AN APPROACH TO EMBODY PERSONALITY IN PRODUCT APPEARANCE

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ABSTRACT

Durable products are often described by users relying on personality traits, e.g. serious or happy. Understanding the relationships between product attributes and personality traits has the potential to influence product consumption. This article explores the possibility of designing product appearance with predefined personalities. An approach to embody specific personality traits in product appearance is introduced. Using this approach two design objects were developed with the aim to embody an elegant or a provocative personality. These were used as stimuli in an assessment study. Fifty-one participants were asked to report which personality traits they could identify in these design objects. The results indicated that it is possible to direct the personality of product appearance.

Keywords: product personality, product design, psychology of design, research through design

INTRODUCTION

When we look at people or talk to them, we automatically develop a first impression about their character and personality; it is something that naturally happens. Such impressions form with remarkable rapidity and with great ease and are a precondition of social life (Ash, 1946). First impressions are processes that reduce complexity (Pöppel, 2007). These impressions are imperfect but at the same time they are extraordinarily sensitive. Thus, in everyday life we assess the personalities of individuals in order to predict what we can expect of them (Carver and Scheier, 1996). Personality traits are involved in any assessment of our own identity and in every one of the interpersonal and social relationships; they are essential to describe oneself, to be described, to describe others as well as to understand and to be understood (Rodriguez de Diaz and Diaz Guerrero, 1997).

Our ability, or rather, tendency, to infer personality from appearance does not stop with people (Desmet, Ortiz Nicolás, and Schoormans, 2008). People often think and talk about products as having a personality and relate to them accordingly, e.g. a reliable, elegant, or cheerful car (Janlert and Stolterman, 1997). Hassenzahl (2003) suggests that people construct the apparent character of a product based on the combination of product attributes and their personal standards and expectations. The phenomena of people using human personality traits to describe their impression of artefacts is called product personality (Govers, Hekkert, and Schoormans, 2004). Govers (2004) argues that product personality cannot be reduced to distinct product attributes but rather it refers to a holistic description of the total product. Furthermore, Jordan (2002) and Govers (2004) have identified personality traits that consumers generally use to describe durable products, e.g. cute, boring, lively, and cheerful. Research on product personality not only explores users’ assessment of product appearance, as illustrated by Govers (2004) and, Brunel and Kumar (2007) but it also focuses on the role of interaction style in the overall product personality impressions (Desmet, Ortiz Nicolás, and Schoormans, 2008).

The aim of this research is to understand how personality traits can be designed in product appearance. In order to achieve this aim, we developed and tested a specific design approach to embody certain personality traits in products. Two undergraduate students in Industrial Design were tasked to design objects following such design approach and 60 consumers were asked to assess the stimuli (two designs). The results indicate that it is possible to design product appearance with different personalities. The research was conducted in Mexico.
and the language was Spanish. This means that personality traits identified in previous research had to be translated from English to Spanish.

**PRODUCT PERSONALITY**

Product personality is relevant for new product development for several reasons. As Slater (2003 p. 131) states it ‘people consume understanding their relation to things in the world - their needs - in terms of project and goals, social conventions and norms, concepts of what being a human or human society involves’. In other words consumption is meaningful (Slater, 2003). Other authors also indicate the relevance of the symbolic meaning of the product at the time of purchase and thereafter (Belk, 1988; Aaker, 1997; Sirgy, Grewal, and Mangleburg, 2000). Belk (1988), for instance, argues that our possessions are a major contributor to and reflection of our identities. Sirgy and colleagues (2000) explain that a consumer’s attitude toward a product (and product purchase) is influenced by the matching of the product user’s image with the consumer’s self-concept. The greater the match between a product and the consumer’s self-concept, the more likely it is that the consumer will have a favourable attitude towards that product. This matching process is referred to as self-congruity. Aaker (1997) focuses her attention on brand personality, which refers to the set of human attributes associated with a brand. Brand personality helps consumers differentiate brands and attracts their attention when the brand values match consumer values. Similarly, product personality connects with consumers through symbolic meaning. Nevertheless, it is important to mention that the most notable difference between brand personality and product personality is that the latter is product specific, e.g. consider a Sony product such as a Walkman versus Sony as a brand. Product personality is less abstract than brand personality and directly related to the product itself (Govers and Schoormans, 2005). Brand and product communicate abstract meaning through different means.

