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## Understanding of user evaluations on fun products

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### Abstract

The fields of human-computer interaction and interaction design are increasingly dealing with the issues of fun, enjoyment and pleasure throughout the last two decades. The concept of fun becomes a concern in the development of usability of a product. Fun is an attribute considered to be an emotional aspect of interaction of a product. The evaluations and interpretations of fun on products are, therefore, subjective and personal which is peculiar to a user. A study, hence, was conducted to explore the term fun in everyday experience products. The aim is to understand what features and characteristics of a product make it fun and enjoyable to use. A total of twenty-nine users participated in the study. Each participant was interviewed individually in order for his/her personal attributes, interpretations and evaluations of fun to be elicited from a pool of thirty-two products. The participants' responses to open-ended questions were qualitatively analyzed by the use of content analysis procedure. The collected data was then grouped under four main categories which are visual aspect, functionality, usability, and contextual content. The findings of the study show that visual aspect of a product is the most concerned feature, followed by contextual content, usability and functionality, when evaluating the fun in everyday experience products.

Keywords: fun; fun product; product experience; color preference

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## **1.Introduction**

Human computer interaction (HCI) and interaction design have been increasingly concerned with the issues of pleasure, enjoyment and fun for more than two decades. Although HCI only deals with the notion of usability, as Carroll (2004, p. 38) claims “incorporating fun into considerations of usability, and of user behavior and experience makes human-computer interaction far richer from the standpoint of psychology and design.” Wright, McCarthy and Meekison (2004) also state that the products not only need to be usable but they need to be useful, enjoyable and satisfying, as well. Fun and enjoyment, thus, become significant and obvious matters for the development of the usability in HCI as Ciolfi, Cooke, Bertelsen & Bannon (2005) suggest *ease of use* and *simplicity of use* of a product are just not sufficient for it. The qualities like enjoyment, fulfillment and fun of a product are the outcomes of certain kinds of experience through the interaction of a user with that product (Wright, McCarthy & Meekison, 2004). Product experience is considered as an affective state which includes all types of personal/subjective experience based on the characteristics of the user (i.e. personality, background education, cultural values, etc.) and the features of the product (i.e. form, shape, texture, color, etc.) (Desmet & Hekkert, 2007). Fun, hence, is an attribute as a valence state and an emotional aspect of interaction of a product which cannot be separated from the issues of pleasure and enjoyment (Mahlke, 2005). The evaluations and interpretations of fun on products are, therefore, considered to be subjective and personal which is peculiar to a user.

This study is conducted in order to elicit the users’ personal attributes, interpretations and evaluations about the term fun and enjoyment. Fun and enjoyment are the subject matter of system levels (i.e. information and communication technologies) (Monk, Hassenzahl & Reed, 2002). The main purpose of this study is to understand what features and characteristics of an everyday experience product might make that product fun and enjoyable to use, since there is still less research on product level, especially on everyday experience products

## **2. The Study**

### **2.1. Materials**

For the study, the photographs of 32 products were utilized. These products were selected by the researcher in order to develop a pool of fun products. The main concern while selecting the products were to collect everyday experience products which were various in functions, features, purposes and etc., including meter, telephone, kitchen clock, umbrella, creamer, etc. (see Figure 1.).

### **2.2. Participants**

The study was based on voluntary participation. A total of 29 participants were volunteered to the study who were different in age, profession (i.e. architect, academician, administrative personnel, technical staff, etc.) and educational level (i.e. higher secondary education, undergraduate, graduate, postgraduate level). The purpose was to conduct a heterogeneous group. Of the participants, 15 were female and 14 were male. The mean age of the group was 33.51, ranging from 20 to 61. All the participants were Turkish living in Turkey, therefore the study was carried out in the participants’ native language, i.e. Turkish.

### **2.3. Method and Procedure**

The research method of the study was employed qualitatively with the use of face-to-face interviews and open-ended questions. The interviews were done according to the timetables of the participants which were scheduled before. Each participant interviewed individually. Before the

interview, each participant was given a brief explanation about the study. The interview was conducted through two main open-ended questions. These questions were to obtain or elicit the personal attributes, interpretations, evaluations and attitudes of the participants to/towards the fun products in everyday experience.

