HUMAN-LIKE PRODUCTS

The Effect of 'Facial' Expressions of Different Product Types on Overall Impression and the Need to Build Up Relationship

Julia Riesenbeck
s1226061

SUPERVISOR: Prof. Dr. A.T.H. Pruyn
2ND SUPERVISOR: Dr. T.J.L. van Rompay

29-04-2016

Faculty of Behavioural Science
Marketing Communication Studies
University of Twente

UNIVERSITEIT TWENTE.

Abstract

When designing products, companies and brands sometimes try to employ shapes that are emotionally appealing by anthropomorphizing a product's appearance. The current study focuses on the effect of 'facial' expressions of different product types on *overall impression* of a product and on the *need to build up relationship* with, on the one hand, consumer durables and, on the other hand, fast moving consumer goods. It is hypothesized that anthropomorphism has an influence on the overall impression of a product and on the need to build up relationship with a product. Further, it is expected that the need to build up relationship with an anthropomorphized consumer durable is more likely than the need to build up relationship with a FMCG. A 5 (facial expressions) x 2 (product types) experiment was conducted. The results of the study show several significant effects. The study investigated that the need to build up a relationship with an anthropomorphized product does not depend on the product type alone but in fact on the 'facial' expression the product exhibits. Furthermore, it was found that anthropomorphized consumer durables show more positive effects on the present dependent variables when their design contains angry design elements. However, anthropomorphized bottles with mineral water show more positive effects on these variables when their design contains friendly elements. Limitations and implications will be discussed and suggestions for future research are given.

Keywords: anthropomorphism, product design, durable consumer goods, fast moving consumer goods, emotional facial expressions

Introduction

Couple of years ago, Audi has introduced a TV commercial with the claim 'the face of Vorsprung' (Audi, 2005). Amongst others, a house, a stone or a camera are shown in this commercial. The forms and shapes of the artefacts remind the viewer of human faces. In the end, the Audi enters the screen. The automobile also appears to have a face. In the commercial, the face of the Audi is called 'the face of Vorsprung" (advance, lead). This commercial shows the ease with which people see human faces in their environments. There are many other examples of marketers presenting their products with humanlike design elements. Humanizing the non-human is called anthropomorphism. Other companies who make use of anthropomorphism in their commercials are, for instance, the German chocolate company *Kinder* for their products *Kinderschokolade* (Kinder, 2012) and *Kinder Schokobons* (Kinder, 2011) or *Alfa Romeo* (Alfa Romeo, 2011) in the campaign for their model *Guilietta.*

Before discussing the application of anthropomorphism in marketing it is important to understand the phenomenon of seeing the human in the non-human itself. People commonly see faces in natural formations, objects and products. Anthropomorphism is seeing human forms and expressions in natural formations, such as clouds and mountains, or as might be more relevant to marketers in objects, for example, handbags, watches and automobiles (Aggarwal & McGill, 2007). Moreover, anthropomorphism is a psychological process and is defined as the tendency of people to attribute humanlike characteristics or mental states to nonhuman agents and objects (Epley, Waytz, & Cacioppo, 2007). In research, anthropomorphism has received considerable attention. It was examined in which ways anthropomorphism can have positive effects on product design. For instance, facial features of products can be used to communicate the brand's personality (Fournier, 1998). Further, design is distinctive and has become a brand identifier and consumers identify a product by its design features (Herm & Möller, 2014). Moreover, consumers have a more positive attitude towards products that fit a brand's image (Aaker, 1997; Fournier, 1998). Recent research has indicated that the tendency to anthropomorphize products goes beyond simply seeing eyes and a mouth in a product. Instead of simply noticing the analogy of a human face people actually even tend to perceive specific facial expressions when looking at products (Landwehr, McGill, & Herrmann, 2011). For example, there are studies which examine an upturned grille on a car as a smile (Aggarwal & McGill, 2007)

or slanted headlights as an expression of anger (Windhager, et al., 2010). The ability to convey an emotional expression to a product is a powerful tool for marketers. According to Landwehr et al. (2011) the face of a product can be an important brand element. The facial features of a product may be used to communicate the brand's or product's personality (Aaker, 1997; Fournier, 1998; Landwehr, McGill, & Herrmann, 2011). For example, BMW's designers chose a design with angry features for their automobiles, which seems to be liked by their customers. Other brands have chosen for a more friendly-looking car design, such as Volkswagen for the New Beetle. However, not only the automobile industry makes use of anthropomorphism. Additionally, the food industry also makes use of this technique in their product designs. Thinking of, for instance, the smiling "e" of Heineken beer or the logo of Pepsi which also contains a sort of smile.

