

Personalizing Product Appearance: The Effect on Product Attachment

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Abstract

This research examines the effect of personalizing a product's appearance on the degree of attachment a person experiences towards this product. We present a conceptual model for the relationships between the process of product personalization, self-expression, and product attachment. Data from a questionnaire study in which respondents ($n = 149$) filled out questions concerning their bicycle support our expectations. By personalizing the product's appearance, a person invests energy in the product, and the product is used to express his/her self. The degree of self-expression, in turn, positively affects the experienced degree of attachment to the product. The implications of these findings for design practice are discussed.

Keywords: Product attachment, product personalization, self-expression, emotional bonding

Product attachment

People buy and use products for various reasons. Some products become special and cherished to the owner. In this case, the owner becomes attached to these products. Product attachment has been defined as “the emotional bond a consumer experiences with a product” (Schifferstein and Pelgrim 2003). This definition implies that a product to which a person is attached means a lot to the owner and that it triggers his/her emotions. In general, people experience more positive emotions towards products to which they feel attached (Schultz, Kleine, and Kernan 1989). When a person becomes attached to an object, (s)he is also more likely to handle the product with care, to repair it when it breaks down, and to postpone its replacement as long as possible (Schifferstein and Pelgrim 2003). Product attachment may thus increase a product's lifetime. From the viewpoint of sustainability, it can be valuable for designers to influence the degree of attachment people experience to their products (van Hinte 1997). Nowadays, people dispose of products although they still function properly, for example, because these products look old-fashioned. Extending the psychological life span of durables could be instrumental to reduce the demand for scarce resources and the rate of solid waste disposal.

Past studies have uncovered various reasons (e.g., memories, financial aspects, self-expression) for consumers to become attached to their products (Csikszentmihalyi and Rochberg-Halton 1981; Dittmar 1991; Kamptner 1995; Richins 1994; Schifferstein, Mugge, and Hekkert 2004; Wallendorf and Arnould 1988). This paper contributes to our understanding of product attachment by investigating how personalizing a product contributes to the degree of attachment the owner experiences to this product. We present a conceptual framework relating product personalization to self-expression and product attachment. Data from a questionnaire study support our conceptual framework. The relevance of these outcomes for the design practice is discussed.

Product personalization

Product personalization has been defined as “a process that changes the functionality, interface, information content, or distinctiveness of a system to increase its personal relevance to an individual” (Blom 2000, p. 313). Different types of personalization can be distinguished: from the personalization of the desktop of a PC and the interchangeable covers and ringtones for mobile phones, to the redecoration of a cupboard. Product personalization enables consumers to obtain products that are unique and personal. In this paper, we focus on the personalization of consumer durables by changing their appearance.

By personalizing a product’s appearance, the consumer directs time, effort, and attention to the product. In other words, the consumer invests energy in a product. Several scholars have argued that product attachment is related to the psychic energy invested in a product (Belk 1988; Csikszentmihalyi and Rochberg-Halton 1981). Psychic energy is the consumer’s mental energy invested in the product. While personalizing the product’s appearance, the consumer needs to make creative choices (e.g., design and colors), which requires this psychic energy. In addition, product personalization can demand physical energy, i.e., when people alter the product’s appearance themselves. We believe that the physical energy needed during the actual personalization process influences product attachment as well. Consequently, we focus on the totality of energy invested in the product.

The outcome of the personalization of a product’s appearance is that the consumer adds a personal touch to the product. The product becomes self-expressive: It symbolically displays the person’s self to oneself and/or to others and can be used to construct and maintain the

person's identity (Blom 2000; Blom and Monk 2003). Consequently, the product gains symbolic meaning for the owner, due to which (s)he can become attached. Past studies have confirmed that expressing the owner's self is a reason to consider a possession as treasured, favorite, or important (Dittmar 1991; Kamptner 1995; Richins 1994; Wallendorf and Arnould 1988), implying the existence of an emotional bond. In conclusion, by personalizing the product's appearance, the consumer invests his/her energy in the product, and the product can be used to express his/her self. In turn, self-expression positively affects the degree of attachment to this product. These arguments are summarized in a conceptual model (see Figure 1). In this paper, we test this conceptual model for the product category bicycles.

