware and home appliances, and both existing products and conceptual designs. It suggests that engaging experience has been noteworthy and applied to different kinds of consumer products. More importantly, a product that engages users neither becomes more complicated nor requires additional user involvement. Users can intuitively enjoy engaging without increasing workload or spending time to react. These examples suggest that products can engage users without decreasing their utility.

Fig. 2. Three products that would enable engaging experience: “Baby Plane Spoon” [6], “E-rope” [7], “Salt Glass” [8], and “Glass Toaster” [9]

4 Notions of Engaging Experience

In the previous sections, several example products that engage users were discussed. The discussion implies two notions of engaging experience. In section 4.1, the classification of engaging experience is introduced. In addition, whether a specific engaging experience is instinctive depends on the relevance between the interaction with a product and the peripheral activity. This notion is expanded on in section 4.2.

4.1 The Classification of Engaging Experience

According to several example products discussed previously, engaging experience could be sensory, physical or emotional. *Sensory engagement* takes place when products attract users to perceive. For example, the "Salt Glass" and the "Glass Toaster" visually engage users. Sensory engagement is similar to what tourists do in front of a magnificent view at the top of a skyscraper. It indicates that visitors comprehend the scenery only through senses in the distance, such as seeing and listening. *Physical engagement* takes place when products attract users to act. For example, the "Radar Ball" and the "E-rope" engage users in play. Physical engagement is similar to what a person can do if given a stick. He can become a baseball batter, a conductor directing an orchestra, or even a Jedi Knight. With imagination and enjoyment, physical engagement can be triggered by many artifacts such as products. *Emotional engagement* takes place when products evoke specific feelings that affect users. For example, the scented markers produced by Sanford affect users to associate with fruits. Emotional engagement is similar to how people are affected when inspired from reading a diary, or when given a precious souvenir.

To illustrate a product that enable sensory, physical and emotional engagement, figure 3 shows a filter water pitcher in which there is a fake but cute small fish. This fish looks like it is drifting when in water and lying down when without water. The hypothesis is that a user would like to look over the fish (sensory engagement); deciding whether he needs to refill the water pitcher to keep the fish looking alive. When refilling water, the user feels that he is saving a fish (physical engagement) and being merciful (emotional engagement).

Fig. 3. A water pitcher that enables three types of engaging experience

4.2 Instinctive Engaging Experience

As mentioned in section 2, engaging experience involves two activities. One is interacting with a product and the other is a peripheral activity. The latter must be instinctive so that it makes sense to a user and engages him in sing a product. Significantly,

whether a peripheral activity is instinctive depends on the relevance between the two activities. That is, engaging experience must take place instinctively when a user uses a product. Take products in figure 2 as examples. Note that flying a toy plane (peripheral activity) relevant to feeding a baby (using a spoon), playing toy bricks relevant to configuring an modular extension cord, flowing sands in an hourglass relevant to placing a salt shaker on the table, and viewing the toasting function relevant to seeing a toaster. The four examples show how peripheral activities are relevant to using the products and make sense to users.

To illustrate counterexamples, figure 4 shows two products. "Clocky" is a mobile alarm clock [10]. When the clock starts to beep, it runs away in random directions. In this case, looking for a runaway alarm clock is a peripheral activity. But this peripheral activity does not make sense to users not only because users have never turn off an alarm clock in this way but also because it is little relevant to using an alarm clock. That is, the experience of using the clock is hardly reinforced. The other counterexample is "Egg g~g~", salt and pepper shaker [11]. When a person uses it to shake salt, it sounds like a chick. In this case, hearing chirps is a peripheral activity. Although hearing chirps makes sense to users, it is not relevant to using a salt shaker. That is, the experience of using the shakers is hardly reinforced. Although these two products do attract users to respond emotionally, they have less potential to engage users.

Whether a peripheral activity makes sense to users cannot be definitely defined. The reason is the same with why one joke makes sense to one listener who laughs immediately whereas another listener does not respond. Based on the examples and counterexamples discussed, the author suggests three guides for enabling instinctive engaging experience. First, a peripheral activity must be common activities so that it makes sense to users. Second, a peripheral activity must be relevant to using the product. Third, what a user does in a peripheral activity must be relevant to the experience of using the product.

Fig. 4. Two counterexample products that do not engage users: Clocky – run away alarm clock [10] and Egg g~ g~ salt and pepper shaker [11]

5 Product Properties That Foster Engaging Experience

Based on the example products previously discussed, they possess particular properties that play significant roles in fostering engaging experience. Thus, to identify these product properties, the categories of product properties are discussed in section 5.1. Then, the essential elements of engaging experience are discussed in section 5.2. Finally, the mapping between product properties and the elements of engaging experience are established in section 5.3. This mapping indicates how to design products that engage users.

5.1 The Categories of Product Properties

To categorize product properties, this research refers to the following three studies. Jordan [12] asserts that a product can be defined by its properties. Product properties include tangible features and intangible attributes, both of which result in the final product specification. According to Jordan, tangible features are called formal properties, whereas intangible attributes are called experiential properties. *Formal properties* are what can be objectively measured or clearly defined within the design process of a certain product. *Experiential properties*, in contrast, are how users feel when experiencing a product in context. For example, if one functional specification of a toaster is "prevent from over toasting", its formal properties could be "a cancel button and/or multiple-level heat settings", whereas its experiential properties could be "easy to control the heat".