The present study examines the phenomenon of anthropomorphism in the field of marketing research. The question of how consumers react to products that are presented in human terms is significant for marketers because there is also research that indicates, for instance, that anthropomorphism has not always positive effects on consumers (Kim & McGill, 2011). From a practical point of view, it is important to know in which product categories anthropomorphism has a positive effect and in which ones not. Further, it may be interesting to investigate which facial expressions show positive effects for one product type but not for the other. Therefore, purpose of the present study is to investigate for which product type (consumer durable vs. fast moving consumer good) the technique of anthropomorphism is suitable and which kind of facial expression is preferred by customers. It is chosen for consumer durables and FMCG for several reasons. For example, consumer durables lend themselves for building up relationships with them because consumers are highly involved and spend time for the decision making process. In contrast to that, FMCG are bought frequently without much thinking and involvement. In the present study, it was chosen for automobiles as a consumer durable and bottles with mineral water as FMCG. Later in this paper, this will be discussed in detail.

The present study has some practical value because it is interesting for marketers to gain insights in the field of anthropomorphism and emotional facial expressions. For instance, marketers can learn which anthropomorphized design elements they should

make use of and where it makes no sense to add a human face to a product. Additionally, the knowledge can be applied during practical decisions regarding marketing strategies. In addition to that, the present study has theoretical value. In literature, anthropomorphism has already been researched in several directions. Especially regarding to the front of automobiles many researches are conducted (Aggarwal & McGill, 2007; Landwehr, McGill, & Herrmann, 2011; Windhager, et al., 2010). However, there is a gap in literature, regarding to which products are most suitable for the concept of anthropomorphism and to what extent those products provide the need to build up relationships. Moreover, there is a gap regarding to which facial expressions are suitable for which product type.

Research questions

The present study focuses on the effects of anthropomorphism and different facial expressions on *overall impression* and the *need to build up relationship* with consumer durables and fast moving consumer goods. Based on the introduction above the following research questions were formulated:

RQ_1: What is the effect of anthropomorphized consumer durables and fast moving consumer goods on the overall impression of a product and the need to build up relationship with a product?

RQ_2: Which influence have different emotional expressions on the overall impressions of a product and on the need to build up relationship?

The remainder of this thesis is organized as follows. In the theoretical section, relevant subjects such as the concept of anthropomorphism, different product types and emotion theory will be reviewed. Also in this paragraph the hypothesis of the study will be presented. After that, the methodology of the present study will be outlined. Subsequently, the results of this research will be discussed. Finally, conclusion and discussion, including limitations of the study, suggestions for future research and theoretical and managerial implications, will be presented.

Theoretical background and hypotheses

Prior research examined that brands and products are seen as having a soul (Aaker, Fournier, & Brasel, 2004), a personality (Aaker, 1997) and relationships to their owners (Aggarwal P. , 2004; Fournier, 1998; Chang & Chieng, 2006). Products even seem to have features of their owners that have been assigned to it during the use (Aaker, Fournier, & Brasel, 2004). These product features can be summarized by the phenomenon of anthropomorphism. Tremoulet and Feldman (2000) suggest that an anthropomorphized product needs to have some specific features. For example, a product which is moving can create the impression that it is alive. Additionally, the shape of the product is significant. An object which is shaped human-like is more likely to be anthropomorphized (Graham & Poulin-Dubois, 1999). All in all, literature states that anthropomorphized products are more likely to be preferred by customers than products without humanlike design elements. Of course, there are people who tend to see the human in nonhuman artefacts more than others and there are agents that can be anthropomorphized more easily than other agents (Epley, Waytz, & Cacioppo, 2007).

Anthropomorphism

Anthropomorphism is defined as "the tendency to imbue the real or imagined behaviour of nonhuman agents with humanlike characteristics, motivations, intentions or emotions" (Epley, Waytz, & Cacioppo, 2007). According to Epley et al. (2007), nonhuman agents include, for instance, animals, natural forces, religious agents, technological gadgets or mechanical devices. Moreover, anthropomorphizing is seeing the human in non-human forms and events (Aggarwal & McGill, 2007). According to Aggarwal and McGill (2007), one example is that people see human features or even faces in the clouds, on the moon or on mountains. More important for marketers is that people see the human not only in nature but also in products and artefacts.

Aggarwal and McGill (2007) sum up three explanations for the tendency to anthropomorphize. Firstly, people anthropomorphize to comfort relationships. People who want to have more social contacts often 'communicate' with their products. In the present study, it will be investigated whether there is a difference between two product types when it comes to the need to build up a relationship. Secondly, people anthropomorphize to make a better sense of the world around them. People assign human characteristics they are familiar with to artefacts and products. Thirdly,

anthropomorphizing may be seen as a cognitive strategy. People anthropomorphize products to increase their comprehension of the product and to understand, for instance, its handling (Aggarwal & McGill, 2007).

Furthermore, Aggarwal and McGill (2007) sum up three forms of anthropomorphism. At first, there is *partial* anthropomorphizing which occurs when people see objects and events as having important human traits but they do not consider the product as a whole to be human. In contrast to that, *literally* anthropomorphizing occurs when people consider an object or a product as human. Finally, *accidental* anthropomorphizing occurs when people see human forms in objects, for example, seeing a person's face in a cloud (Aggarwal & McGill, 2007). In the present research, two products are manipulated on purpose so that they contain different facial expressions. In this case, we aim to manipulate two product types with anthropomorphized design elements. Participants of the study should see different facial expressions in the FMCG (in this case bottles of mineral water) as well as in the consumer durable (in this case cars).

