

IDENTIFYING THE FACTORS TO INFLUENCE PRODUCT ATTACHMENT THROUGH PRODUCT FANDOM PHENOMENON

Bae, Jieun; Kim, Chajoong
UNIST, South Korea

Abstract

Users become attached to particular products or services since they convey a personal meaning. According to literature study, four factors play a role in product attachment. However, it has not been known how those factors influence product attachment because product attachment varies between products as well as between users. Therefore, this study aims to investigate 1) the relationship between the four attachment determinants and product fandom, and 2) what product features play a role in product attachment, focusing on product fandom that represents an ultimate level of product attachment. Two online product fandom communities were chosen: one for capsule coffee machine (single functional product) and the other for iPhone (multi-functional product). An on-line questionnaire survey was conducted with the communities and a total of 88 respondents participated in the survey. The results of the study indicate that 'pleasure' among the factors of product attachment was the major reason attached to the products. It turned out product features and multi-functionality of product are also involved in product attachment. The implications to the industry are discussed as well.

Keywords: User centred design, Product experience, Product attachment, Fandom

Contact:

Jieun Bae
UNIST
Department of Industrial design
Korea, Republic of (South Korea)
baedion@gmail.com

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1 INTRODUCTION

The world we are living in today is overflowing with products that are being released in the market on almost everyday base. Although people use and experience many products for various reasons in their everyday life, many of products do not deliver the users positive emotion and only a few products gain users' affections. Beyond cherishing a product, people sometimes feel a deep emotional bonding with the product for particular reasons, which has been defined as *product attachment* (Schifferstein and Zwartkruis-Pelgrim 2008). Product attachment is an ultimate goal that designers as well as firms aim to deliver the user through their products because it leads to an increase of customer loyalty and the continued success in the market. It also contributes to eco-design in a sense that it creates long-term relationship between product and user (Mugge *et al.* 2009).

However, since product attachment is very personal and subjective emotion, confined to only a person's own experience, product property with emotional bonding are too broad and different from individual to individual (Csikszentmihalyi and Halton 1981, Wallendorf and Arnould 1988, Hirschman and LaBarbera 1990, Kamptner 1991). The question related to product attachment still remains ambiguous: how can designers create such product attachment between user and product through their design?(Govers and Mugge 2004) Product category such as ornament, car, and bicycle was experimentally used as an alternative of product property in product attachment studies (Schifferstein and Zwartkruis-Pelgrim 2008, Mugge *et al.* 2009). Desmet and Hekkert (2007) identified four determinants of product attachment: *Pleasure, Self-expression, Group affiliation and Memories*. Nevertheless, it is still not known whether physical qualities of product have to do with product attachment and if so, what physical qualities of product contribute to building product attachment. Even though designers are aware of the value of understanding physical qualities in product that people love (Russo *et al.* 2011), design studies have not been sufficiently conducted to tackle the ways to create product attachment.

Interestingly, *fandom or fanboy* has been introduced as a similar concept of product attachment. The term indicates a person or group who sticks to a particular product or brand and share common interests (Fiske 1992). It typically occurs in areas such as pop, movie or cartoon but these days is not limited to such areas but expanded to consumer products as well. One of the best fandom examples is fanatic iPhone user known as "*apple fanboy*" (Jim Dalrymple, 2011). Not only having emotional bonding, the group of people sometimes show uncommon behaviors comparing to the normal. For instance, they are willing to spend hours waiting for purchasing new released iPhone or creating an online community for sharing product knowledge with the members.

Considering the phenomenon has been commonly observed between cultures, product attachment seems to extend to group level experience beyond individual experiences. Therefore, we defined a particular group of people who have strong and positive emotion toward a product as product fandom in the study. Our assumption is that product attachment could be explained with physical qualities of product in a sense that product fandom has been shown with particular products.

