

# *Product Attachment and Pleasure; A Modus Operandi for Sustainability*

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## **A**bstract

Emotions are important parts of human lives as they influence the way people make decisions and behave. If users experience a pleasurable relationship with products, it results in user's satisfaction and resultantly, and sustainable behavior will occur as users would not have the motivation to replace the existing product with a new one. This paper examines if designers can create some sort of proper attachment between users and products, they would tend to use the products to the extent the functionality can be maintained: a situation, considered to be some petite modus operandi for users' sustainable behavior. This situation is more expected if users find the product pleasurable as well. To investigate, online and paper questionnaires were administered, using 153 respondents. Results revealed that the most pleasurable products are of digital and electronic nature, and mostly for their utilitarian aspects. Fashion, accessories, and embellishment items as well as most clothes are amongst the least attached (pleasurable) items, reported by the respondents.

## **K**eywords

*Pleasurability, Product Attachment, Sustainability, Design for Emotion.*

## Introduction

Design researchers believe that emotional design can be the solution to build a strong emotional attachment to products. It can also affect the way individuals think, feel, and behave (Norman, 2004; Chapman, 2005). Norman (2004), for instance, assumed that the emotional aspects of a product are more important than the practical ones as the product's success is more based on the user's emotion rather than product functionalities or users' logic. Emotional elements lead to pleasure and attachment. This pleasure and attachment, in addition to the enjoyable moment of use, results in more advantages such as sustainability.

After the Industrial Revolution, the mass-manufactured products played a prominent role in people's lives. As a result, human daily life is intricately intertwined with products. Each product is designed and manufactured with a specific purpose. But there is a story beyond every product disposal that we should be concerned about. The very nature of products is to create prosperity and comfort, but excessive production has threatened the environment and the earth as the only human home for some times now. Designers should not ignore this vital matter. Also, users have developed a purchasing habit through which, they buy brand new products over and over in order to fulfill their desire for good feelings and pleasure. This procedure shouldn't continue in this way. Sustainable design rules are a window into production and consumption, taking into account future generations' needs.

Ignoring the difference in consumer perception of pleasure has led to the indiscriminate production of unnecessary products. Users show more loyalty to their favorite products. With a quick look around, you will find many unnecessary products and gadgets in your home. The number of human consumption products has doubled over the past 50 years, but our sense of happiness has not changed (Desmet, 2016). The question here is, then, what is the reason behind all these productions? If the goal of production is to improve the quality of human life, is this reached? One of the biggest challenges and problems of modern life is the high volume of everyday products. Disposal of these wastes, in addition to imposing huge costs, also has devastating environmental effects.

From the viewpoint of sustainability, product disposal is undesirable in many cases. So, it is worthwhile for designers to have some strategies to lengthen the life span of products. One way to slow down product disposal and increase pleasure is the consideration of the concept of product attachment (Mugge, 2007; Schifferstein, 2008; Chapman, 2005; Schifferstein & Zwartkuis-Pelgrim, 2008). When a person becomes attached to a product, they are more careful about using it, repairing it, and postponing its replacement as long as possible (Schifferstein, 2008). Many sustainable design solutions have been explored for the environmental problem, but researchers have found that in addition to paying attention to environmental issues and product lifespan, the user's emotional and psychological needs must also be considered (Aftab & Agustin Rusli, 2017).

The concept of pleasure has different meanings for different people; what is certain is the direct effect of emotion on understanding the idea of pleasure. Emotions manage the quality of the user interaction with the product. Human beings are different from each other according to emotional characteristics. The success and failure of a product we have designed highly depend on our understanding of the user's cultural and physical characteristics. Humans are not just *users* of products. They have emotions such as fear, hope, anger, excitement, and taste that affect their perception of things while interacting with objects. For example, smart gadgets are generally attractive and enjoyable to the youth, while they may be confusing to older people. Or the scent of wintergreen is often referred to as the smell of candy by Americans, but for Europeans, it is reminiscent of medicine's scent (Schifferstein & Hekkert, 2007). In addition to general factors like culture and physical characteristics, every person's experience of a product depends on many other emotional factors (which may be related to a person's personal life) and all the product properties. For example, listening to music is always pleasant, but if the listener has a bitter memory of a specific music or song, they will not enjoy it. Emotion is the source of many human decisions, including purchasing, and directly impacts perception and thinking (Goldstein 2016).

Designers can bridge the gap between everyday life (surrounded by-products) and positive and valuable behaviors done consciously or voluntarily by the user.

Perhaps in the commencement of industrial design, designers' task was only to design products that users liked in a way that would attract the consumer and encourage them to buy. But today, we know that designers have a more prominent role in creating well-being and happiness (Desmet & Pohlmeier, 2013). Designers can design the product in such a way that, in addition to meeting the needs, it also gives the user a sense of pleasure. Psychological satisfaction causes positive emotion, and positive emotion stimulates product attachment (Desmet, 2012), and consequently, less product waste happens. The purpose of this paper is to explore how to reduce production with the help of quality and the origin of pleasure in products. To be specific, we want to see what products are more pleasurable and attached by people and why. The displeasure of products and the stimulus property is discussed as well.

## Consumer Product Attachment

Schifferstein and Zwartkruis-Pelgrim (2008) defined consumer product attachment as the strength of the emotional bond a consumer experiences with a product. Consumer product attachment implies the existence of an emotional tie between a person and an object. An object to which a person is attached is considered to be special and means a lot to that person. Consequently, the person will experience an emotional loss if that product is lost. In such circumstances, it is unlikely for the person to throw away the product. Schifferstein argues that although every product will evoke a different form of emotion depending on the user, people mostly report that they experience positive emotions towards the products to which they feel attached.