Anthropomorphism in the field of marketing

For marketers, anthropomorphism is relevant because people tend to see human forms in products. As stated in the previous section, anthropomorphism refers to the phenomenon that people attribute human characteristics to nonhuman objects. Marketers encourage this phenomenon and apply anthropomorphism in their marketing strategies.

Anthropomorphism often has influence on the brand's or product's credibility, the brand's or product's personality and the relationships consumers tend to build up with products or brands (Aaker, 1997; Chang & Chieng, 2006; Fournier, 1998). People commonly like products with images which are congruent with their personal image (Aggarwal & McGill, 2007; Landwehr, McGill, & Herrmann, 2011). People build up relationships with products and as people live experiences with their products they strengthen these relationships (Chang & Chieng, 2006; Fournier, 1998; Aaker, Fournier, & Brasel, 2004). Furthermore, people often identify with their belongings and some products, as for example cars, are seen as loyal companions (Aggarwal & McGill, 2007). All in all, prior research examined that people tend to be more likely to build up relationships with anthropomorphized products (Fournier, 1998).

Anthropomorphism occurs in two different ways in the field of marketing. On the one hand, there are findings in literature on anthropomorphized brands and on the other hand, there are findings on anthropomorphized products.

Anthropomorphized brands have received considerable attention in marketing literature. For marketers it can be useful to make consumers think of their brand in human terms (Aggarwal & McGill, 2007). Anthropomorphizing a brand offers several advantages to marketers, for example, seeing human attributes in brands increases brand loyalty (Chandler & Schwarz, 2010). One example of anthropomorphizing brands is the construct of brand personality. The personality of a brand consists of human characteristics which are associated with the brand (Aaker, 1997). People often link such human characteristics to brands. There are brands which are described as reliable and safe and others which are competent and intelligent. For example, Marlboro often is perceived as rugged and tough and the Mercedes as sophisticated (Freling, Crosno, & Henard, 2011). Additionally, people can identify with brands and sometimes even build up a relationship with them (Fournier, 1998). In addition to this, designing products with facial expressions, which are convergent with the brand's image, has a positive influence on consumers (Aaker, 1997; Fournier, 1998). When people can identify with a brand's or a product's image they are often more likely to purchase and to use the product (Fournier, 1998).

Besides brands, consumers also tend to *anthropomorphize products*. In general, anthropomorphism has a positive effect on judgements and behaviour of consumers because it increases emotional bonding with the product (Kim & McGill, 2011). Marketers often encourage consumers to think of their products in human terms. By, for example, presenting products with humanlike physical features or humanlike forms consumers are guided to anthropomorphize the product (Chandler & Schwarz, 2010). On TV there are many commercials that make use of anthropomorphized and humanized contents. For example, *Kinderschokolade* in Germany (Kinder, 2012; Kinder, 2011). A chocolate bar and a glass of milk, both with a nice and smiling face, are happily together. The characters are experiencing humanlike emotions and this enables the viewer to identify with them. *When you eat Kinderschokolade you will be living a happy life full of love.* The commercial raises people's attention and people are talking about it.

Figure 1. **Example of anthropomorphism in the commercial of Kinderschokolade in Germany.**

Additionally, products are often described in the first person, instead of the third person. Thus, a product can be humanized by referring to a product using "he" or "she" instead of "it" (Aggarwal & McGill, 2007). Aggarwal and McGill (2007) were the first researches who investigated the phenomenon anthropomorphism in relation to products instead of brands. Their results indicate that consumers evaluate an anthropomorphized product more positively when the product characteristics are congruent with the proposed human schema. Moreover, just as consumers form relationships with brands (Chang & Chieng, 2006; Fournier, 1998), consumers tend to form relationships with products as well (Valenzuela & Hadi, 2010). Valenzuela and Hadi (2010) build on the theories of product attachment and consumer-object relations. The researchers find that some people tend to form relationships with anthropomorphized products. In the present study, we assume that anthropomorphism has, in general, a positive influence on building up a relationship with products (and brands) as well as a positive influence on the consumers' overall impression of the product (Fournier, 1998).

Product type: durable consumer goods vs. fast moving consumer goods

As stated in literature, product types can be distinguished in many different ways and classifications. There are hedonic and utilitarian consumptions (Hirschman & Holbrook, 1982), informational and transformational products (Rossiter, Percy, & Donovan, 1991), 'think' and 'feel' products (Maarsman, 2011), high- and low involvement products (Zaichkowsky, 1987) or durable consumer goods versus fast moving consumer goods (Sheffrin, 2003; Majumdar, 2004). Utilitarian and functional products have functional benefits and solve problems. In contrast to that, hedonic products offer their users fun,

enjoyment and pleasure (Hirschman & Holbrook, 1982). Think products are products bought for utilitarian needs and considered primarily in terms of rational meanings. Feel products, on the other hand, are bought for emotional needs and are often value-expressive. Feel products are, for instance, also bought to gain social acceptance (Maarsman, 2011). High- and low involvement products refer to the amount of interest a consumer directs toward a product (Richins & Bloch, 1991) and the level of identification with the particular product (Gu, Park, & Konana, 2012). The present study focuses on the product classifications durable consumer goods and fast moving consumer goods.