Therefore, the study aimed to investigate which determinants of product attachment are related to building emotional bond with a product having a group of fans. For evaluating product feature, we used three external features: 'usability' and 'functionality' as basic components to estimate product (McNamara and Kirakowski 2006) and 'product appearance' which plays a key role in consumer product evaluation and choice (Blijlevens *et al.* 2009). Unlike previous studies on product attachments whose focus was on *individual experienced products* (Schifferstein and Zwartkruis-Pelgrim 2008, Mugge *et al.* 2009), this study focused on *group-experienced products* captivating a number of fans through online product fan community. Moreover, we also investigated specific physical features of particular products that deliver satisfaction to product fandom. The conceptual framework of the study is shown in Figure 1.

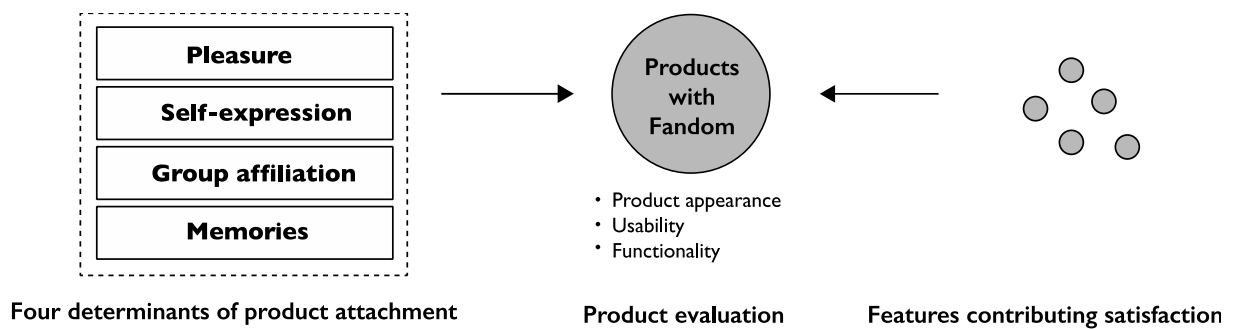


Figure 1. The Conceptual Framework of The Study

2 METHOD

2.1 Material

A questionnaire was developed to figure out the interaction between factors in the conceptual framework (see figure2). It consisted of three sections: First, we developed four statements to measure the degree of relevance of each determinant of product attachment (pleasure, self-expression, group affiliation and memories) on the five-point Likert scales (Strongly disagree: 1, disagree: 2, neither disagree nor agree: 3, agree: 4, and strongly agree: 5). Next, three more questions were added in order to evaluate the degree of satisfaction to each product attractiveness (product appearance), usability and functionality. The questions were to measure how much they are satisfied in terms of the three dimensions on the five-point Likert scale (Strongly dissatisfactory: 1, dissatisfactory: 2, neither dissatisfactory nor satisfactory: 3, satisfactory: 4, and strongly satisfactory: 5). At last, as the way of investigating particular features of products with fandom, an open question was asked about what is the most satisfactory feature of the product that contributes to loving the product. Since the study considered online fandom communities as target group, the questionnaire was developed based on *Google (on-line) spreadsheet*.

Determinant		Strongly disagree	1	2	3	4	5	Strongly agree
Pleasure	This product provides me pleasure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-expression	This product expresses who I am	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Group affiliation	This product reminds me of connected or involved feeling with a group or others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Memories	This product reminds of memoires or episodes associated with a person of people, events, or place that are important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Product satisfaction		Strongly dissatisfactory	1	2	3	4	5	Strongly satisfactory
Product appearance	How do you evaluate the product in terms of product appearance?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ease of use	How do you evaluate the product in terms of ease of use?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Functionality	How do you evaluate the product in terms of functionality?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Critical features	What are the most critical features of the product that make you love the product? (open question)