The first question was based on selecting the most enjoyable product by asking: *According to you, which product from a pool of 32 photographed products is the most enjoyable? Why?* Approximately five minutes were enough for the participant in order to familiarize him/herself to the photographs of the products. After selecting the most enjoyable product according to his/her personal choice and preference, the participant was asked to evaluate the underlying reason behind his/her thoughts of selection in terms of adjectives or short sentences verbally.

The second question was based on eliciting the general idea about the concept of 'fun' by asking: *What do you understand from the phrase 'fun product' in general?* For this question, the participant was asked to define his/her general understanding about the concept of fun again in terms of adjectives and short sentences verbally.

The elicited constructs and definitions from both questions were written down by the researcher to the questionnaire sheet of each participant. Each interview took 15 to 30 minutes and the same procedure was same for each participant.

#### **2.4. Data Analysis**

The participants' responses to open-ended questions were analyzed by the use of content analysis procedure. The purpose of the data that were elicited from the two open-ended questions was based upon understanding the participants' evaluations on fun products. This study, thus, was data-driven which was based on the analyses of the answers given to the questions. The evaluations and interpretations that were elicited by the participants to the questions were first analyzed qualitatively. This was done by extracting the constructs and keywords from each participant's personal questionnaire list of evaluations. For the data analysis, these constructs were translated from Turkish to English by the researcher. The constructs collected from the data, hence, were categorized into four in terms of their content as follows;

- Visual aspects (*related to form, design, material, color, etc.*)
- Functionality (*related to function, multi-functionality, etc.*)
- Usability (*related to ease of use, durability, safety, etc.*)
- Contextual content (*related to connotations, feelings, personal appraisals, etc.*)

After classifying the constructs, the systematic descriptions of the data then were quantitatively analyzed by doing the frequency counts of the elicited constructs in a participant level and calculating the frequency distributions in a categorical level.

### **3. Results**

#### **3.1. Evaluating the most enjoyable product**

The results in this section are based on the analysis of the answers that were given by the participants for the first question; *According to you, which product from a pool of 32 photographed products is the most enjoyable? Why?* A total of 124 constructs were collected from 29 participants. In

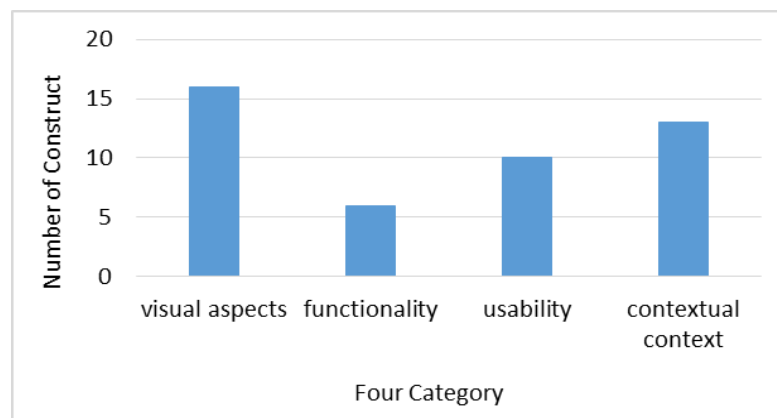
a participant level, the average of the elicited constructs was 4.28, ranged from one to seven constructs.

Fourteen products were chosen as the most enjoyable product from a pool of 32 products. The selected most enjoyable product was the *meter* (5 times out of 14), followed by *espresso cups*, *paper holder (duck)* and *playing cards* (3 out of 14 times each). *Pencil tray*, *coffee mug*, *creamer*, and *oven glove* were preferred 2 times each out of 14. The remaining six products, i.e. *telephone*, *umbrella*, *paper holder (heart)*, *lighter*, *radio*, and *kitchen timer* were chosen only once for each by the participants (Figure 1).



**Figure 1. Examples of the selected most enjoyable products**

After the content analysis of a total of 124 constructs, the constructs were categorized according the frequency of mention by the participants. As a result, a total of 38 shared constructs were grouped under the four categories of visual aspects, functionality, usability, and contextual content.