Consumer durables. Consumer durables are products that are not purchased frequently because they are produced to last for an extended period of time (Sheffrin, 2003; Fernandez-Villaverde & Krueger, 2011). Mostly, consumer durables are used more than three years by their owners. Examples for durables are automobiles, furniture, jewellery, electronics and sporting goods.

Consumer durables are products that are connected with a high financial risk because they are often high-prized (Richins & Bloch, 1991). Consumers purchasing durables commonly have a high need for information about that particular product. People are usually seeking a lot of related information to reduce uncertainty and to be sure that this particular product is the right one to purchase (Cho, 2010; Zaichkowsky, 1987). Moreover, similar to high involvement products, people often spend considerable time before purchasing consumer durables to make the right decision because the purchase is often linked to a high financial risk (Gu, Park, & Konana, 2012).

Based on the characteristics above, we conclude that consumers seem to have a strong relationship to consumer durables for several reasons. Firstly, they spend much time thinking about this type of products (Zaichkowsky, 1987). Thus, the amount of cognitive effort is high in this product category. Consumers need time to consider, for instance, which automobile to buy and how much money they want to invest. Secondly, the level of involvement is high and consumers often are identifying with their durables (Carroll & Ahuvia, 2006). Additionally, customers own durables for an extended period of time (Sheffrin, 2003). Thus, the relationship towards the product can develop over time and consumers evaluate these type of products over and over again. As a consequence, the attitude towards consumer durables can also change over time. It can

be possible that it takes the consumer some time to develop a complete attitude towards their durable because they need to evaluate first. All in all, literature states that consumers often have a strong relationship with their durables, like for example their automobile, and they are spending time thinking about these products and evaluating them. Considering that anthropomorphism often strengthens the need to build up a relationship with a product, we assume that anthropomorphized consumer durables provide a high need to build up a relationship with them. When seeing a face in a consumer durable people can identify more with the product, their overall impression is more positive and they want to build up a relationship with the product.

Fast moving consumer goods. Fast moving consumer goods (FMCG) are products that are sold quickly and that are not used for a longer period of time by the customer (Majumdar, 2004). Moreover, FMCG are fast-moving items on trade and they are changed very quickly on shelves (Kaiser, 2007). Examples are moving consumer goods like soft drinks, food, over-the-counter-drugs and toiletries (Brierley, 2002).

Fast moving consumer goods are characterized by several factors. Firstly, FMCG are purchased frequently. People need these products for their everyday routines. Secondly, FMCG often are low involvement products. Consumers rarely make effort to decide which product they want to buy. They decide automatically and intuitively which product to buy. Last but not least, FMCG are low prized. This is another aspect why consumers spend less interest and less amount of time in deciding for one particular product. Buying FMCG is associated with a low financial risk (Majumdar, 2004).

We summarize that consumers have a relatively short-term relationship with FMCG because these products are replaced and swapped. Additionally, the relationship is not as close and personal as with a consumer durable because people are purchasing FMCG frequently (Majumdar, 2004). Moreover, Majumdar (2004) states that consumers are spending less time thinking about fast moving consumer goods and that they are deciding quickly while standing in front of the shelves in a supermarket. Thus, people evoke less cognitive effort while purchasing FMCG and also while using these kind of products. However, the overall impression of a fast moving consumer good is formed faster than towards a consumer durable. People are forming opinions and impressions very fast while being in the supermarket or while watching, for instance, TV commercials. Research indicates that when people associating FMCG to their TV

commercial (or an anthropomorphized spokesman like for example the M&M's moving characters), they have a more positive attitude towards these kind of products (Hosany, Prayag, Martin, & Lee, 2013). All in all, consumers are spending less time and effort thinking about FMCG than about consumer durables and by doing so, the relationship to this product category seems to be less strong and personal. However, FMCG seem to give consumers a good feeling and they need these products for their everyday routines (Majumdar, 2004). Assigning this to the phenomenon of anthropomorphism, we conclude that the overall impression of a FMCG is positively affected by anthropomorphized design elements, especially when these elements transmit a happy, positive feeling. People are standing in front of a shelve and have to decide (quickly) which, for instance, mineral water to buy. We assume that anthropomorphized design elements increase the overall impression of this bottle and consumers tend to decide for this bottle. However, we expect that the effect of anthropomorphism on FMCG is weaker when it comes to the need to build up a relationship. We assume that FMCG are brought too frequently to build up relationships.