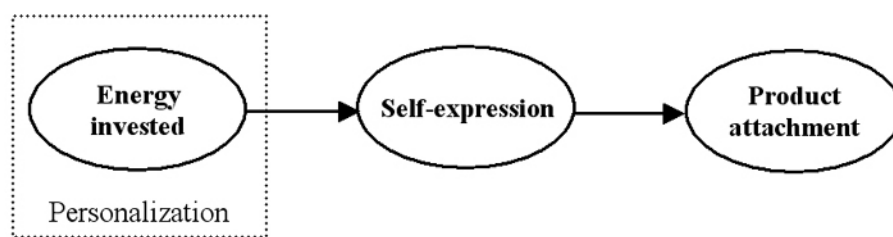


Figure 1, Conceptual model for the relationship between product attachment and the personalization of a product's appearance

Method

Respondents and design

A convenience sample of 149 Dutch students (58% male and 42% female) was used for this study. These students were approached at the university and all owned a bicycle. Two groups were distinguished: one in which the product's appearance was personalized by the owner ($n = 58$) and one in which it was not personalized ($n = 91$). Respondents were classified in one of the two groups ("personalization" vs. "no personalization") based on their response to the question whether they had altered their bicycle's appearance.

Product

In general, Dutch students own a bicycle, which they use daily to travel from their home to university. When Dutch students start university, they are likely to buy a second-hand bicycle or to use an old one, because these are less expensive than new ones and because bicycles are often stolen. Bicycles were chosen as the category under study, because Dutch students frequently personalize these products' appearances by painting them in several (conspicuous)

colors to make them personal and distinctive, and to prevent theft. Figure 2 illustrates an example of a painted bicycle.



Figure 2, Personalized bicycle

Questionnaire

Respondents indicated their age and gender and responded to questions concerning their bicycle (i.e., the manner of acquisition, the time period the bicycle had been in possession, whether they had personally altered the bicycle's appearance, and the degree of usage).

We included an eight-item scale to measure the individual differences in the desire for unique consumer products (Lynn and Harris 1997). Because this scale proved to be multidimensional, we deleted one item ("I rarely pass up the opportunity to order custom features on the products I buy"). For the remaining seven items, Cronbach's alpha was .83. For the dependent variables (i.e., energy invested, self-expression, and product attachment), multi-item measures on seven-point Likert scales (1 = strongly disagree, 7 = strongly agree) were obtained. Table 1 displays the items for the dependent variables.

Dependent variables	Items
Energy invested ($\alpha = .90$)	<ol style="list-style-type: none"> 1. The appearance of my bicycle took me a lot of trouble 2. I have devoted much time to altering the appearance of my bicycle 3. The appearance of my bicycle did not cost me any effort* 4. I have spent a lot of energy on changing the appearance of my bicycle
Self-expression ($\alpha = .86$)	<ol style="list-style-type: none"> 1. My bicycle reflects who I am 2. Other people can tell by my bicycle what kind of person I am 3. My bicycle fits my identity 4. My bicycle suits me 5. My bicycle says nothing about me as an individual*
Product attachment ($\alpha = .79$)	<ol style="list-style-type: none"> 1. My bicycle has no special meaning to me* 2. My bicycle is very dear to me 3. I have a bond with my bicycle 4. I am very attached to my bicycle

Note. The original items were in Dutch. * Indicates a reversed item

Table 1, Measures for the dependent variables

Respondents filled out the questionnaire for the bicycle they already owned, due to which, it was not possible to randomly assign respondents to experimental conditions. As a result, the two groups might differ on other variables as well. To control for some possible effects, data were collected on a number of control variables related to the consumer-product relationship [1]. These variables were chosen based on prior research on product attachment (e.g., Kamptner 1995; Richins 1994; Schultz *et al.* 1989; Wallendorf and Arnould 1988). Specifically, we assessed satisfaction with the bicycle (four items: $\alpha = .86$), memories elicited by the bicycle concerning a person (three items: $\alpha = .87$), memories elicited by the bicycle concerning an event (three items: $\alpha = .85$), product utility (four items: $\alpha = .78$), product appearance (four items: $\alpha = .84$), and financial value (three items: $\alpha = .85$).

In addition to these control variables for which no differences between the two groups were expected, the variable product uniqueness (i.e., the degree in which the bicycle was regarded as unique) was incorporated in the questionnaire (five items: $\alpha = .94$). For product uniqueness, a difference was expected between the respondents in the two groups, because the personalization of a product's appearance makes it more unique. Therefore, this variable served as a manipulation check.

Results

Comparison of the two groups

The variables concerning the demographic variables (i.e., age and gender) and the ownership of the bicycle (i.e., how and when the bicycle was acquired) showed no significant difference between the two groups: “personalization” and “no personalization” ($p > .05$). The two groups differed on the variable desire for unique consumer products ($t(144) = 2.98, p < .01$). Respondents in the “personalization” group had a higher desire for unique consumer products ($M = 4.58$) than respondents who did not alter their bicycles ($M = 4.02$). This confirmed our belief that students change their bicycle’s appearance to make it distinctive from other bicycles.