**DESIGN PROCESSES**

Prior research in product personality has demonstrated that it is possible to design products with a predefined personality. Govers, Hekkert, and Schoormans (2004) focus on assessing the product appearance of three products that were designed in a session of 45 minutes. These stimuli were used to test whether the personality embodied in the product appearance was recognized as such by consumers. The researches relied on designers’ skills to embody selected personalities in three products by using their own approach, and thus, it is not reported how designers created the stimuli. Van Kesteren, Stappers, and de Bruijn (2007) introduce a set of tools to define product personality through material selection. They present three tools namely, picture tool, sample tool, and question tool. Each of these aims to raise awareness of material selection, its sensorial properties, and its role in product personality. Nevertheless, the approach focuses only on one attribute of product appearance: material. Desmet, Ortiz Nicolás, and Schoormans (2008), focusing on physical interaction, conclude that it is possible to design interaction devices with different personalities, and that the effect of appearance is stronger than that of the interaction style. They reported the way in which the stimuli was designed, however, the emphasis was on interaction style rather than on product appearance.

A methodology that is relevant for this research due to its focus on translating feelings, impressions, and emotions of customers and users in concrete design parameters is Kansei Engineering (Schütte, Eklund, Ishihara, and Nagamachi, 2008). Kansei is defined as the impression somebody gets from a certain artefact, environment or situation using all senses (vision, hearing, feeling, smell and taste) as well as cognition. This methodology relies on a five-stage procedure; it starts by identifying relevant attributes that consumers consider important to see or experience in products. The design aim, then, is to embody those attributes in a product. Nevertheless little information is offered by scholars regarding how designers translate those impressions, feelings, and emotions in product designs (Schütte, Eklund, Ishihara and Nagamachi, 2008; Nagamachi, 2002). Another process relevant to this research is presented by Schoormans and colleagues (2010). They introduce a three-stage method to explore how to communicate brand values through a package. The first stage aims to identify relevant
characteristics for consumers and how the product attributes, both concrete and abstract, relate to a specific package; they then define to what extent the package’s attributes may be altered before consumers can no longer recognized it as belonging to a specific product category. Finally, they create a design solution based on the findings of the previous stages. Nevertheless, little information is given regarding how the selected brand values are embodied in the appearance of the package.

Despite the fact that symbolic meaning is generally accepted as an important product attribute, present research does not describe effective approaches to designing product personality or to embody an impression in product appearance. Two possible reasons why little research has been carried out on how designers embody meaning are that designers are reluctant to make their knowledge explicit and they perceive form generation as intuitive activity that is difficult to verbalise (Crilly and colleagues, 2009). This research tries to fill this gap by presenting the design process used to develop the stimuli.

The focus of this research on product apperance relies on the fact that it is an an unquestioned determinant of a product market success (Bloch, 1995), and it has a strong effect on creating personality impressions on users (Desmet, Ortíz Nicolás, and Schoormans, 2008).

RESEARCH APPROACH

To investigate the value of the proposed design approach, a ‘research through design’ approach (Zimmerman, Fortizzi, and Evenson, 2007; Desmet, Ortíz Nicolás, and Schoormans, 2008) was adopted, in which two products were designed with the aim of expressing different personalities in their appearance. This study is referred to as development of the stimuli. The subsequent part of the research focused on the evaluation of the two stimuli by users. This study is referred to as assessment of the stimuli.

An important aspect of this research is that it was conducted in Mexico and therefore it required the translation of personality traits identified during investigations conducted in English and Dutch. This work was key for the two studies mentioned above and therefore it is presented first.