Identification with product type. "Identification represents the degree to which an individual believes the organization, retailer, or band has become part of the self - in other words, the individual defines him/herself as having similar attributes as the entity" (Donavan, Janda, & Maxham, 2015). Donovan et al. (2015) state that durables are suitable for the concept of identification because consumers mostly have (long-term) relationships with such products.

According to Aaker et al. (2004) consumers relate to brands because they fit their own personality. If brand attributes are congruent with a consumer's character he or she can identify with the brand and the need to build up a relationship with a product increases. The current study focuses on identification with products. Regarding that identification is linked to having a relationship with an artefact, we state that anthropomorphized consumer durables have a more positive effect on identification than FMCG.

Emotion theory and facial expressions

The phenomenon *emotion* appears to be diverse. Emotion is a psychological category. There is a set of mechanisms that leads to emotions (Frijda, 1986). "Emotions are

viewed as outcomes of the process of assessing the world in terms of one's own concerns, which, in turn, modify action readiness" (Frijda, 1986). Moreover, emotions have a functionalist account and they serve something (Frijda, 1986). Additionally, emotions are expressed in three different ways. They can be expressed by facial expression, cognitive expression and by physiological changes (Fredrickson, 2001). In the present study, we focused on facial expressions. The scientific study of emotion theory and facial expressions began with Charles Darwin's *The Expression of Emotion in Man and Animals.* Darwin found that some emotions have a universal facial expression (Ekman, 2003). In the following section, different emotions will be briefly outlined on the basis of Frijda's *The Emotions* and Ekman and Friesen's *Unmasking the face*. According to Ekman and Friesen (2003), there are six basic emotions: *surprise, fear, disgust, anger, happiness and sadness*.

First, there is *surprise* or *wonder*. Here, the eyebrows are raised and the eyes are widely opened (Ekman & Friesen, 2003; Frijda, 1986). Further, surprise is caused by anything unexpected. If someone has time to think of an event he or she is not surprised (Ekman & Friesen, 2003). Second, there is *fear*. In general, fear is communicated with eyes, brows and the mouth depending on the intensity of the experienced emotion (Ekman & Friesen, 2003). More specifically, fear is communicated by forceful eye closure, frowning by drawing the eyebrows together, bending the head, hunching the shoulders and bending the trunk and knees (Frijda, 1986). According to Ekman and Friesen (2003) fear varies in intensity which is reflected in the facial expression. Third, there is *disgust.* Disgust is a feeling of aversion. People who are experiencing disgust show some kind of getting-away-from responses (Ekman & Friesen, 2003). Disgust is communicated by a wrinkled nose, raised upper lips, and raised cheeks. Fourth, there is *anger*. Characteristics of this emotion are: fixed stare, eyes slightly widened, eyebrows contracted and lips are often compressed (Frijda, 1986; Ekman & Friesen, 2003). Furthermore, also anger can vary in intensity, from slight irritation to rage and fury (Ekman & Friesen, 2003). Fifth, there is *excitement and joy* or what Ekman and Friesen (2003) call *happiness*. This is communicated by gazing at the object of joy and a relaxed open mouth (Frijda, 1986). Moreover the corners of the lips are drawn back and up. As well as anger and fear, happiness can vary in intensity and it can be shown silently or audibly (Ekman & Friesen, 2003). Sixth, there is *sadness*. Sadness is communicated by downcast eyes and absence of interest (Frijda, 1986). Moreover, the corners of the lips

are draw down, in some cases the lips may even tremble (Ekman & Friesen, 2003). Additionally, sadness is some sort of suffering, namely the suffering of loss, disappointment, or hopelessness. Further, sadness is a form of distress, the basic negative emotion (Ekman & Friesen, 2003).

Facial expressions in prior research. Prior research has investigated the concept of facial expressions in connection to products, especially cars (Aggarwal & McGill, 2007; Landwehr, McGill, & Herrmann, 2011; Windhager, et al., 2010). Here, there are two dominating expressions: anger and joy.

For example, Windhager et al. state that consumers show a preference for angry-looking car models. In contrast, Aggarwal and McGill (2007) state that friendly-looking cars are most preferable by consumers. In another study, it was investigated that neither an angry appearance nor a friendly appearance are preferred by consumers but a combination of the two emotions was evaluated positively by the participants (Landwehr, McGill, & Herrmann, 2011). A mix of an upturned grille (joy) and slanted headlights (anger) seemed to be preferable to consumers because it triggers a positive affective state of both high pleasure and arousal (Landwehr, McGill, & Herrmann, 2011). Thus, a combination of the two facial expressions evokes positive feelings at consumers and increases the level of arousal. We conclude that people may get more enthusiast about products with a combination of the facial expressions anger and joy.