As regards the control variables, t-tests showed that no significant differences were present between the two groups (Table 2). Based on these results, we can conclude that no other important influencing factors were present between the two groups in addition to the personalization of the product’s appearance. A t-test revealed a significant difference for the variable product uniqueness that served as a manipulation check (Table 2). As expected, the bicycle had become more unique due to the personalization of its appearance.

Significant differences were found for the variables energy invested, self-expression, and product attachment. Respondents in the “personalization” group indicated to have invested more energy in the product, considered the product more self-expressive, and experienced more product attachment than those in the “no personalization” group (Table 2).

	Personalization	No personalization	<i>df</i>	<i>t</i>
Control variables:				
• Satisfaction	5.35 (1.16)	5.31 (1.32)	143	0.20
• Memories concerning a person	2.11 (1.40)	2.04 (1.50)	144	0.27
• Memories concerning an event	2.64 (1.52)	2.14 (1.48)	144	1.96
• Product utility	5.85 (1.15)	5.98 (1.02)	145	- 0.70
• Product appearance	3.94 (1.52)	3.49 (1.58)	144	1.70
• Financial value	2.57 (1.34)	2.74 (1.59)	145	- 0.69
Manipulation check:				
• Product uniqueness	5.28 (1.42)	2.96 (1.84)	145	8.13**
Dependent variables:				
• Energy invested	3.70 (1.36)	1.60 (0.98)	145	10.88**
• Self-expression	3.52 (1.41)	2.43 (1.20)	144	5.01**
• Product attachment	4.13 (1.49)	3.53 (1.53)	145	2.36*

Note. Standard deviations are in parentheses. * $p < .05$; ** $p < .001$

Table 2, Overall means of variables compared between the groups

Conceptual model

To test the proposed conceptual model, we estimated these relationships in a structural equation model using LISREL 8.50. LISREL is a statistical analysis used to estimate the relationships between several concepts (Jöreskog and Sörbom 1993). Figure 3 displays the coefficients resulting from the LISREL-analysis. A higher coefficient stands for a stronger relationship between the variables. The square text boxes in the figure represent the items used to measure the dependent variables. The proposed conceptual model resulted in a good fit to the data ($\chi^2 = 75.21$ ($df = 63$), $p = .14$; GFI = .93; CFI = .98; RMSEA = .037). Energy invested had a significant positive effect ($\gamma = .62$, $p < .01$) on self-expression, which in turn had a significant positive effect ($\gamma = .68$, $p < .01$) on product attachment. These results give support for the conceptual model. Furthermore, a second model was estimated to test whether a direct relationship existed between the energy invested in a product and product attachment, in addition to its indirect effect through self-expression. However, this relationship was not supported by the data, which yielded extra support for the proposed conceptual model.

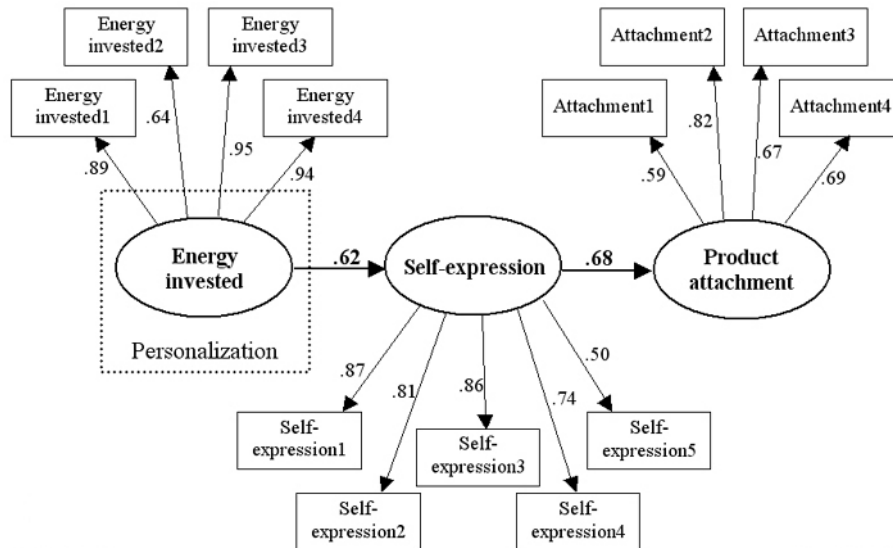


Figure 3, Test of the conceptual model

Discussion

Product personalization and attachment

The present paper contributes to our understanding of consumers' emotional responses towards their products by investigating the experience of attachment to personalized products. Specifically, we find that by personalizing a product, consumers invest energy in the product. The outcome of the personalization process is that the consumer obtains a more personal product. As a result, the product can fulfill the need for self-expression. Consumers use the product to show the world who they are. Self-expression, in turn, has a positive effect on the degree of attachment to this product. In conclusion, personalization of a product's appearance positively affects the formation of an emotional bond with this product.