**Figure 2. Frequency distribution of the constructs under four-category of the most enjoyable product**

The graphical representation in Figure 2 displays the frequency distribution of the elicited constructs on four categories. Accordingly, 16 constructs out of 38 were grouped under the category of visual aspects which was 42% of the total shared constructs. This is followed by the category

contextual content; 13 out of 38 shared constructs (34% of the total) were grouped under this category. Next, seven out of 38 shared constructs (18% of the total) and two constructs out of 38 (5% of the total) were grouped under the categories of usability and functionality, respectively. These results indicate that, the participants selected the most enjoyable product in terms of concerning the product with its visual aspects, followed by contextual content, usability and functionality.

*Visual Aspects.* This category was regarded as the most concerned feature while evaluating the most enjoyable product. There were some common constructs which were mentioned by the participants more frequently. Table 1 shows the five frequently mentioned constructs of the participants which were used to describe the visual aspects of the most enjoyable product that he or she selected.

**Table 1. Frequently mentioned constructs within the category of visual aspects (N=29)**

<b>Construct</b>	<b>frequency</b>	<b>%</b>
unusual/unfamiliar	15	52
harmony of colours	11	38
vivid colours	8	28
cute/sympathetic	7	24
attractive	6	21

The results indicated that (Table 1), being 'unusual/unfamiliar' was the most concerned feature of the most enjoyable product. 'Harmony of colors' and 'vividness of colors' were the next important features in terms of the visual aspects for the enjoyable products. Although the products that were evaluated as being 'cute/sympathetic' and being 'attractive' seemed to be in the category of contextual content, the participants used these constructs while they were evaluating the visual aspects of the products. Some of the exemplar quotes of the participants' description and evaluation of the most enjoyable products that they selected within the category of visual aspects are as follows;

*"The product itself has an identification with a human figure." (Participant, #4)*

*"I haven't seen anything like this before." (Participant, #10)*

*"My most favorite color is red so I find this product very enjoyable." (Participant, #11)*

*"I like the color combination of blue and white." (Participant, #12)*

*"The product has everyday objects on it but they are smaller than their real scales." (Participant, #14)*

*"The product evokes my imagination and it arouses my curiosity." (Participant, #16)*

*Contextual Content.* This category was regarded as the next concerned feature after the category of visual aspects while evaluating the most enjoyable products by the participants. The shared constructs that were mentioned more frequently by the participants are found in Table 2. The participants evaluated the most enjoyable products within the category of contextual content as 'humorous', 'conceptual', 'childish' and 'connotative'.

**Table 2. Frequently mentioned constructs within the category of contextual content (N=29)**

<b>Construct</b>	<b>frequency</b>	<b>%</b>
humorous	7	24
conceptual	5	17
childish	3	10
connotative	3	10

Some of the exemplar quotes from the participants are as follows;

*"This product makes me feel good." (Participant, #1)*

*"The product assigns another meaning in addition to its function." (Participant, #4)*

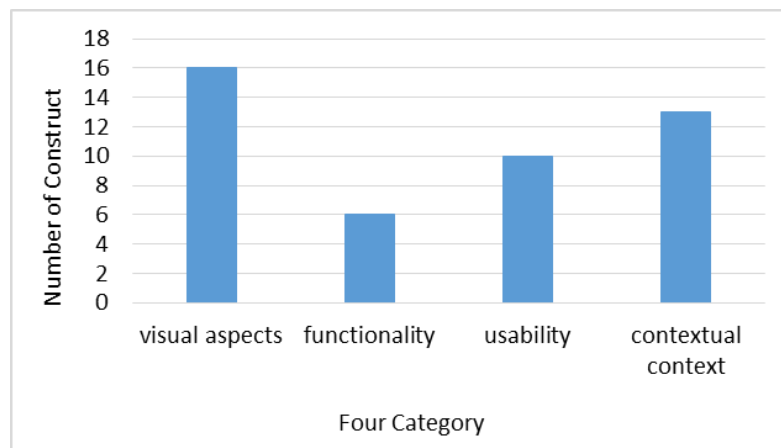
*"It appears to be inspired from a comic strip character." (Participant, #15)*

**Usability & Functionality.** In the category of usability, the constructs 'durable' and 'easy to carry' were mentioned by three (10% of the total) and two (7% of the total) out of 29 participants, respectively. In the category of functionality, the construct 'functional' was mentioned five times out of 29 participants (17% of the total population) while evaluating the most enjoyable product that he or she selected.