When a person buys a particular product, attachment or throwing away depends on the quality of user experience. Several pieces of research have pointed out that although the level of attachment changes over time, it is more likely for users to get attached to a product that is close to their personality and has a special meaning to them (Schifferstein & Zwartkruis-Pelgrim, 2008; Mugge, 2007). Every user takes a unique and special meaning from a product based on his culture, psychological background, age, etc. Meaning is the strongest connection one can build with a product although it is not thoroughly under the designer's control.

Attachment to a product is quite different from the satisfaction of products. In attachment, an emotion-driven bond, that makes products meaningful for the user, is involved, but satisfaction includes cognitive components (Mugge, 2007). Each of these levels results in another; attachment of products results in satisfaction, and satisfaction leads to product attachment. In both cases, one should have positive emotions toward the product. It might be different from using a product for a long time. Product attachment and product lifetime may look the same but are totally different. One may keep their product for a long time but not be attached to it (Mugge, 2007). The best strategy for product attachment is being loyal to it for the sake of its properties. In this case, as long as the product has its properties, the user keeps and uses it. Attachment to product results in pleasure and positive emotions for the user and sustainability for the environment. A consumer's emotions, in regard to a specific product, is likely to change over time due to:

- Functional or aesthetic obsolescence
- The consumer's personal life, like increased age or moving to another place
- The product-consumer interaction like different usage or ownership
- The situational context like fashion changes or technological improvements.

Obviously, all of the items above cannot be under the designers' control, but some of them are.

## Pleasure of Products

Pleasure has been an important and influential topic for a long time. Scholars of various philosophical, moral, and religious schools have sought to explain its nature. Of course, this article is not a philosophical article on the concept of pleasure, but by providing a brief definition of pleasure from the viewpoint of Eastern philosophers, we try to provide a very general picture of pleasure amongst Iranian users.

Al-Ghazali is one of the philosophers and thinkers of Iran who has tried to provide definitions of the concept of pleasure and different types of it. He argues three introductions for pleasure:

1. pleasure and pain are both related to our perceptions
2. Perceptions include our sensory perceptions (related to five senses) and cognitive perceptions (related to intellectual and imaginative powers)
3. Both types of sensory and cognitive perceptions define pleasure or pain in relation to the power of evidence.

Pleasure and pain could be agreeable, or in contrast, or even in indifference (neither agree nor disagree) to the power of evidence. Al-Ghazali divides pleasure into five pairs of sensory-emotional, sensory-cognitive, sensory- non-sensory, mental-physical, and inward-outward levels. The development of pleasure depends on one's passing through these levels. He also considered the difference in pleasure perception to be due to the differences in the power of perception at mentioned levels. So, *perception* here includes pleasure, pain, and something that is neither pleasure nor pain (Razzaghi & Afrashteh, 2020).

Pleasure in products is almost different from the philosophical definition. In order to connect with customers and achieve market success, designers need to provide positive, pleasurable experiences. These experiences can be defined in one of four categories of Jordan pleasures. Jordan proposes four types of product pleasures:

1. Physio-pleasures, related to the senses
2. Socio-pleasures, related to interpersonal and group relationships
3. Psycho-pleasures, related to one's emotional and cognitive reactions to product use
4. Ideo-pleasures, related to product meanings and personal values (Jordan, 2000).

Similarly, Norman's framework indicates that attachment between user and product can be formed through three levels: visceral (product appearance), behavioral (effectiveness and pleasure of use), and reflective (personal satisfaction of using a product) (Norman, 2004). The pleasure of a product may occur at different emotional and cognitive levels. It seems the most frequent connection between pleasurable product design principles and hedonistic consumption of products is in the *Reflective Design* of Norman and the *Psycho-Pleasure* principles of Jordan. Because in these levels, users have a deeper appraisal of product properties and associated pleasure.

There are many properties of products that consumers find to be psychologically pleasurable, including the concept, meaning, or style of a product and even what a product's fundamental essence is perceived to be (Alba & Williams, 2013). The way in which people perceive objects affects their emotional reactions to them (Chhibber, 2007). Our perception of products is evolutionary; at first interaction, we subconsciously receive some signals from the object (like appearance, strong brand, and the product's performance), but over time we get further stimuli from it, and our judgment becomes refined. One may buy a pair of beautiful shoes and feel attached to them. But little by little they find out that these shoes don't go well with other clothes, so they feel less attachment to them.

Pleasure could be perceived through any property of a product. There are several ways to put pleasure into products. Advances in technology have made it possible to put more and better pleasure according to user expectations. It has made designing for pleasure both easy and challenging. With the advancement of technology, designers' ideas become easier to come true and increase users' expectations, but on the other hand, user's expectations would not be met as easily as before. One of the biggest surprises about the innovative world today is not the high volume of production or the workplace revolution, but how they create pleasure in our lives. (Brown & Juhlin, 2018). Pleasure is a critical factor of success in new technologies such as wireless products, virtual networks, and interactive products.

As the purpose of industrial design is not just to support manufacturers to sell their products, designers should be concerned about the ethical and environmental consequences of their designs, ideas, and services. Sustainability is rapidly emerging as an issue that designers and engineers must engage with to give the earth to the future generations intact.