THE LIST OF PERSONALITY TRAITS

In the field of product personality cross-cultural studies have not been carried out and therefore it is not known if the personality traits used to describe durable products in prior research are relevant in Mexico. The project started by translating from English to Spanish the 20-item product personality assessment scale proposed by Mugge, Govers and Schoormans (2009). We also included three personality traits that were found relevant for describing products: gentle and elegant (Desmet, Ortíz Nicolás, and Schoormans, 2008); and aggressive (Govers, 2004). In order to ensure that the Spanish translation had the same meaning as the English original, a two way translation procedure was followed (Mullen, 1995). The 23 translated personality traits were presented to two groups of native Spanish speakers to establish the likelihood of being used to describe a product and that of being embodied in the appearance of a product. The first group was composed of professional industrial designers (n=25, 11 women, 14 men, mean age = 33.88 years, mean work experience = 7.88 years).

Participants to this group assessed personality traits by answering the following statement: ‘I could design a product with a certain personality trait’ (1 = I disagree, 5 = I agree). The second group consisted of consumers (n=50, 24 women, 26 men, mean age = 22.1). They assessed each personality trait by answering the following statement: ‘A product can be described as having a certain personality trait’ (1 = I disagree, 5 = I agree). Table 1 presents the results for each item by the two groups.

<table>
<thead>
<tr>
<th>Personality traits</th>
<th>Consumers</th>
<th>Designers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Elegant - Elegante</td>
<td>4.46</td>
<td>0.97</td>
</tr>
<tr>
<td>Pretty - Bonito</td>
<td>4.24</td>
<td>0.80</td>
</tr>
<tr>
<td>Interesting - Interesante</td>
<td>4.22</td>
<td>1.06</td>
</tr>
<tr>
<td>Cheerful - Alegre</td>
<td>4.02</td>
<td>1.02</td>
</tr>
<tr>
<td>Easy-going - Accesible</td>
<td>3.92</td>
<td>1.01</td>
</tr>
<tr>
<td>Serious - Serio</td>
<td>3.86</td>
<td>1.21</td>
</tr>
<tr>
<td>Childish - Infantil</td>
<td>3.74</td>
<td>1.05</td>
</tr>
<tr>
<td>Provocative - Provocativo</td>
<td>3.74</td>
<td>1.12</td>
</tr>
</tbody>
</table>
Table 1. Mean ratings for 23 personality traits

<table>
<thead>
<tr>
<th>Trait</th>
<th>Designer Mean</th>
<th>Consumer Mean</th>
<th>Overall Mean</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cute - Lindo</td>
<td>3.72</td>
<td>1.03</td>
<td>3.44</td>
<td>0.92</td>
</tr>
<tr>
<td>Aggressive - Agresivo</td>
<td>3.48</td>
<td>1.27</td>
<td>3.8</td>
<td>1.38</td>
</tr>
<tr>
<td>Boring - Aburrido</td>
<td>3.32</td>
<td>1.41</td>
<td>3.24</td>
<td>1.36</td>
</tr>
<tr>
<td>Obtrusive - Estorboso</td>
<td>3.22</td>
<td>1.63</td>
<td>3.08</td>
<td>1.63</td>
</tr>
<tr>
<td>Dominant - Dominante</td>
<td>3.06</td>
<td>1.45</td>
<td>3.64</td>
<td>1.15</td>
</tr>
<tr>
<td>Relaxed - Relajado</td>
<td>2.96</td>
<td>1.37</td>
<td>3.64</td>
<td>1.11</td>
</tr>
<tr>
<td>Untidy - Desordenado</td>
<td>2.88</td>
<td>1.45</td>
<td>3.00</td>
<td>1.55</td>
</tr>
<tr>
<td>Modest - Modesto</td>
<td>2.58</td>
<td>1.36</td>
<td>3.72</td>
<td>0.94</td>
</tr>
<tr>
<td>Silly - Tonto</td>
<td>2.56</td>
<td>1.11</td>
<td>2.96</td>
<td>1.24</td>
</tr>
<tr>
<td>Lively - Lleno de vida</td>
<td>2.54</td>
<td>1.39</td>
<td>4.08</td>
<td>0.95</td>
</tr>
<tr>
<td>Aloof - Indiferente</td>
<td>2.50</td>
<td>1.43</td>
<td>2.84</td>
<td>1.03</td>
</tr>
<tr>
<td>Honest - Honesto</td>
<td>2.44</td>
<td>1.47</td>
<td>4.24</td>
<td>0.78</td>
</tr>
<tr>
<td>Idiosyncratic - Idiosincrásico</td>
<td>2.38</td>
<td>1.48</td>
<td>3.2</td>
<td>1.26</td>
</tr>
<tr>
<td>Gentle - Amable</td>
<td>2.38</td>
<td>1.26</td>
<td>4.4</td>
<td>0.65</td>
</tr>
<tr>
<td>Open - Abierto</td>
<td>2.3</td>
<td>1.40</td>
<td>3.76</td>
<td>0.93</td>
</tr>
</tbody>
</table>