### 3.2 Defining the term 'fun product'

The results of this section are depended on the answers that were given by the participants during the interviews to the second question of the study: *What do you understand from the phrase 'fun product' in general?* The purpose was to elicit the general idea about the concept of fun and fun product. A total of 120 constructs were collected from 29 participants. In a participant level, the average of the elicited constructs was 4.14, ranged from two to seven constructs.

After the content analysis of a total of 120 constructs, the constructs were categorized according the frequency of mention by the participants. As a result, a total of 33 common constructs were grouped under the four categories of visual aspects, functionality, usability, and contextual content.



**Figure 3. Frequency distribution of the constructs under four-category of the term 'Fun Product'**

The graphical representation in Figure 3 displays the frequency distribution of the elicited constructs on four categories. Accordingly, 16 constructs out of 33 were grouped under the category of visual aspects which was 48% of the total shared constructs. This is followed by the category of contextual content; nine out of 33 shared constructs (27 % of the total) were grouped under this category. Next, seven out of 33 shared constructs (21% of the total) and only one construct out of 33 (3% of the total) were grouped under the categories of usability and functionality, respectively. These results indicate that the participants defined the term 'fun product' concerning in terms of its visual aspects, followed by contextual content, usability and functionality.

*Visual Aspects.* This category was regarded as the most concerned feature while defining the term ‘fun product’ in general. There were some shared constructs which were mentioned by the participants more frequently. Table 3 shows the five frequently mentioned constructs of the participants which were used to define the visual aspects of the term ‘fun product’ in general.

**Table 3. Frequently mentioned constructs within the category of visual aspects (N=29)**

<b>Construct</b>	<b>frequency</b>	<b>%</b>
vivid colours	11	38
unusual/unfamiliar	9	31
harmony of colours	7	24
surprising	7	24
aesthetic	6	21

According to Table 3, having ‘vivid colors’ was the most mentioned feature while defining the fun product in general. Furthermore, being ‘unusual/unfamiliar’ was the next concerned feature of a fun product. ‘Harmony of colors’, being ‘surprising’ and being ‘aesthetic’ were the other elicited features in terms of the visual aspects of a fun product. Some of the exemplar quotes of the participants’ description and evaluation of the term ‘fun product’ within the category of visual aspects are as follows;

*"The product should be in real dimensions but different in scale." (Participant, #4)*

*"The product that I could discover various features over time." (Participant, #9)*

*"In addition to its function, the product should have a novelty in its form and color." (Participant, #18)*

*"The product should be in warm colors like red, orange or yellow." (Participant, #19)*

*Contextual Content.* This category was regarded as the next concerned feature after the category of visual aspects while defining the term ‘fun product’ by the participants. The common constructs that were elicited more frequently are shown in Table 4.

In accordance to the participant’s description of the term ‘fun product’, the most elicited feature within the category of contextual content as ‘humorous’, ‘exciting’ and ‘connotative’. Some of the exemplar quotes from the participants are as follows;

*"The product should give me a pleasure whenever I use it. I should feel excitement. (Participant, #2)*

*"The product that I should identify with me. (Participant, #7)*

*"The product should have a soul and give a positive emotional affect. (Participant, #8)*

*"The product should make me feel good. (Participant, #16)*

**Table 4. Frequently mentioned constructs within the category of contextual content (N=29)**

<b>Construct</b>	<b>frequency</b>	<b>%</b>
humorous	7	24
exciting	6	21
connotative	4	14

*Usability & Functionality.* In the category of usability, although a total of seven construct was elicited, their frequency of mention by the participants were less than three. The most mentioned construct was about the ‘fun product’ as being ‘ergonomic’; three out of 29 participants (10% of the total) within this category. This was followed by the constructs ‘light’ and ‘durable’ which were

mentioned by two out of 29 participants each (7% of the total population for each). Within the category of functionality, only one construct was elicited. However, the construct 'functional/practical' was mentioned by 13 participants out of 29 (45% of the total population) which was the most mentioned construct over the other constructs.