Designers are able to promote change in society, especially around unsustainable behaviors. This is not new and has been applied in various forms and levels of human life. It does not mean using product design to correct all human behaviors. Page (2014) argued that design is critical when addressing sustainable development, and designers need to be encouraged to change the way they design products (Reported by Bhamra & Lofthouse, 2007). However, it is not all up to designers to solve this problem; users' attitudes toward products they own, should also be changed. This could be done through cultural and psychological solutions and is out of the scope of this study. Sometimes leading users to think and evaluate what choice to make has more advantages for them rather than solving problems. Humankind lives primarily for happiness and pleasure. But many humanities and ethics experts also believe that human pleasure-seeking sometimes has unpleasant consequences for other people. As Freud believed, the closest way to pleasure is not necessarily the best way. He believed in two principles for the biological and psychological needs of human beings: first, the principle of pleasure, according to which everything a person does is to achieve pleasure and avoid pain; Then the principle of reality in which one learns to be patient, to endure, and to make the right decision to achieve real pleasure (Higgons, 1997). This is true in many levels of life, even in choosing products.

## Methodology

The aim of this study is to explore what kind of products (owned by the respondents) are more prone to be liked or disliked mostly by a group of Iranians, participating in the study. A pilot study was also administered using 10 people to control the validity of the research instrument used (online & paper questionnaires, both the same). The researchers randomly recruited 162 people, aged 18 years or older, to participate in the study. 105 people filled out the paper questionnaire and 57 filled the online one within a short period of time. None of the respondents were paid. Some provided incomplete information (n=4) and some did not meet the age criteria of the study (n=5 | Total=9). The final sample included 153 respondents.

50% of respondents were male and 50% were female. The average age of respondents was 29.78. 11.18% had a diploma, 12.58% associated degree, 31.46% a bachelor, 38.46% a master, and 6.29% a Ph.D. degree. 70.63% were single, and 29.37% were married. Most of the respondents were self-employed and suffering from the weak economic situation (Figure 1).

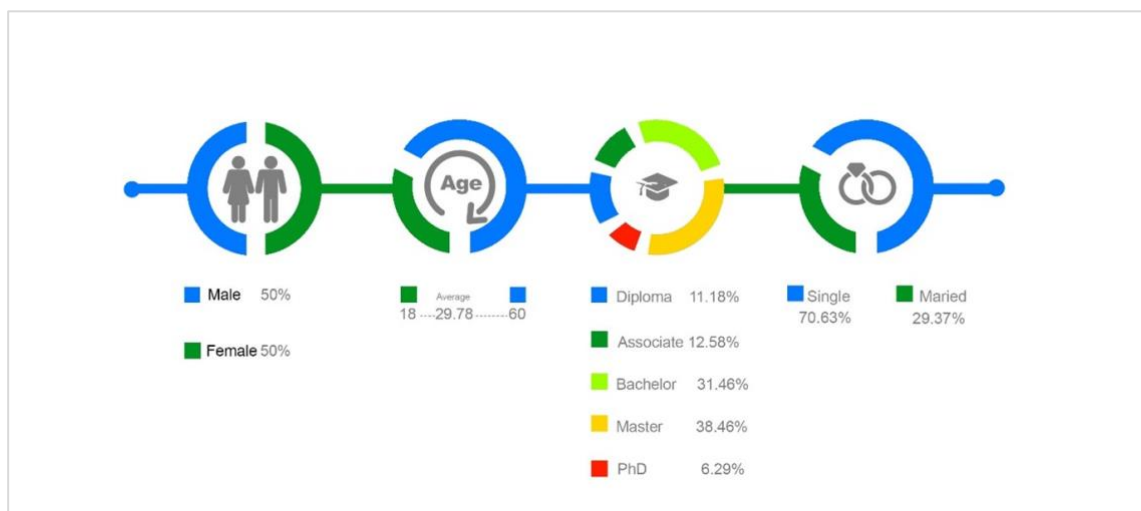


Figure 1: Demographics of respondents.

We believe although a designer decides on many items in the product design process to attract potential users, some of them are out of his control. Designers decide for function, aesthetics, ergonomics, manufacturing process, packaging, etc., but the memory, and consequently, the experience that users may have with products are not under his or her control.

Imagine a wedding ring, for instance, this is true that the designer is concerned with the style, color, ergonomics, and manufacturing, but if it is a marriage ring with lots of sweet memories underneath, the product characteristics, integrated into the ring by the designer, does not make it pleasurable to the user, but those sweet memories do. Accordingly, we decided to ignore product pleasure or pain due to sweet or bitter memories. It is, however, decided for the sake of the study, to consider the ones with the product characteristics which can be integrated by designers.

The respondents were asked to name four of the products they feel either very attached to or disliked. The reason for (dis)pleasure was also asked. Products that were mentioned are categorized into 15 types, as illustrated in Figure 2. Each number, on the right-hand side of the bars, shows the frequency at which product categories were named.