It becomes clear that anger and joy are two facial expressions which are often researched referring to product design, especially automobile design. Anger and joy seem to be facial expressions through which consumers can communicate who they are. According to Frijda (1986), facial expressions are recognized as reliable indicators of emotional states. Transmitted to product design, this may mean that people are also perceiving a product's "emotion". So, we state that if a product has a friendly face, people tend to assign a friendly character to a product while if a product has an angry face, people may feel respect for such a particular product. Further, people like it when a product has a positive (smiling) appearance (Aggarwal & McGill, 2007). With these kind of products they can communicate that they are positive and friendly personalities. In contrast to that, angry or aggressive looking products (cars), of course, communicate another personality (Landwehr, McGill, & Herrmann, 2011). It may be that owners of angry-looking cars want to communicate that they are successful and ambitious.

As mentioned, Landwehr et al. (2011) found that a combination of anger and joy is preferred for automobile design because it increases the level of pleasure and arousal. In addition to their findings for automobiles, Landwehr et al. conducted a study with mobile phones to test whether the preference of combined facial expressions can be generalized to other product categories. It was examined that the combination of facial expressions is not limited to the design of automobiles but can be extended to other product categories that are not as strongly associated with the face metaphor, for instance mobile phones (Landwehr, McGill, & Herrmann, 2011). Since mobile phones can also be categorized as consumer durables, in the present study it will be investigated whether the results of Landwehr et al. (2011) are also applicable to FMCG such as bottles of mineral water. It will be interesting whether combined design elements of anger and friendliness will show positive effects for product categories which are bought more frequently than consumer durables.

Based on the discussion above, the present study focuses on four facial expressions. First of all, we will concentrate on the emotions anger and joy. There are two reasons for this choice. Firstly, these two emotions are very prominent in literature. Secondly, anger and joy belong to the basic emotions (Ekman & Friesen, 2003). Additionally, we will concentrate on a combination of anger and joy which was researched by Landwehr et al. (2011) for consumer durables. In the present study it will be examined whether a combination of facial expressions is also successful for FMCG. Finally, the basic facial expression sadness will be taken into consideration since it was not researched in terms of product design and anthropomorphism as far as we know. It may be that people are not willing to own a sad product since they are communicating their own personality with this product and identify with it. However, it is interesting whether sadness has influence on the consumer's overall impression of a product and, especially, whether a sad expression affects the need to build up relationship with a product, for instance, for compassion. It may be that people find a sad product attractive because they feel compassion for it.

Design

Next to the concepts of overall impression, need to build up relationship and identification, the concept design will be examined in the present study to provide additional information and potential to support the findings of the present study.

Ulrich (2011) defines product design as "conceiving and giving form to goods and services that address needs." The design of a product is significant because it is often the first point of contact between the product and the consumer (Kumar & Noble, 2015). According to Moon, Park and Kim (2014), success of a product is dependent on creating a unique and superior product design. Therefore, in the present study some design aspects will be examined, namely the social function of design (Kumar & Noble, 2015) as well as user-friendliness (ergonomics) and uniqueness (aesthetic attributes) (Moon, Park, & Kim, Importance of an innovative product design on customer behavior, 2014).

Hypotheses and research model

Based on the theoretical framework above, six hypotheses were formulated and a research model was developed. The first two hypotheses are independent from any facial expressions. These hypotheses are taking the anthropomorphized product type into consideration. We posit the following:

H_1: The effect of anthropomorphism on overall impression and need to build up a relationship is moderated by the type of product. (a) Anthropomorphizing a FMCG shows a more positive effect on overall impression than anthropomorphizing a consumer durable. (b) The need to build up a relationship is higher with anthropomorphized consumer durables than with an anthropomorphized FMCG.

H_2: Anthropomorphized consumer durables have a more positive effect on identification compared to anthropomorphized FMCG.

Additionally, some more specific hypothesis were formulated. Literature states that the type of contour a product possesses, for instance sharp angled or curved, has an influence on people's attitude toward an object (Bar & Neta, 2006). Bar and Neta (2006) found that sharp forms, like for example the slanted headlights of an angry-looking product, convey a sense of threat. On the contrary, curved forms, like for instance open/round eyes of the facial expression joy, convey warmth. We conclude several aspects from these findings. First of all, we expect that the facial expression anger, so sharp forms, will perform more positive at automobiles (consumer durables). As mentioned, Bar and Neta (2006) found that sharp forms convey threat. We state, that this can also be perceived positively by consumers. For instance, consumers often wish there cars to be fast, impressive and dynamic or even some kind of threatening (in a positive way, for instance powerful). So, we state that angled and sharp forms convey,

next to threat, also speed, power and dynamics which will have positive effects on the perception of automobiles. Moreover, automobiles often are status symbols and, especially men, communicate through their cars (Belk, 2004). Additionally, automobiles are associated with power, danger, mobility and dominance and often are used for some kind of status competition (Belk, 2004). Based on this, we state that cars are preferred when they contain angry design elements. Secondly, we assume that the facial expression joy will perform more positive for FMCG. As stated by Bar and Neta (2006), curved forms are preferred by consumers when it comes to emotionally neutral objects, so objects with neutral valance. Since bottles of mineral water are normally emotionally neutral products, we state that curved forms, like smiling faces, are preferred by customers of this particular product. Additionally, we state that consumers buy those products with the desire that they endow positive feelings. That is why we state that FMCG are preferred when they contain smiling elements. Thirdly, we expect that the combination of anger and joy performs positively in both product categories. Finally, we assume that the facial expression sadness has influence on the need to build up a relationship with a product. It may be that the facial expression sadness arouses some sort of compassion and therefore also the need to build up a relationship with such a product. We posit the following:

H_3: The effect of anthropomorphism on overall impression is moderated by product type. (a) The overall impression of a consumer durable with the facial expression anger is higher than the overall impression of an angry FMCG. (b) The overall impression of a FMCG with the facial expression joy is higher than the overall impression of a consumer durable with the facial expression joy.

H_4: The effect of anthropomorphism on need to build up a relationship is moderated by product type. (a) The need to build up a relationship with a consumer durable with the facial expression anger is higher than with a FMCG with the facial expression anger. (b) The need to build up a relationship with a FMCG with the facial expression joy is higher than with a consumer durable with the facial expression joy.

H_5: (a) The facial expression combination (anger + joy) will have most positive effects on overall impression for both product types compared to the facial expressions anger, joy, and sadness. (b) The facial expression combination will have most positive effects on the need to build up a relationship with both product types compared to the facial expressions anger, joy, and sadness.

H_6: The facial expression sadness arouses the need to build up a relationship with a consumer durable more than with a FMCG.

To complement the organisation of the present study, the following research model is presented.

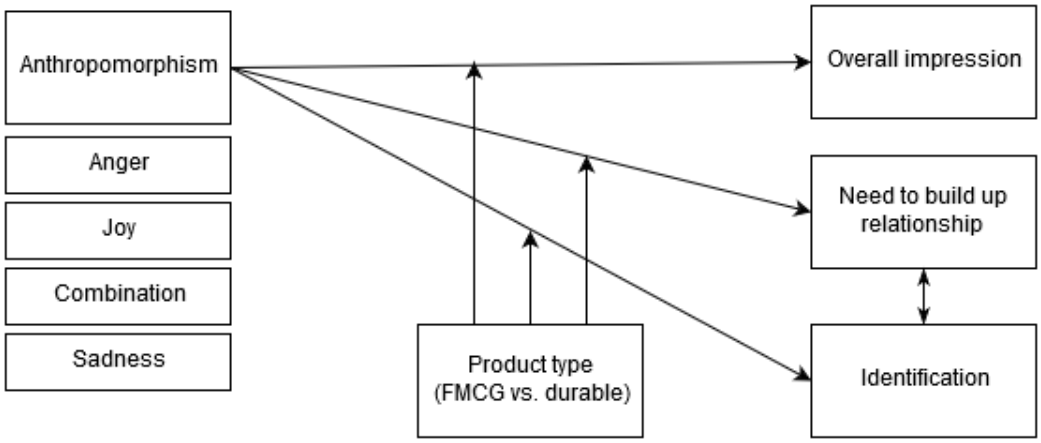


Figure 2. **Research model of the present study.**

Methodology

Pilot study

A pilot study was conducted in order to ensure the effectiveness of the designed stimulus material. Prototypes of an automobile as well as a bottle with mineral water were manipulated as having different facial expressions (anger, joy, sadness, combination of anger and joy, control). 20 Germans (50% male, 50% female, Age: *M= 33.65*) participated in the pilot study for the manipulation check. Participants were recruited among the social environment of the researcher.

Five car conditions and five bottle conditions were designed. Respondents were confronted with one of the two product types (10 for car, 10 for bottle). Respondents had to fill in a questionnaire with items that measured the emotions the displayed products illustrated. Moreover, there were some questions pre-tested for the main study. Therefore, the pilot study included some items that measured the participants' overall impression and the need to build up relationship. Participants were asked to indicate whether there were items which were not comprehensible.

Emotions were measured via ten items on a semantic differential scale from 1 to 7 (from positive to negative). The mean scores of the emotion scale can be found in appendix A. The facial expressions joy and sadness were in both product categories clear. The design elements appeared to communicate a positive, happy and cheerful feeling, respectively a sad, unhappy feeling which can be seen by the means in appendix A. The control facial expression seemed to be clear as well. All means were settled around $M = 4.00$ which can be interpreted as neutral. However, the facial expression combination for bottles appeared to be very similar to the facial expression joy. Further, the facial expression anger for bottles appeared to be very similar to the facial expression sadness. For the main study, the stimuli for those facial expressions needed some adjustments. Those adjustments were discussed with five students, before they were enforced in the main study. All in all, the results of the pilot showed that the manipulation of the two product categories were comparable.

Figure 3. **Sample of the stimulus material of the present study (facial expression anger). See appendix B for all stimulus material.**

Main study

Participants. Via German social networks and direct email contact a total of 519 respondents started the online survey, constituting a convenience sample. Questionnaires which were not filled in adequately or completely needed to be deleted.