In Table 1 the personality traits that rated higher are marked in grey. A series of T-tests indicated that the designers and the consumers differed in their ratings of some of the personality traits. Therefore, we decided to use the overall mean per group as a selection process of the personality traits (similar selections can be found in Ortíz Nicolás and Hernández López, 2008). This decision was made considering that the aim of this paper is to test an approach for designing product personality and not to validate the scale of Mugge and colleagues (2008). So, it was decided to include in the subsequent part of this research only those personality traits that scored higher than the overall mean score for the designers (OMSD= 3.78) and/or the overall mean score for the consumers (OMSC= 3.22). The final list of traits included eleven items as follows: elegant, interesting, cheerful, easy-going, serious, childish, and provocative (scored higher than the overall mean for both designers and consumers); aggressive, lively, honest, and gentle (scored higher than the overall mean for designers); cute and boring (scored higher than the overall mean for consumers).

Consumers indicated that it was difficult to differentiate the meanings of the personality trait easy-going and the product functionality easy-going. Consumers also complained about the difficulty in imagining what an honest product would look like. Based on this qualitative consumer information, we decided to exclude honest and easy-going.

**DEVELOPMENT OF THE STIMULI STUDY**

The participants

Two female undergraduate students in Industrial Design from the National University of Mexico developed a design object each to test if the design approach introduced in this paper could be used to embody a specific personality in product appearance.

The approach to embody product personality

The approach employed in this research resulted from reviews of previous research, discussions with scholars and designers on suitable ways to embody product personality, tests of the approach with students in industrial design, and reflections on professional experience in the field of product development. The approach consists of four main stages and these are now presented in turn.

Stage 1: Selecting personality traits

The first stage of the design approach consisted in asking each of the two designers to randomly choose a personality trait. Provocative and elegant were selected.

Stage 2: Discussing attributes of product appearance

The second stage was a group discussion. Industrial design students analysed product attributes that determine or communicate a provocative or elegant personality trait. The focus was on attributes such as shape (organic, geometric), material (wood, plastic, steel), colour (warm or cold), finish (matt, gloss), textures, size and composition (symmetry, asymmetry, balance). These attributes are generally acknowledged as components of product appearance (see Nefs, 2008; Blijlevens, Creusen, and Schoormans, 2009 ). Figure 1 presents an example of how each attribute of product appearance was analysed in relation to product personality.
Stage 3: Creating a mood board

In the third stage two mood boards were created with the aim of portraying the provocative and elegant product personalities. As pointed out by McDonagh, Bruseberg, and Haslam (2002) there is no prescribed formula for creating a mood board. Thus, the usage of metaphorical and literal images was a frequent strategy of the designers. For example, they used figures containing organic shapes and at the same time figures containing specific colours or textures as means of expressing a provocative or elegant personality.

The group discussion and the creation of the mood boards are the essence of this approach. Schön (1991) has suggested that when sketching designers reflect on the problem that they are dealing with. We tried to stimulate students’ reflection by performing these activities. The group discussion focused on the appearance attributes that they could recognize and communicate, e.g. sharp edges for an elegant product. On the other hand mood boards stimulated students’ reflections about appearance attributes that were difficult to describe by verbal means, e.g. a texture or a shape. It has been suggested that mood boards can support designers in clarifying and interpreting their own understanding of the design brief and the wider implications of the design project (McDonagh, Bruseberg, and Haslam, 2002). The outcome of these two activities guided the rest of the design process.