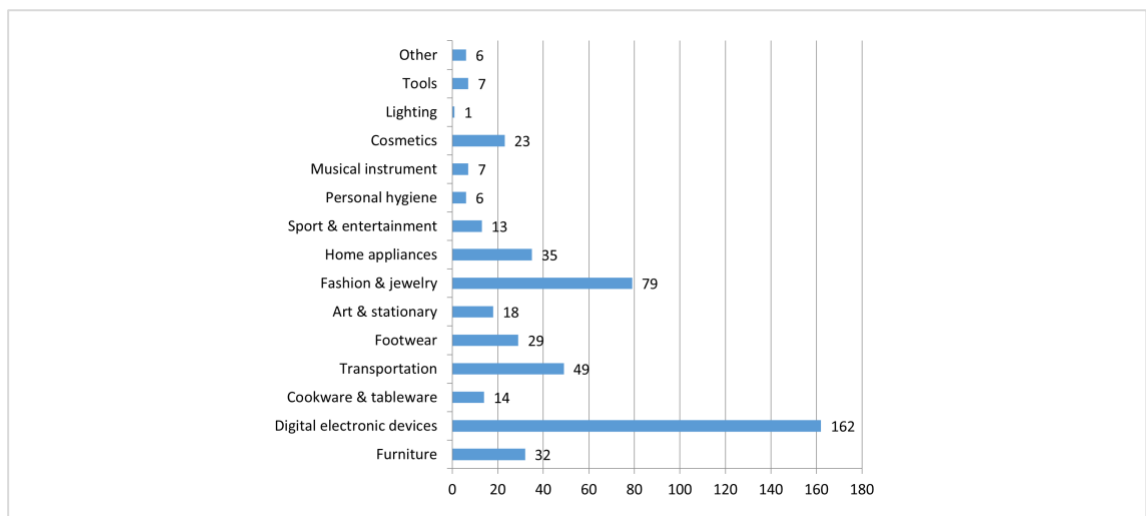


Figure 2: Categories for product attachment.

## Results

All products have different aspects that help users to experience them. These aspects include aesthetics, function, ergonomics, manufacturability, usability, material selection, and sustainability. Each of these aspects carries a unique experience (and consequently pleasure or displeasure) for the individuals. As manufacturability and sustainability have less influence on the perception of pleasure in products (based on our results), were ignored in this study. to be more specific, material affects other aspects of a product like aesthetics, function, and ergonomics. A pair of shoes made out of fabric make them more ergonomic and accordingly more functional; a set of shiny stainless-steel cutleries affects aesthetics, so material selection and manufacturability can be categorized into another group of properties. Usability is a quality that describes how easy products are to use (Nielsen, 2012). Psychological satisfaction is similar to the concept of usability and even broader. Usability refers to ease of use, but psychological satisfaction includes all the good feelings users may have toward their possessions.

For classification purposes, we divided products into two groups of user-oriented and product-oriented. User-oriented products are sub-grouped by psychological satisfaction, habit, and social pleasure. Pleasure made by a product is favorable, whether it is deliberately planned or made by chance. Product-oriented is appropriate as they have right properties. That is, gaining satisfaction is directly the result of product properties. Pleasure of function, pleasure of aesthetics, and pleasure of ergonomics are subgroups of product-oriented pleasures. The user's mood or personality has less influence on the pleasure perception in this group. The reason we added this division in our study is that the emotion users get from products is under influence of many reasons. Sometimes this emotion is not deliberately planned by the designer or is gained by chance.

For our case, the gained response from these products is good or important enough to justify taking any action. Imagine someone is attached to their phone because of their job, it does not matter what design this mobile has or what brand it is, the person has to be attached to be able to do the duties. But another loves their phone because the brand makes them confident. In both situations, pleasure is made, but the first one is totally considered in the process of design while the second one depends on many factors like the user's personality and culture.

These factors might help designers to improve product properties. It is also important to know which factors can be planned.

**1. Function:** it is the first purpose products are created. The task of a screwdriver is to drive a screw in or out. If it has an ergonomic handle, a magnetic tip, or an exchangeable head but does not drive screws, it is not a screwdriver anymore. The function is the first topic considered in the process of design. The pleasure of function results from the task the item performs.

**2. Aesthetics:** Aesthetic emotions are the emotions that can arise when a person perceives and evaluates a stimulus for its aesthetic appeal or virtue (Schindler et al., 2017). In this study, *aesthetic* means emotions that elicit from the senses of Sight, Sound, Smell, Taste, and Touch. The degree to which a perceptual system manages to detect structure, order, or coherence and assess a product's novelty/familiarity typically determines the generated effect (Desmet & Hekkert, 2007).

**3. Ergonomics:** Ergonomics focuses on human beings and their interaction with machines, materials, information, procedures, and environments used in work and everyday life (Sanders & McCormick, 1982). In this study, terms such as comfortable to use, light, and easy to hold are considered as ergonomics.

**4. Psychological Satisfaction:** consider a car. The purpose of a vehicle is pretty straightforward: to transport people and cargo from one point to another. There is certainly a lot of room for innovation in car design. There are cars with ergonomic seats, automatic gear and mirrors, hydraulic wheels, etc. Psychological satisfaction is something that mostly depends on the user's condition and is extremely different from other users' conditions. If someone loves their car because it makes it easier to travel, it is the goal and is considered by the designer in the process of design. But what if that person loves their car because it is the only place, they can listen to their favorite music loudly, the two kinds of satisfaction are different.

**5. Habit:** habit is a routine of behavior that is repeated regularly and tends to occur subconsciously. Liking a product due to habit means being satisfied with a product in a way that the user prefers not to change it anyway. Some people like to try new things; in contrast, some prefer to have the same old product because they could properly control the interaction.

**6. Social Satisfaction:** products can elicit social emotional reactions in several ways. Desmet (2003) argued that in these cases, the product can be directly responsible for the emotional reaction, or it can be those associated with the product; this is the joy and gratification derived from relationships with others. This might mean relationships with friends and loved ones, with colleagues, or with like-minded people. By social satisfaction, we mean being satisfied with something in relation to other people and society. It defines in two ways: first, pleasure from the social grouping that a product represents, like a table for gathering friends, and second giving a high prestige to the user in public like an expensive watch. These six subgroups are modified based on respondents' words and explanations. Our study revealed that users are more attached to digital and electronic devices mainly for their function. Figures 3 and 4 illustrate the level of pleasure in different product types.

The most frequent product mentioned by respondents, mainly by males, is digital and electronic devices and particularly mobile phones and laptops. Although the basic reason for pleasure in this group is the function, owners have expressed that they would love to have a higher model and technology of their products if they could afford it. In other words, users like their products because they need them for their job or for the task's products perform. Some objects are seen as parts of the self (Schifferstein & Zwartkruis-Pelgrim, 2008; Zimmerman et al., 2008; Mugge, 2007).