Figure 2. the questionnaire developed for the study

2.2 Procedure

First of all, online product fan communities were investigated on the platform of 'Naver Cafe', the biggest portal site in South Korea with more than 37 millions users. When selecting online product

communities, the following criteria were applied: Firstly, we looked for durable consumer products not heavy equipment or luxury products to avoid biased contexts. Secondly, we searched online communities whose name was described with keywords ‘-lover’, ‘-holic’ indicating intimate relationship, and ‘-mania’ used as same meaning of ‘fan’ as well as ‘fan(dom) (Miranda 2005)’. It was because communities with such keywords in their name can represent user’s behaviour and emotion toward the product; intimacy, affection or even fanatic with deep emotional bond. Lastly, we selected communities with the most number of active group members and as a result, two communities were chosen. We uploaded a questionnaire (see figure2) onto the bulletin board of each community respectively and asked members to voluntarily participate in the survey. In order to restrict the sample only to fandom, a filtering question was asked before the online questionnaire was conducted: whether he/she is a fan of the product or not. Responses to the questionnaire were collected for two weeks since we had uploaded it. As compensation two participants were randomly selected and provided with coffee coupons.

2.3 Experimental Products

Based on the criteria, two product fan communities were chosen: one was iPhone community that consisted of more than one million group members (see figure 3). The other was Nespresso capsule coffee machine community where the number of group members was more than 70,000. The community’s names were ‘the group of iPhone lovers’ and ‘ the group of Nespresso lovers’, respectively.

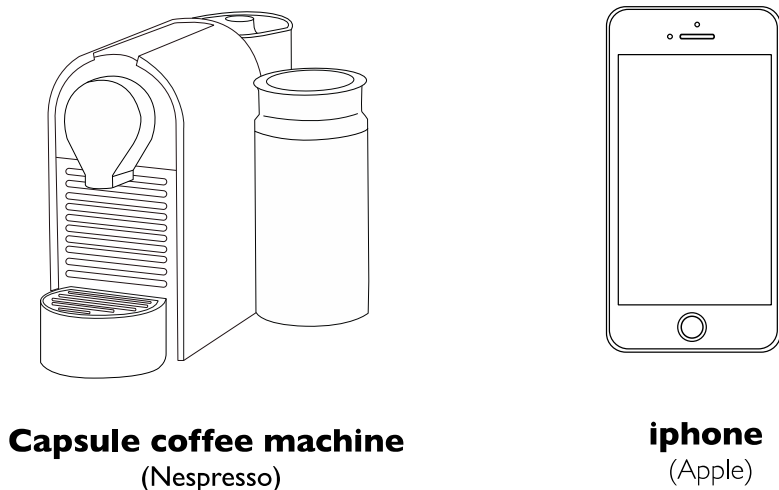


Figure 3. Experimental products chosen in the study

2.4 Sample

Respondents were recruited via the Internet, who voluntarily wanted to participate in the survey. In order to confine samples only to product fandom, filtering process was conducted by providing a question in advance. As a result, a total number of 88 people participated in the questionnaire survey (iPhone n=42 respondents and coffee machine n=46 respondents): for iPhone community 37 male and 5 female respondents (average age of 25) while for Nespresso coffee machine 5 male and 41 female respondents (average age of 36). Other personal information was not collected because this study only focused on whether they were fandom or not.

2.5 Data analysis

As a way of analysing data, the score on the Likert scale was used for obtaining average and mean score of each question. In the open question in the questionnaire, there was no restriction on response, which contributed to collect various opinions as much as possible from participants. In order to analyse the data, the qualitative content analysis method was performed (Graneheim and Lundman

2004) . Firstly, all verbatim were transcribed and each sentence was segmented according to its meaning unit. Then, each unit was labelled with a code in condensed meaning unit part. The collected meaning units were clustered in terms of similarity and reformulated to a label of particular feature of the product.

3 RESULTS

3.1 Determinants of product fandom

Figure 4 illustrates the average score of the four determinants of the two products respectively. To see which determinant of product attachment is the most related to fandom product, we obtained the mean values of each determinant. The determinant ‘pleasure’ was the highest in both products (iPhone: 4.63, Coffee machine: 4.39) among the four determinants among four determinants; Self-expression (iPhone: 3.85, Coffee machine: 4.00), Group affiliation (iPhone: 3.54, Coffee machine: 4.22) and Memories (iPhone: 3.23, Coffee machine: 3.39). In addition, the lowest average score was the determinant ‘memories’ in both products. Moreover, except group affiliation, the rank of determinants showed similar trend in both products; the highest was ‘pleasure’ and the lowest was ‘memories’.