Focusing on the relationships between user and product, Hassenzahl [13] differentiates product attributes into either pragmatic or hedonic one based on users' satisfaction. The level of satisfaction depends on the success of using a product to achieve certain desirable goals. If a user's expectations are confirmed, he will feel satisfied. *Pragmatic attributes* satisfy the fulfillment of a user's behavioral goals, whereas *hedonic attribute*s satisfy his psychological well-being. Corresponding to product features, the pragmatic attributes result from, for example, fascinating functionality. The hedonic attributes result from, for example, communicating identification, or provoking memories that a user values.

From a different point of view dealing with product properties, Janlert and Stolterman [14] articulate the character of things. According to their argument, a *role* is a functional specification, whereas a *character* is a meta-functional metaphor. A character is usually created from many *characteristics*. Several related characteristics integrate into a coherent whole of the character. For example, "racing" is a role of a sports car. "Powerful, fast, and colorful" are its characters. "Acceleration, noise, streamline and commercial stickers" are its characteristics. Often, the definition of characteristics is wide so that any kind of specification of an artifact could be a characteristic. The manifestation of a certain characteristic depends on the type of actions, properties, individuals, and situations the artifact is concerned. For example, an individual fully experiences a powerful sports car only when he is driving it at high speed on a racetrack and feeling its roar, vibration and the wind pressure.

For the purpose of this research, six categories of product properties that foster engaging experience are defined. They are (1) interaction, (2) use, (3) function, (4) purpose, (5) appearance, and (6) components. Interaction is referred to what a product property enables the user to do in sense, action or emotion. Use is referred to that a user manipulate or control a product. Specifically, use can be divided into regular and periodical use, both of which imply different occasional actions of use. Function is the task(s) a product intends to perform. Different from function, purpose pertains to practical aspects. For example, the function of a salt shaker is to dispense salt and the purpose is to help the user to move preferable amount of salt into foods. Appearance relates to the aesthetics, styling or exterior appealingness of a product. Components of a product are the exterior elements that the user can reach in sense or action.

5.2 The Elements of Engaging Experience

In terms of theatrics, at least four elements are necessary to compose an activity [1][15]. They are performance, stage, prop and character. To define, a *performance* is the peripheral activity that a product enables to attract or prompt the user. A *stage* is what a product operates or what the user responds to. A *prop* is the product property that enables the user to involve in the performance on the stage. A *character* is who the user plays. For example, in the case of "Glass Toaster", watching bread toasted is a performance. The toaster itself is a stage because it displays how the bread changes from white to brown. The transparent case of the toaster is a prop. The user plays a character who visually engages in the toasting process.

In a different point of view, engaging experiences require peoples' active participation. How people actively participate in an activity can be aligned with three different levels: theme, central activity and supporting activity [1][16]. A *theme* is a subject or a particular idea that runs throughout the user-product interaction. A *central activity* is what the user does in order to experience the theme. A *supporting activity* is what the user does to support the central activity. For example, Disney World is a theme park full of legends and stories for children. Visitors who enjoy in different stories participate in different central activities. Within each central activity, visitors can take pictures with the cartoon character(s), play games or have fun in each cartoon story, each of which is a supporting activity.

Clearly, various activities that engage people can be described by the seven entities mentioned above. They can be used to design/describe a specific engaging experience enabled by a product.

5.3 The Mapping between Product Properties and Engaging Experience

To relate product properties to the elements of engaging experience, the author suggests that the use or interaction with a product corresponds to the performance. The primary function of a product relates to the stage. A particular component or the appearance of a product relates to the prop. And the user, of course, relates to the character. To illustrate, in the case of "Glass Toaster", the transparent glass makes the toasting function visible and therefore the user can visually engage in the toasting process. Correspondingly, the toasting process that attracts users (interaction) is the performance. The visible toasting function is the stage. The transparent glass (appearance) is the prop. And the user is a spectator.

In addition, regarding the theme, central activity, and individual activity, the author suggests what product properties correspond to the theme should be defined by designers. The main purpose of a product corresponds to the central activity. The regular or periodical use corresponds to the supporting activity. To illustrate, in the case of the "E-rope", the modular design allows the user to change the configuration as playing Lego toys. "E-rope" displays a particular configuration that accommodates more bulky cords. Accordingly, playing Lego toys is the theme created by designers. Changing the configuration for bulky cords (main purpose) is the central activity. And whenever the user needs to connect other cord onto "E-rope" (periodical action) that results in changing the configuration is the supporting activity.

The hypothetical mapping between product properties and the elements of engaging experience is established in Table 1. This mapping helps to identify product properties that can foster engaging experience.

Table 1. The Mapping between product properties and the elements of engaging experience

Product Properties	Elements of Engaging Experience
Use or Interaction	Performance
Primary Function	Stage
Component or Appearance	Prop
User	Character
(defined by designers)	Theme
Main Purpose	Central Activity
Regular or Periodical Use	Supporting Activity

6 Conclusion

This paper discusses the fundamental concepts of engaging experience with physical products. Engaging experience is defined as a user, when interacting with a particular product, participates in a peripheral activity enabled by the product. This peripheral activity, as a result, reinforces the experience of using the product. Based on resulting responses, engaging experience can be categorized in three types: sensory, physical and emotional. In addition, engaging experience must be instinctive so that it makes sense to users.

Through the review of example products, the author claims that individual products, as expected, can engage users. Since products are full of tangible features and intangible attributes, designers are able to create a product that engages users in its performance. A product that engages users neither becomes more complicated nor requires additional user involvement. Users can instinctively enjoy engaging without increasing workload or spending time to react. Thus, engaging experience is a new value that a product can bring to users in addition to functionality, usability and aesthetics. To engage users, designers must be concerned with not only product utilities but also compelling user-product relationship. Relating product properties to the elements of engaging experience provide a hypothetical approach for designing products that engage users.

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