It means that the user does not feel themselves without that product, like a chef that does not feel themselves without his tools. To put it briefly, the function is the reason for attachment in digital products because users feel incomplete without their jobs. In the group of home appliances mentioned equally by males and females, the function is the main reason for attachment.

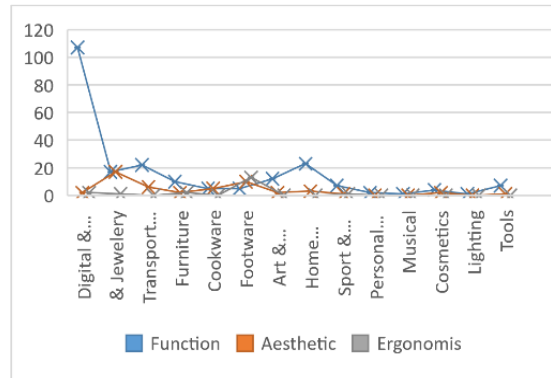


Figure 3: Product-Oriented Pleasure.

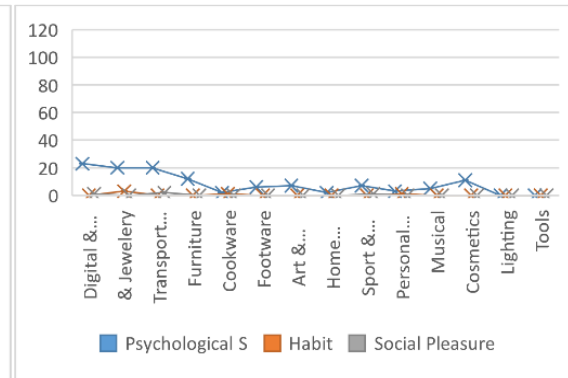


Figure 4: User-Oriented Pleasure.

Mugge et al. (2005) argued a product that still performs its originally intended function may lose some functionality over time or in comparison with new products or services on the market. In other words, the product becomes technologically obsolete. For example, a laptop that still functions correctly but cannot run new software, or a TV that works but cannot connect to the internet. In line with that, consumer expectations of products are not always the same: According to the hierarchy of pleasure from Maslow, the first hierarchy to reaching pleasure is function (Jordan, 2000). After the function, there is usability and then pleasure. Function is a precondition for usability, and usability is a precondition for pleasure. Many of our respondents are attached to their products for their functions. But as the main purpose of this study is to explore what products are more prone to gain pleasure or displeasure, it is important that users keep their products and be attached to them for a longer time and with pleasure, not a necessity they might have. If a user cannot afford a new product, so he uses the current one. So, it has nothing to do with the sustainability of the environment. It is exactly in line with environmental concerns and tendencies if designers could consider some strategies to create a behavior that encourages users to keep products with joy and longing.

After function, psychological satisfaction is reported as the second reason for pleasure. Assertions such as *it is a strong brand; it makes me feel good; it helps me do things I love; it gives me a sense of confidence*, etc., were accepted as psychological pleasure. Desmet (2012) argued that there are 25 positive emotions that users may have about their products. We considered these emotions as psychological satisfaction. As this level of pleasure is closely linked to product usability and the pleasure gained when a task is completed successfully (Chhibber, 2019), it does not exactly mean usability. A product that is not usable can cause pleasure. Hassenzahl (2010) argued that high heel shoes are simply a proper example of pleasure without usability. Shoes are made for walking and should be comfortable, safe, and healthy. It is the need's fulfillment, which creates meaning in interacting with a product. Users of high heels do not expect to receive safety and comfort from their shoes. They expect to look taller, their legs longer, their feet smaller, and the arches of their feet higher and better defined. Another example is computer games. Complexity, hard to find out, and challenge are weak points in many computer applications, but not computer games. Psychological satisfaction defines pleasure through the user's needs and expectations. Although it is different from person to person, the success of some products in achieving a worldwide marketplace shows that it is possible to predict users' needs of different cultures. Rubik's cube, iPhone smartphones, iPad tablets, Corolla cars, and play station video game consoles are the best-selling products of all time, according to TIME Magazine (Calio et al., 2014).

Based on Figure 2, we excluded ergonomics as it is reported in footwear products mostly, and habit and social pleasure are unimportant in most products.



The last effective reason for pleasure is aesthetic, mainly in fashion and jewelry groups equally mentioned by males and females. This group includes clothing, bags, watches, jewelry, accessories, and perfumes. In other groups, aesthetics does not have a significant role in users' pleasure perception. Products are often deliberately designed to induce aesthetic pleasure. However, Hekkert (2006) described that there are general principles of taste or aesthetic pleasure that are uniform in human nature, but principally aesthetic pleasure is the first thing that fades away over time.

## Product Displeasure

Products can evoke a wide range of emotions, both negative and positive. According to respondents' explanations about the reason for displeasure, four reasons for dissatisfaction were seen. Need for function, need for aesthetics, need for psychological pleasure, and need for ergonomics. Some of the needs described by respondents are related to products, but some resulted from the user's condition. If a TV does not have a picture quality as the user expects, it is a fault of the product, but if the user does not have enough time to watch programs, they prefer to use their mobile phone instead and watches their favorite programs on the way home, it's a situation only for this user that TV does not have the proper function for, and they replace it with a mobile phone. Another example is someone that does not like their desk because its color does not go well with other things in their new room. It is psychological displeasure that this particular user has with the product. Psychological satisfaction is the main reason for displeasure with products as well. Aesthetics and ergonomics are affected only by the product, but function and psychological satisfaction could be both product-oriented and user-oriented. Respondents generally spent more time remembering things they don't like and most of them named less than four products. It seems users keep pleasurable products better in mind than unpleasurable ones. Figures 5 and 6 illustrate the level of displeasure experienced in different products. It should be mentioned that user-oriented displeasure in the fashion and jewelry group mostly refers to clothes.