Influencing the degree of attachment to a product can be valuable for several reasons. First, from an environmental perspective, increasing the degree of product attachment is valuable, because a stronger emotional bond between a consumer and his/her product will decrease the consumer's tendency to dispose it. Second, past research concluded that consumers experience more positive emotions to product to which they are attached (Schultz *et al.* 1989). Consequently, it may be worthwhile for designers to increase the degree of attachment that consumers experience to their products. Our results suggest that to do so designers could facilitate ways to personalize the product's appearance by the consumer. However, the

question remains whether all types of product personalization will influence the emotional bond with the specific durable to the same degree.

Limitations

This study uses a quantitative approach to examine product attachment. A quantitative study was necessary to examine the strength of the relationship between product personalization and product attachment. However, quantitative studies are limited in providing insights in the underlying arguments, feelings, and emotions. Therefore, we believe that both qualitative and quantitative studies are necessary to provide a thorough understanding of the concept of product attachment.

Another limitation of our study is that it investigates product attachment at one moment in time, whereas product attachment is considered to be a dynamic process that changes over time (Ball and Tasaki 1992; Schifferstein and Pelgrim 2003). In the future, we plan to perform longitudinal research on product attachment (e.g., before and after the personalization process) to provide a deeper understanding of the process of product attachment and to provide more empirical support for the direction of the causality of our conceptual model.

Designer implications

To stimulate product attachment, designers should implement those types of product personalization in the product design that demand a sufficient level of psychic and/or physical energy to be invested in a product. In this respect, an interesting avenue for designers is to share their design authority with individual consumers (Fox 2001). This implies that consumers serve as co-designers and can apply their own creativity to create a highly unique product. To stimulate people to creatively alter their products' appearances, designers could design products that are not yet finished at purchase, and that need a creative alteration before they can be used. Consumers have to actively form and finish the product to make their own personal and unique product. The designer's role thus shifts from being a designer of a finished product to being a designer of a half fabricate. An example of this type of product personalization is the Do Create product line (www.docrete.nl), which was designed by Droog Design. Their philosophy is to "to ask the consumer to interact, add their own interpretation and make the products come alive. A Do Create product will then become a one of a kind, beyond the control of the designer". An example is Do Scratch, which is a

half fabricate for a lamp. The lamp is actually covered in black paint and cannot be used immediately, because it will not spread any light. Before use, the consumer has to scratch a personal design or message into the black surface.

Nowadays, a popular way for manufacturers to personalize durables is by offering customization services. A customization service allows consumers to create a personalized product by selecting components, accessories, and colors from a predefined set of options. Examples are the interchangeable colored covers of mobile phones and the mass customization website of Nike (nikeid.nike.com) that enables consumers to ‘design’ their own shoes by allowing consumers to specify different colors for the shoe. Norman (2004) argued that products acquired by customization are better in satisfying our needs, but they do not guarantee emotional attachment. Based on our findings, we can provide tentative arguments why product personalization through customization is not likely to automatically result in product attachment. Possibly, customized products do not have a truly individualistic touch, because the consumer cannot make any *creative* alterations during the personalization process. Customization merely increases consumers’ choice in alternatives. Choosing among different alternatives requires relatively low levels of consumers’ psychic energy. Furthermore, customization does not demand any physical energy to be invested in a product. Due to these relatively low degrees of invested energy, these ‘personalized’ products are probably inferior in comparison to other types of product personalization in providing the symbolic meaning of self-expression and thus in stimulating product attachment.

Product personalization has some constraints. The consumer must have the desire and the ability to personalize his/her product to make his own, unique product. People may lack time, expertise, and tools to personalize their products. In addition, consumers may be afraid to spoil the product. More research is necessary to explore the specific situations, product categories, and personality characteristics of the consumer that influence the willingness or reluctance to personalize products for self-expressive and/or functional reasons. Our findings provide some first insights into these influencing factors by revealing that persons with a high desire for unique consumer products are more likely to actively personalize their product’s appearance.

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[1] The measures for the control variables and the variable product uniqueness are not presented in this paper. Interested readers can request these items from the authors.

Ruth Mugge is a PhD student at Delft University of Technology. After obtaining her Masters Degree at the faculty of Industrial Design Engineering in 2001, she started her PhD project on the topic of product attachment. The research objective of this project is to explain and stimulate the emotional bond a person can experience with his/her product. She presented her research at several international conferences on psychology, marketing, and product design, and co-authored a chapter on the role of product appearance in a recently published book on Product Development and Marketing. In addition, she teaches industrial design to undergraduate students.

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