#### 4. Discussion and Conclusion

The aim of this study is to understand what features and characteristics of an everyday experience product might make that product fun and enjoyable to use. To this end, a study was conducted in order to elicit the users' personal attributes, interpretations and evaluations about the term fun and enjoyment in everyday experience products. A total of 29 participants were interviewed individually with the use of two open-ended questions. The first question was based on eliciting the participants' evaluations to the most enjoyable product that he or she selected from a pool of 32 photographed products. The second question was depended on eliciting the participants' interpretations and descriptions of the term 'fun product' in general. The elicited constructs from the two questions were grouped under four categories in terms of their subject content; i.e. visual aspects, functionality, usability and contextual content.

The general findings of the study show that visual aspect of a product is the most concerned feature, followed by contextual content, usability and functionality, when evaluating the enjoyable products in everyday experience and the term 'fun product' in general.

Regarding the category of visual aspects, unusualness/unfamiliarity of a product is the main feature that makes the product enjoyable and fun. This finding is in line with the statement of Carroll (2004) that "[...] Things are fun when they attract, capture, and hold our attention by provoking new or unusual perceptions [...]" (p. 39). In accordance, Carroll (2004) claims that color of a product does not evoke fun; this study finds out that having vivid colors and harmonious color combinations are the important features of a product that the participants concerned for the fun product. The most of the participants stated that they find the products more enjoyable and fun when the products are in their preferred colors. The products which are cute/sympathetic, surprising and attractive are the other concerned features that the participants elicit. "[...] Things are fun when they "surprise us", when they don't feel like they look, when they don't sound like they feel" as stated by Carroll, as well (2004, p. 39).

Regarding the category of contextual content, humor is the most concerned feature that makes the product enjoyable and fun. In accordance, the product that is being connotative is also a concerned feature of the fun product. This indicates that, the products that remind of or identify with something are considered as enjoyable and fun by the participants.

In terms of the category of usability, the durability of materials, being easy to use, being ergonomic and being sustainable are the important features that the participants reveal about the fun products. Djajadiningrat, Overbeeke and Wensveen (2000) suggest that, to design a fun product which is *difficult to use*, like challenging, seductive, playful, surprising, memorable or rewarding, increase the enjoyment of experience that is more important than *easy to use*. Although this study reveals that the visual aspects and contextual contents of the products make the products enjoyable and fun to use, the fun products bring the concern of being easy to use. The functionality/multi-functionality/practicality of the fun products are defined as important by the participants in terms of the category of functionality which is the most mentioned construct over the other constructs.

This study also reveals that the products which are evaluated or defined as fun have the attributes similar to the activities that are also considered as fun. For instance, one of the participant (#2) states while evaluating the 'playing cards' (see Figure 1) that "*The activity of the product that it represents is enjoyable therefore the product itself is enjoyable as well*". Thus, fun-in-doing is another important



subject matter in order to understand the participants' evaluations of fun products (Shneiderman, 2004).

To summarize, regarding the findings of this study, a product is enjoyable and fun when it is unusual/unfamiliar, have vivid and harmonious colors, cute, surprising, attractive, humorous, connotative and at the same time when it is easy to use, durable, ergonomic, practical and functional. These findings show some similarity with the literature that discussed above; however, this present study also reveals that, the color of a product and the color preference of a product are the essential substances that determine a fun product. Palmer, Schloss and Sammartino (2013, p. 86) state in terms of ecological valance theory that, "[...] people like/dislike a specific color to a degree that they like/dislike all of the environmental objects that are associated with that color". Palmer et al. (2013) further claim that, this ecological rationale "[...] will be adaptive for organisms to approach objects whose colors they like and avoid objects whose colors they dislike to the extent that their color preferences are correlated with objects [...]" (p. 86). Therefore, conducting further research holds a potential to identify the relationship between color preferences and fun products.

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