Stage 4: Concept generation

The fourth step was concept generation. Each designer made around ten concepts (sketches and detailed drawings) of either a bottle of perfume or a wrist watch. These product categories were randomly chosen. The concepts were reviewed by a small group of students and industrial designers led by the first author of this paper. In these sessions, designers explained the reasons for selecting specific colours, shapes, and textures to create their final designs. Based on this discussion the two products that best showed the personality trait were selected. The design process finished with the creation of a realistic rendering of both stimuli (see Elegant stimulus in Figure 2 and Provocative stimulus in Figure 3).

ASSESSMENT OF THE STIMULI STUDY

Participants

A total of fifty-one non-design undergraduate students from the National University of Mexico participated in the evaluation using a between-subject experimental design. Twenty-seven participants (14 women, 13 men, mean age = 22.74) evaluated the provocative stimulus and twenty-four participants (10 women, 14 men, mean age = 21.6) evaluated the elegant stimulus. All participants were Spanish native speakers. They were recruited from the university campus of the National University of Mexico.

Questionnaire

A questionnaire was developed, including questions about age, sex, and the perceived personality of the stimuli. The following statement was given to the participants: ‘I can describe the appearance of the product as having a certain personality trait’ (1 = Not descriptive at all to 5 = Very descriptive’). The eleven personality traits previously selected were included in the questionnaire. Five versions of the questionnaire were made, with the personality trait order randomized in each.
Figure 2. Elegant stimulus

Figure 3. Provocative stimulus
Procedure
The test was completed individually. High quality renderings of the stimuli were printed out in A4 paper size. Written instructions explaining the test procedure were handed out to the respondents when they agreed to participate in the study. After reading the instructions one of the print outs was randomly handed out to the respondent along with the questionnaire. The respondent filled out the questionnaire in as much time as needed. All respondents finished the task within three minutes.

RESULTS
Figures 2 and 3 show the mean scores for each item. The elegant stimulus (n=24) was perceived as elegant (M=4.5; SD=0.58). The other two personality traits that were recognised as important are provocative and interesting. T-tests showed that the stimulus was seen as more elegant than provocative (M=4.0; SD=0.78; t(23)=3.14; p<0.001) or interesting (M=3.96; SD=0.69; t(23)=3.19; p<0.001).

The provocative stimulus (n=27) was perceived as provocative (M=4.67; SD=0.78). In this case the traits elegant and interesting were highly rated. T-tests showed that the stimulus was seen as more provocative than elegant (M=4.33; SD=0.96; t(26)=1.73; p=0.048) or interesting (M=4.44; SD=0.75; t(26)=1.80; p=0.042).

DISCUSSION
The results of our study confirm that designers can predefine product personalities. Both stimuli were perceived as intended. This suggests that the design approach that was introduced in this paper was found to be reliable in guiding the embodiment of a specific meaning in product appearance. The research also showed that such meaning can be recognised by consumers.

Different personalities were attributed to the two stimuli. The elegant stimulus was indeed solely perceived as elegant. The provocative stimulus was perceived as provocative, and to a minor degree as interesting and elegant. The use of more than one personality trait to describe a product is common. Research projects related to product personality frequently report that two or three personality traits generally describe a specific stimulus, see for example the results of Desmet, Ortiz Nicolás, and Schoormans (2008), and Mugge, Govers, and Schoormans (2009). This is comparable with descriptions of people’s personalities, e.g. somebody can be extroverted, friendly, and cheerful.

As we have mentioned, designers seem to be able to embody meaning in products that consumers can recognise (Du Gay and colleagues p. 62). If embodying meaning is a valid skill of designers, there should be different ways of doing it. These ways, however, have been little reported, described, and validated in design research. The contribution of this research is in the introduction and description of a design approach for embodying product personality in product appearance. The approach relies on design techniques, such as verbalisation of product attributes and mood boards. In our experience, these techniques are relevant for clarifying designer’s intentions regarding decisions on product appearance. This is in line with the approach of van Kesteren, Stappers, and de Bruijn (2007). In our view the use of their tools seems to raise awareness of material selection as a way of defining product personality. In comparison to Schoormans and colleagues’ exploratory method (2010), the degree of freedom that designers have for creating design solutions seems higher in the approach reported here. This is because Schoormans and colleagues rely on iterative processes, in which consumers constantly assess the design options based on specific meaning, e.g masculine and powerful. They acknowledge that these assessments might limit design freedom. In a broader perspective the design approach reported here can complement more complex design methodologies such as Kansei Engineering. In particular, this approach can help designers translate impressions into product designs. As we mentioned before, in the Kansei Engineering methodology scholars offer little information regarding how to translate impressions.