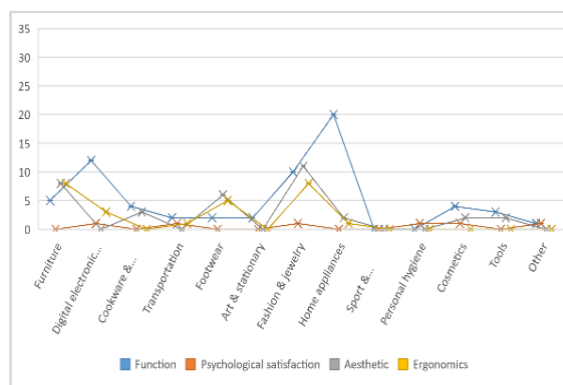


Figure 5: Product-Oriented Displeasure.

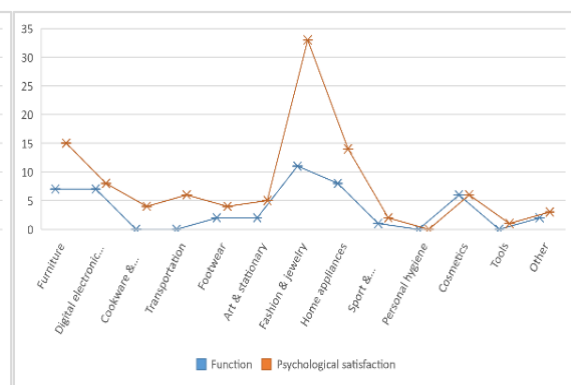


Figure 6: User-Oriented Displeasure.

Regarding Jordan's theory of pleasure, and with a short explanation in the questionnaire, respondents were asked to describe what kind of pleasure they have from their products. The interesting point here is that some (fewer) respondents gave a separate, while the rest gave a general rating for all of their pleasurable products. Figure 7 illustrates the results.

As illustrated in both charts, the main pleasure precepted by users is psycho-pleasure and then physio-pleasure, ideo-pleasure, and socio-pleasure.

41% of respondents have reported that the pleasure they have from products increases during the time, 27% reported it as changeless, and 22% said it fades away. 9% commented that it highly depends on the product; in some cases, pleasure is increased, and in some cases, it is decreased. The common reason for the growth of pleasure is that as time passes, users find better properties of products and can work with them easier, whereas obsolete and the need for change is the main reason for the decrease in pleasure perception.

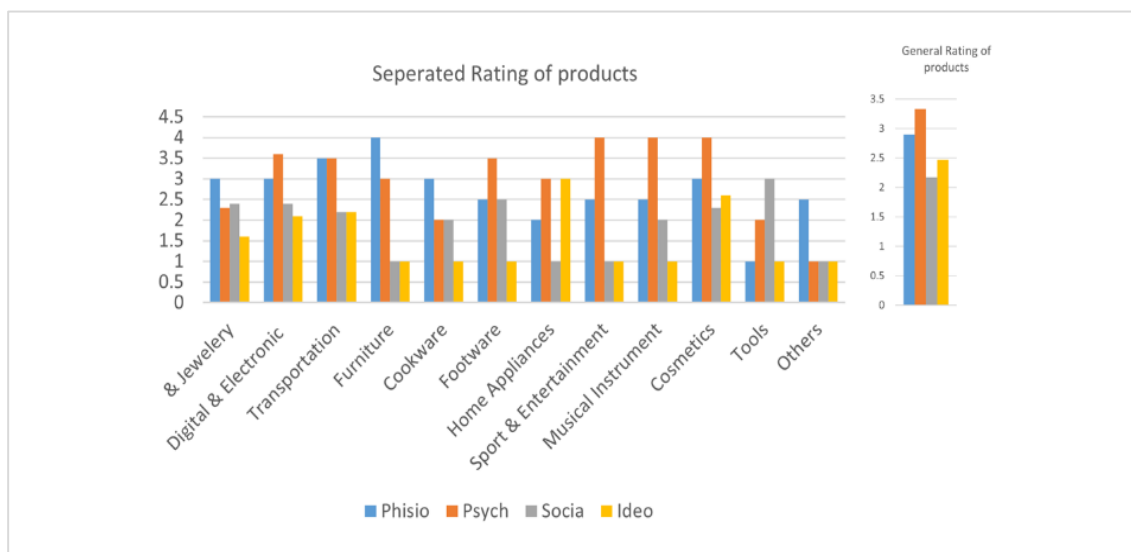


Figure 7: Product Rating.

Many pieces of research have proved the role of brand trust and brand loyalty on the attachment and pleasure elicited from products (Chaudhuri & Holbrook, 2002). However, in this study, brand pleasure goes under psychological satisfaction; it was important to see how effective it is to our respondents. Brand is very important to 22%, important to 29%, neither important nor unimportant to 29%, unimportant to 13%, and very unimportant to 7% of respondents. They commented the quality, beauty, performance, and usability of the product were more important than the brand.

11% of respondents believe it is very important to consider issues associated with recycling, manufacturing, and disposal of products in consumption. 10% reported it as important, 34% as neither important nor unimportant, 19% as unimportant, and 26% as unimportant. Consumers are totally aware of the social, environmental, and personal aspects of their purchasing decisions (Chapman, 2005). Our data show that environmental issues are not as important to people as they should be.