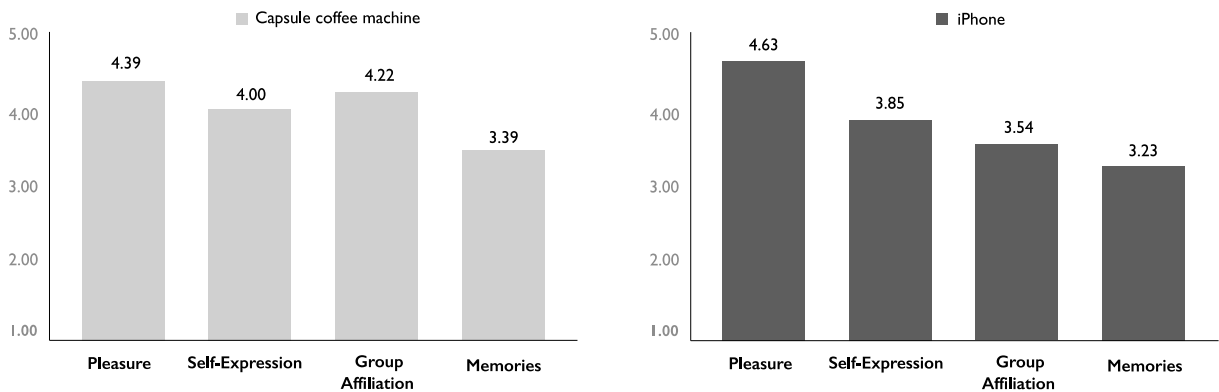


Figure 4. Average score of the four determinants of product attachment

3.2 Product satisfaction in product fandom

Figure 5 shows the average score on the two products of evaluation in terms of product appearance, functionality and usability. The both of average scores in two products were over 4.0 – (iPhone: 4.65, Coffee machine: 4.30) for product appearance, (iPhone: 4.42, Coffee machine: 4.46) for functionality, and (iPhone: 4.28, Coffee machine: 4.67) for usability. In case of coffee capsule machine, the highest score in satisfaction was shown in ‘usability’ while iPhone in ‘product appearance’.

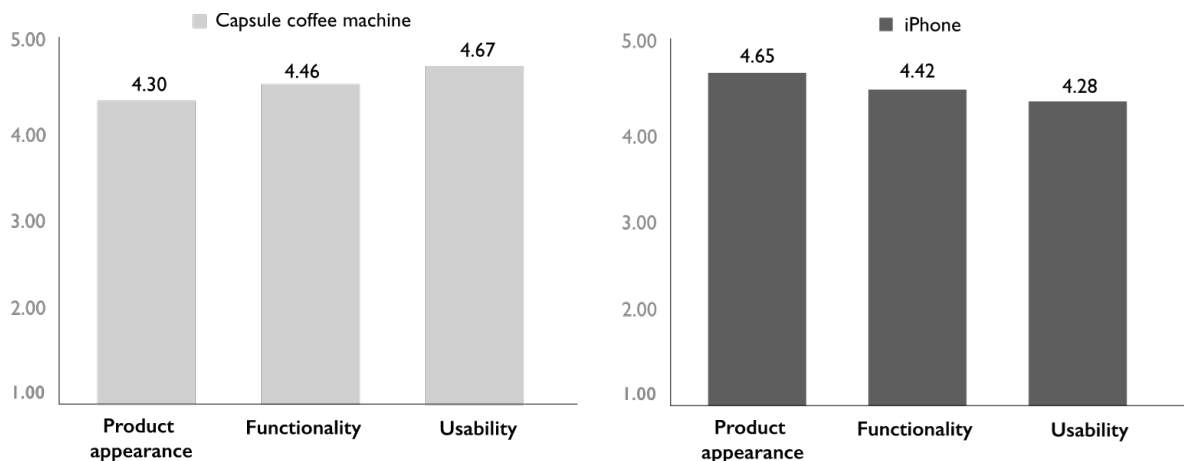


Figure 5. Average score of evaluation on the two products

3.3 Specific product features to deliver satisfaction to product fandom

As a result of coding of open question, a total 111 meaningful meaning units were gathered about capsule coffee machine and so were 138 units for iPhone, and those were clustered in eight categories: *Design attractiveness, ease of use, various options, constant quality of function, compatibility, optimization, reasonable price, etc.*