In this research the stimuli used were designed by undergraduate students. They are novice designers who generally follow strict rules to deal with a problem, and as such they still have to further develop their design skills (Lawson and Dorst, 2009).
It may happen that an expert designer could embody a personality trait in product appearance without following a structured process as the one suggested in this research. For example, a design strategy for embodying meaning that is used at present is to keep recognizable elements of a brand within a line of products, e.g. the distinctive radiator grill of BMW automobiles (Creusen and Schoormans, 2005). Although this strategy rely on replication of design elements not on a specific design process, it is interesting to investigate other strategies that are used to embody meaning in product appearance.

It is also relevant to mention that a limitation of this research is that only two stimuli were designed, and that these are related to few product categories, e.g. accessories and packaging. Future research can investigate more diverse stimuli by selecting different product categories, other personality traits, and creating more product designs. Another issue that needs to be raised here is that this research focused on product appearance only. Desmet, Ortíz Nicolás, and Schoormans (2008) concluded that the effect of appearance on product personality was stronger than the effect of product interaction. Nevertheless, product personality can be reinforced or slightly modified by including a specific interaction style. Further research is needed in this field considering that different scholars have suggested that interaction is an important element for experiencing a product (Ortíz Nicolás and Aurisicchio, 2011; Desmet and Hekkert, 2007). In addition, recent literature advocates that consumers use all their senses, not only sight, to judge products (Schifferstein, 2010). Hence, an integral process is needed in which appearance and interaction can be aligned towards specific product personality and considering the overall user experience.

It was not our intention to validate the product personality scale defined by Mugge, Govers, and Schoormans (2009). Nevertheless, we identify some similarities in personality traits that could be used either in the Netherlands or Mexico to describe products. Among these there are: elegant, interesting, cheerful, serious, childish, provocative, aggressive, lively, gentle, cute, and boring. More research is needed regarding the personality traits that people assign to products in different countries. It is also interesting to discuss the results from the designers’ point of view. In this research designers were asked to rate 23 personality traits to establish whether they could embody them in product appearance. Results for the designers showed that personality traits that can be considered negative, e.g. aloof, boring, and silly, scored lower than the overall mean score (OMSD= 3.78). Designers, rather than thinking that they cannot embody these personality traits, may have assigned low rates because they think that is not worth to design boring, silly, or aloof products. However, in some situations it may be desired to design a boring appearance as a strategy to diminish attention in the context of use, e.g. plastic storage boxes or waste bins. Overall, we believe that designers should be aware of the meaning that they want to embody in new products. The design approach proposed in this article helps designers accomplish this aim.

It is suggested that artefacts are not successful in the market unless they embody ideas that are held in common by the people for whom the object is intended at the time of purchase and during usage and ownership (Belk, 1988; Aaker, 1997; Sirgy and colleagues, 2000). This is one reason why designers, companies and people related to new product development should consider the optimal use of product appearance. Creusen and Schoormans (2005) suggest that to make optimal use of product appearance, the marketing department or product development team should consider explicitly the impression they want it to communicate. In our view this is important as much as the strategy to implement such an impression in product appearance.

CONCLUSIONS
In conclusion, the results of this research suggest that the introduced design approach helps designers embody a personality trait in product appearance. This research illustrates again that designers can influence meaning in product appearance; however, this influence does not entirely depend on designers’ work (Crilly, Moultrie, and Clarkson, 2009).
The notion of meaning in durable products is perhaps the most complex of all (Chapman, 2005 p.39). It is influenced by the consumer’s previous experiences, while also being highly context specific. Chapman (2005) also mentions that product meaning can be loosely directed by designers but never fully controlled. We do not claim that by following our design approach the meaning communicated through product appearance, in this case a personality trait, is fully controlled, but rather, it helps designers direct the symbolic meaning in new product development.

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References