## Conclusion

The main goal of this study is to help the environment by lengthening the life span of products and reduction of new product purchases, especially by working on the emotion's products create. Emotions towards a product may already start to form even before the product is obtained. Products can create pleasure through advertising or another users' admiration. But the most durable pleasure is based on a person's experiences. It is impossible to increase attachment in all products. People get attached only to a number of their stuff. Working on product attachment and pleurability helps to save the environment but reducing unnecessary purchases seems more useful in this matter. Many times, advertising or other people's admiration creates an unrealistic image of the product for users, so they intend to buy products and soon when the product gets a little old and scratched, the tendency for throwing away will rise. In product longevity, function seems to be the first condition.

In sustainable design, it is important that users have the wisdom to care about the environment. Only a design strategy cannot lead to sustainable behavior, however, by strengthening the bond that a product can build with intended users, product throw-away tendency could be controlled and hopefully decreased. Regarding results, the most common response, with respect to both pleasurable and displeasurable products, is a function too. Function is a part of the cognitive system and stimulates satisfaction and, accordingly, attachment better than other properties, particularly in electronic devices and home appliances, but it does not lead to pleasure. The reason is that due to the current economic situation, users cannot replace their products as fast as they desire (based on the respondents' statements).

In the group of product-oriented products, pleasure is better perceived through functional sides. Whereas in the other group, psychological satisfaction is the main reason for pleasure. Although designers are less effective in the psychological satisfaction of products, the function is totally under the designer's control and should be considered better than other aspects.

The displeasure of products, reported by respondents, is mainly engaged with function in the group of product-oriented; and psychological dissatisfaction in the group of user-oriented products. Function refers to home appliances, and psychological dissatisfaction refers to fashion and jewelry groups, especially clothes. Clothes are not expensive, so they could be replaced easier than other things, but home appliances are almost the most expensive things for households. As most of the participants of this study are in a weak economic situation (with income less than 140 US\$ a month), it is obvious that if the product gets functionally obsolete, they cannot replace it as fast as it is preferred. These products are used but without pleasure and care. Each product meets a need in users' lives. Many of these needs are functional but some are not. A car is used for transporting people, so more functional options during use of it make a better experience for users. Now consider a spoon. It is used for eating, but no one buys it only for this. There could not be any extra functional option for a spoon. However, if a user buys a spoon for its beauty, here aesthetics plays a more important role than function for the user.

From all the products, those of them which were mentioned more, are illustrated in Figure 8. In any of these categories, one or two aspects are more critical. The position of each circle shows the value of the factor in the creation of the attachment. As the circle is closer to the center, the element is stronger. As illustrated, digital and electronic devices are the most attached products by a wide margin. It should be mentioned that although it is obvious and already predictable that smartphones are almost the most attached product of everyone, it was argued that by attachment, we mean products that cannot be replaced easily, not just the most used ones. Those who reported digital and electronic devices as their pleasurable products mentioned that in the current situation, these products are important to them, and they try to keep them carefully, because of their economic values.

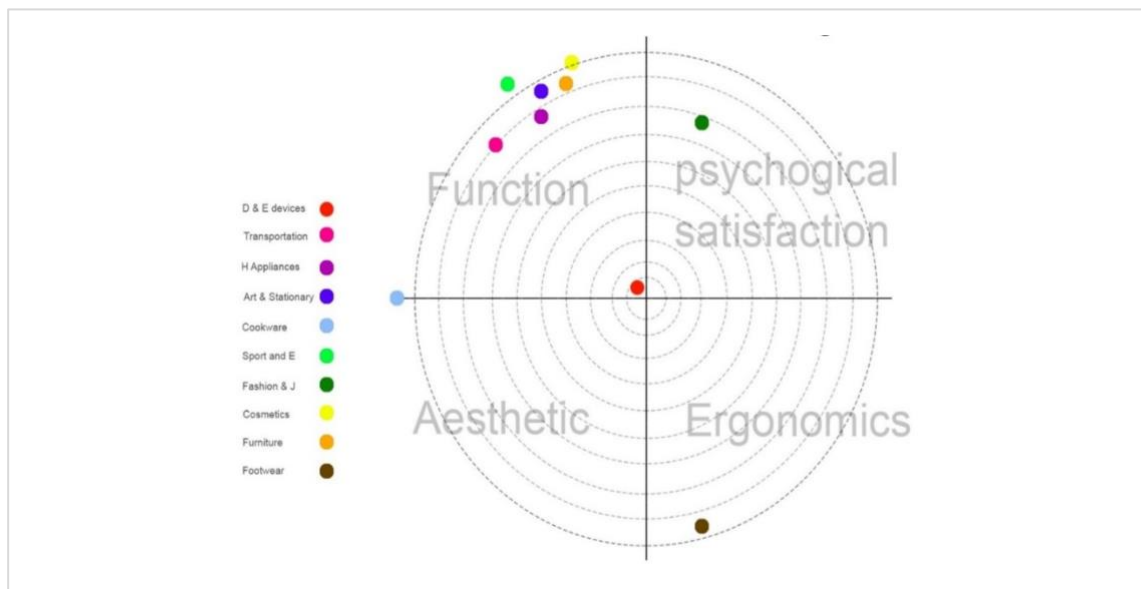


Figure 7: Affective properties of different product categories

For better achievement in sustainable design programs, individuals must be concerned about environmental issues. Designers and products are effective in creating a particular behavior, but it is not possible to solve all social problems just with design strategies. As mentioned, avoiding unnecessary purchases is more important. It looks likely that the need for education and training of designers and users is becoming more important.