3.3.1 Nespresso Capsule coffee machine

Figure 6 explains six product features in Nespresso coffee machine that were clusters based on the coding result: *various options, ease of use, constant quality of function, design attractiveness and reasonable price.* Most of all, the most critical feature among those was ‘*various options*’ (38%), i.e., a wide range of taste that comes from a variety of coffee capsule, which were described as ‘diverse coffee taste’, ‘various kinds of coffee capsule’, ‘many kinds of selection option’, ‘wide range of choice’ etc. The following feature was ‘*ease of use*’ (28%) and it was explained such as ‘simple’, ‘convenient operation’, ‘usable function’ or ‘easy control’ and it was in accord with the previous result in section 3.2. In case of ‘*constant quality of function* (24%)’ referring to durability in a product, participants described it as ‘taste is not changed over time’, ‘same quality over time’ and ‘consistent taste’.

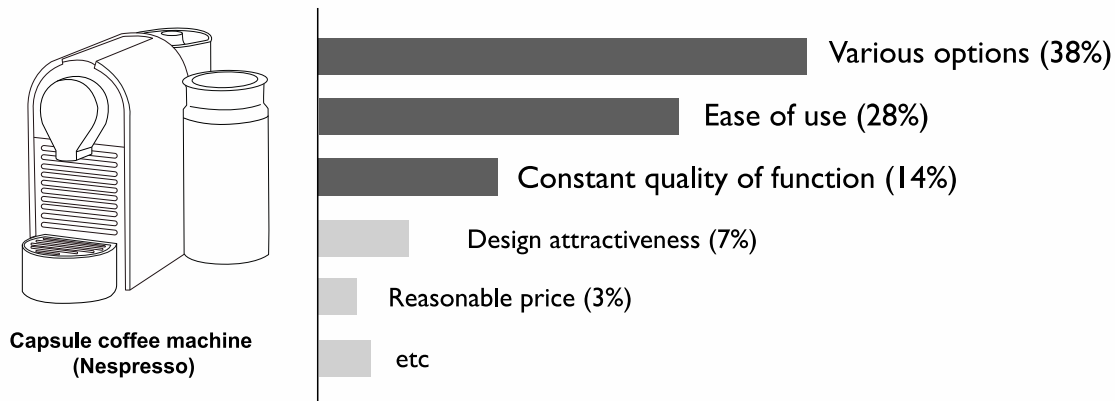


Figure 6. Reasons of loving capsule coffee machine

3.3.2 Apple iPhone

Figure 7 explains six product features in iPhone that were clusters based on the coding result: *Design attractiveness, optimization, ease of use, various options, constant quality of function and compatibility.* Unlike capsule coffee machine, the most mentioned feature of iPhone was ‘*design attractiveness*’ (31%) about product appearance, and it was described diverse adjectives, for example, ‘simple’, ‘exquisite’, ‘details’, ‘great finishing’, and ‘beautiful design’. This result was same result with the previous result in section 3.2: the highest score on product satisfaction in iPhone was product appearance. In case of ‘*optimization* (20%)’, it was the second most mentioned feature of iPhone that fandom selected as one of the critical satisfactory features. It included speed, battery, optimization, or performance and most of them were related to functionality of the product. The following features were ease of use (14%), various options (11%), and constant quality of function (11%).

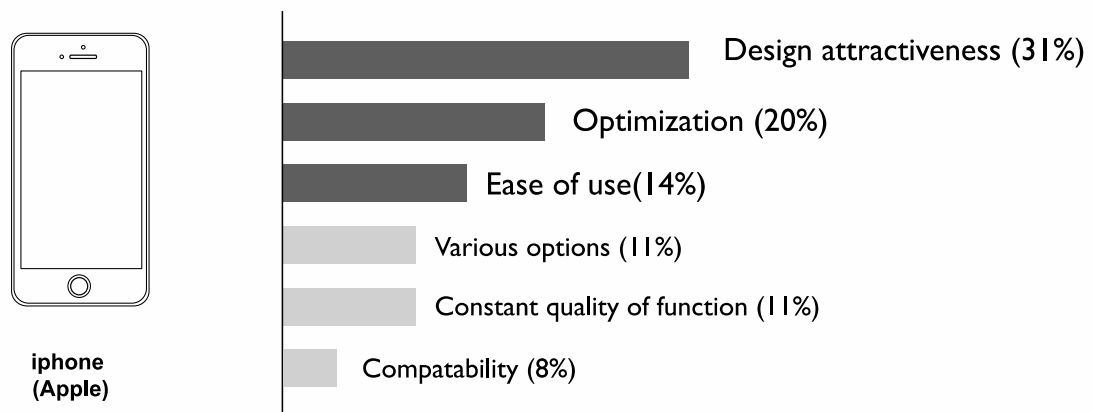


Figure 7. Reasons of loving iPhone (multi-functional product)

4 DISCUSSION

There are several determinants that build a strong emotional relationship between users and products. Rather than dealing with all determinants, we focused on more physical and external elements of product that were evaluated by product fandom. As a result, we found out meaningful data and outcomes introducing design implications that could be helpful to build design strategy for product fandom.

4.1 Pleasure: the determinant of product attachment in product fandoms

Among four determinants of product attachment, ‘pleasure’ was the most highly involved in both the product fandoms. It indicates that pleasure is the key factor contributing to the users to bring into product fandom. According to a previous study (Green and Jordan 1999), ‘pleasure’ is the highest needs of users and it requires an understanding of people not just as physical and cognitive processors but as rational and emotional beings with values, taste and hopes. This finding is in line with the one of a previous study that one of major attributes of customer preference, ‘Delighter’, yields high customer satisfaction according to Kano's model (Alsawalqah *et al.* 2014).

When looking into the reasons of the loving the products, providing ‘various options’ was selected the most in coffee capsule machine. Even though the number of function was very monotonous (only extracting coffee), many kinds of coffee tastes might contribute users not to being bored and evoke consistent curiosity about the product and fun. Considering the satisfaction on the usability was the highest in the capsule coffee machine, the fact that only one main function exists in this product provides simple and easy interaction for operating product and it becomes a critical element to satisfy users.

In case of iPhone, on the other hand, the pleasure seemed to come from satisfaction with design attractiveness (31%) and optimization of functions (20%). Considering iPhone is a portable product following users everywhere, the appearance of the product seems to take an important role to deliver pleasure compared to other features. Optimizations of functions as well as constant quality of function, rarely mentioned in coffee machine (single functional product), were more related to product durability that carries constant result over time and actually, those are more critical feature in multi-functional product which requires high performances, faster speed and long life span. The difference between two products was ascribed to the complexity of function, in other words, the number of functions.

The difference between two groups was statistically significant in terms of determinant ‘group affiliation’, higher score in capsule coffee machine than iPhone. The difference between two products would attribute to the degree of sharing with others; smartphone is commonly owned and used by individual user while coffee machine, usually located in kitchen or office, are usually shared with two or more users. It indicates that how much a product shared might be critical factor to determine the degree of product attachment, especially in ‘affiliation’. Further study should be conducted for verify this assumption.