## Future Research

In this study, the first and most important limitation was the few people who participated in our study (N=153). Also due to the weak economic situation in Iran, most people were using their objects for a long time but without any emotion. This is to clarify that this long use of products is totally different from the product longevity due to users' attachment we have had in our mind.

Research about cultural product attachment is in its early stages. There is great potential in applying attachment in products and studying them from a sustainable point of view. Further research is needed to enable designers to design products with pleasurable experiences that fulfill the needs and expectations, in addition to making meaningful and pleasurable moments while using. Also, more studies should be conducted to further investigate the role of pleasure in product attachment and sustainability in different contexts and cultures.

## References

- Aftab, M. & Agustin Rusli, H. (2017). *Designing visceral, behavioral and reflective products*. Chinese Journal of Mechanical Engineering. 30(5), p. 1058-1068.
- Alba, J. W. & Williams, E. F. (2013). *Pleasure principles: A review of research on hedonic consumption*. Journal of consumer psychology. 23(1), p. 2-18.
- Bhamra, T., & Lofthouse, V. (2007). *Design for sustainability: A practical approach*. Routledge.
- Brown, B., & Juhlin, O. (2018). What is pleasure? In *funology 2: From usability to enjoyment*. York, Springer. p. 47-59.
- Calio, V., Frohlich, T. C., & Hess, A. E. M. (2014). *These are the 10 best-selling products of all time*. TIME. Retrieved from <https://time.com/92765/10-best-selling-products-ever/>
- Chapman, J. (2005). *Emotionally durable design objects, experiences and empathy*. Earthscan Publications.
- Chaudhuri, A., & Holbrook, M. (2002). *Product-class effects on brand commitment and brand outcomes: The role of brand trust and brand affect*. Journal of Brand Management. 10, p. 33-58.
- Chhibber, S. (2007). *Towards an understanding of product pleasure*. PhD Dissertation, Loughborough University.
- Desmet, P. M. A. (2003). *Measuring emotion: Development and application of an instrument to measure emotional responses to products*. Funology: From Usability to Enjoyment. Dordrecht: Kluwer Academic Publishers. p 111-123.
- Desmet, P. M. A. (2012). *Faces of product pleasure: 25 positive emotions in human-product interactions*. International Journal of Design. 6 (2), p. 1-29.
- Desmet, P. M. A. (2016). *TED TALK: The paradox of design*. Retrieved from: <https://www.youtube.com/watch?v=Wmrw1UJIdOs>
- Desmet, P. M. A., & Hekkert, P. (2007). *Framework of product experience*. International Journal of Design. 1(1), p. 13-23.
- Desmet, P. M. A., & Pohlmeier, A. E. (2013). *Positive design: An introduction to design for subjective well-being*. International Journal of Design. 7(3), p. 5-19.
- Goldstein, B. (2016). *Sensation and perception*. Cengage Learning Publications.
- Hassenzahl, M. (2010). *Experience design: Technology for all the right reasons*. Synthesis Lectures on Human-Centered Informatics. 3(1).

- Hekkert, P. (2006). *Design aesthetics: Principles of pleasure in Design*. Psychology Science. 48(2), p. 157-172.
- Higsons, E. T. (1997). *Beyond pleasure and pain*. American Psychologist. 52(12), p. 1280-1300.
- Jordan, P. W. (2000). *Designing pleasurable products: An introduction to the new human factors*. Taylor and Francis.
- McCormick, E. J., & Sanders, M. S. (1982). *Human factors in engineering and design*. McGraw-Hill.
- Mugge, R. (2007). *Product Attachment*. PhD Dissertation, Delft University of Technology.
- Mugge, R., Schoormans, J. P., & Schifferstein, H. N. (2005). *Design strategies to postpone consumers' product replacement: The value of a strong person-product relationship*. The Design Journal. 8(2), p. 38-48.
- Nielsen, J. (2012). *Usability 101: Introduction to usability*. Retrieved from: <https://www.nngroup.com/articles/usability-101-introduction-to-usability>
- Norman, D. A. (2004). *Emotional design: Why we love (or hate) everyday things*. Basic Books Group.
- Page, T. (2014). *Product attachment and replacement: Implications for sustainable design*. International Journal of Sustainable Design. 2(3), p. 265-282.
- Green, W.S., & Jordan, P. W. (2002). *Pleasure with products: Beyond usability (1st ed.)*. CRC Press.
- Razzaghi, M., & Afrashteh, S. (2020). *An interpretation of the concept of pleasure in industrial design*. Journal of Honar-Ha-Ye-Tajassomi [In Persian]. <https://doi.org/10.22059/jfava.2020.289398.666323>
- Sanders, M., & McCormick, E. (1982). *Human factors in engineering and design*. McGraw-Hill.
- Schifferstein, H. N., & Hekkert, P. (2007). *Product Experience*. Elsevier.
- Schifferstein, H. N., & Zwartkruis-Pelgrim, E. P. (2008). *Consumer-product attachment: Measurement and design implications*. International Journal of Design. 2(3).
- Schindler, I., Hosoya, G., Menninghaus, W., Beermann, U., Wagner V., Eid, M., & Scherer K. R. (2017). *Measuring aesthetic emotions: A review of the literature and a new assessment tool*. PLOS One. 12(6). <https://doi.org/10.1371/journal.pone.0178899>
- Wikipedia. (2023). *Habit*. Retrieved March 28. from <https://en.wikipedia.org/wiki/Habit>
- Zimmerman, J., Kursat, O., & Jeong B. K. (2008). *New methods for the design of products that support social role transitions*. Artifact. 2(3-4), p. 190-206.



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