4.2 Design implication

4.2.1 Multiple options during product use for satisfying users' taste

In the study, participants in both products fandom chose 'various options' as a critical factor that made them love the products. Here, 'the various options' means a wide range of tastes in capsule coffee machine and thousands of applications to download to their smartphone as well as various accessories to be equipped with smartphone. This result implies that providing multiple options to meet one's specific taste would be a way to increase satisfaction of the users. This is in line with the findings of a previous study (Mugge *et al.* 2009): the process of personalizing a product can deliver more favorable experience as a person spends more time and puts effort in the product, and such efforts directly influence the strength of emotional bond with the product. As one way of personalizing a product with ease, providing a wide range of selection of options (see figure 8) can give more opportunities for users to reflect their preferences onto a product. Thus, the availability of preferred selection contributes to building a long-term relationship and to enhancing emotional bond with the product because it works as continuous service while using the product, not just complete as one-time event.

When it comes to the concept of product customization or personalization, several companies have already served those options as a part of mass customization service that offers a chance to people to select components, accessories, and colors from a predefined set of options (Pine 1999), but it sometimes brings worse results on the contrary since people feel more difficulty in deciding entire product options which are hardly changeable. That is, multiple options such as various capsules in coffee machine and apps in smartphone should not be limited to product level but expanded to product service systems because the approach could encourage to prolong product life cycle, comprising maintenance and extend and diversify the services during the usage of product (Mont 2002). With the availability of selecting a wide range of options and easy mode of changing them, people can feel more pleasure from physical qualities of product at first, and they will be attached on it as time goes by. In that condition, one of the designer's roles would be developing and maintaining the relationship between products by providing more diverse and user-centered product options.



Figure 8. Examples of product with multiple options: capsule coffee machine (left) and smartphone (right)

4.2.2 Target group and product pleasure

Another possible strategy is to focus on target group and provide continuous pleasure through improving aesthetic and usability of product. According to the results of this study, the user groups between two fandom products were significantly different in terms of demographics. It implies that fandom phenomenon occurs in specific group of people whose characteristics are similar. Considering that product experiences are somehow dependent on cultural background and individual differences of the user (Desmet and Hekkert 2007), a group of people who feel fandom with a product are expected to have common cultural or personality characteristics (Kim 2014). This result was in accordance with the previous study that had argued designing a product with a pre-determined personality matches the personality characteristics shared by the members of their target group (Govers and Mugge 2004). Based on the understanding of how pleased the target group of a product could be, the product could be better designed to be attached, as suggested by the result that *pleasure* was most dominant among

the four determinants of product attachment. According to Jordan's hierarchy on consumer needs (Jordan 2002), focusing on physical qualities such as usability, features, aesthetics, reliability and performance will evoke product pleasure. This may be also possible by stimulating various sensations perceived by the sensory systems, e.g. vision, audition, touch, smell, and taste during use (Schifferstein and Zwartkruis-Pelgrim 2008). Through such pleasure, a diverse of positive emotions will be evoked such as pride, contentment, admiration, desire or hope (Desmet 2012) and those emotional bonds will be built over time.

4.3 Limitations and further study

The most obvious limitation on the study is the way of sampling. Due to the difficulty of recruiting real fans of a particular product, it was inevitable to restrict the sample only to Internet users who were actively involved in online communities and willing to voluntarily respond to the online questionnaire. Therefore, a further study is recommended to include people from both online and offline with more diverse backgrounds to draw a holistic picture toward product fandom as well as product attachment. Another limitation of our study is that only two product cases (a representative for single-functional products and the other for multifunctional products) were considered. Even though we selected those products with certain criteria, the conclusions drawn from the study with two product cases might be biased.

5 CONCLUSIONS

Users become attached to particular products or services since they convey a personal meaning. As an extension of product attachment from individual level to group level of experience, two products with online fandom communities were selected and investigated. Focusing on the four determinants of product attachment (pleasure, self-expression, group affiliation and memories), this study tried to reveal the relationship between the four determinants and product fandom, and to identify product features that deliver satisfaction that contributes to the product fandom. The results of the study indicate that 'pleasure' among the factors of product attachment was the major reason they were attached to the products. Also, it turned out that product features and multi-functionality of product are also involved in product attachment. If these findings are taken into consideration in the product development process, products or services can lead to an increase of user satisfaction and even, it can reach to an ultimate level of product attachment with product fandom, which brings continuous emotional experiences during the ownership and contributes to sustainability in society.

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