To offer an overview of the research sample and to demonstrate the degree to which the results of the current study can be generalized, Table 1 is reported. After dealing with non response, the data set of the present study consisted of 278 participants (N = 278). The sample consisted of 155 (55.8%) female and 123 (44.2%) male respondents. The respondents were aged between 16 and 68 years. As one can see, the majority of participants of the study is younger than 26 years (68%). Thus, the sample of the present study is only representative for this particular age group. Moreover, most of the participants are highly educated. 51% Of the participants have a diploma from German secondary school qualifying for university admission or matriculation and 27% of the participants got university degree. To check whether there was a significant difference in age in the ten conditions, one-way analysis of variance was conducted. Based on the ANOVA it can be concluded that there was no significant difference between the conditions regarding to the distribution of age.

Table 1
Age, gender and educational level details on the sample

Demographics		N	%
Age	<18	5	1.8
	18-25	189	68.0
	26-35	46	16.5
	36-45	15	5.4
	46-55	17	6.1
	56-65	4	1.4
	>66	2	0.8
Gender	Male	123	44.2
	Female	155	55.8
Education	Secondary school level (Hauptschule)	6	2.2
	Secondary school level (Mittlere Reife)	55	19.8
	A levels (Abitur)	142	51.0
	University degree (Hochschulabschluss)	75	27.0
Total		278	100

Research design. The present study used a 5 x 2 between-subject design with an online survey via qualtrics.com. Participants of the study were assigned randomly to only one of the ten conditions. The present research handles two factors, facial expression and product type. The research at hand presented five facial expressions (four experimental and one control facial expression) and two product types. Table 2 reports the different conditions of the present study and the distribution of the stimulus material over the participants. Moreover, Table 2 provides an overview of the number of participants per condition.

Table 2
Design of the study, distribution stimulus material and number of participants per condition

	Facial expression				
	anger	joy	joy/anger	sadness	control
Durable consumer good: Automobile	n= 25	n= 31	n= 27	n= 26	n= 28
Fast moving consumer good: Bottle with mineral water	n= 27	n= 31	n= 26	n= 29	n= 28

Procedure. The present study used data gathered from an online survey. Participants were recruited via mail or social networks, such as facebook by posting a link to the online questionnaire. Participants were provided general information over the study before they started to fill in the questionnaire. Informed consent was given by starting the questionnaire and the participants could stop at any point of time.

Materials. Stimulus material consisted of photos of fictive automobiles and fictive bottles with mineral water to prevent brand-preference bias. Participants should not be affected by the brand of the cars or the bottles. Moreover, it was chosen for mineral water because it is an everyday product which is used by nearly anybody without much involvement for the brand. If it would be chosen for cola, for instance, people would probably have certain expectations about the product. The photos were designed by the researcher.

It was important that the manipulations (cars and bottles) are similar to each other so that they can be compared with each other. In total, there were ten different conditions. On the one hand, there were five conditions including the product type fast moving consumer goods, in this case bottles with mineral water. On the other hand, there were five conditions including the product type consumer durables, in this case cars.

A questionnaire including demographic variables and five constructs was assembled by the researcher. The entire questionnaire can be found in the *appendix C*. The five constructs were emotions, overall impression, need to build up relationship (CPR), identification and design. These constructs, except for the emotion part, were simultaneously the dependent variables of the present study. The items for emotions served as manipulation check. Participants were confronted with one photo of the products and had to rate it on the items. All scales were measured using either a five-point Likert Scale (1= strongly disagree to 5= strongly agree) or on a semantic differential from 1 to 5 (negative to positive).

The first fourteen items measured the emotions which were presented by the stimulus. These items served as a manipulation check of the stimulus material (e.g. is the stimulus experienced as angry or not?). Ten of these items were rated by a semantic differential. Examples of these items were *happy - unhappy* or *friendly - aggressive.* The next four items were measured using a five-point Likert scale. One example of these items was *When I look at the car/the bottle, I get a happy impression*.

The following fourteen items investigated the participants' overall impression of the products as a dependent variable of the present study. The first ten items were several attributes which should be assigned to the stimulus material. Those items were rated on a semantic differential. Attributes which were mentioned in the questionnaire were, for example, *beautiful - ugly* or *interesting - uninteresting.* Furthermore, there were four statements presented to the respondents. These statements were measured on a 5-point Likert Scale. One example of these statements was *When I look at the car/the bottle I think it is an exciting product*.

The next seven items dealt with the need to build up relationship with the product as one of the dependent variables. Participants had to rate on the items with a 5-point Likert scale. *This car/mineral water would make me feel very happy while* is an example of this construct.

The following thirteen items measured the dependent variable identification. Respondents were asked to indicate in which way the product fits their own personality. This construct should support the construct of the need to build up relationship. It should be examined whether people can identify with the displayed products and in

which way they can identify with them. Examples of attributes are *athletic*, *friendly* and *powerful*.

The final construct of the questionnaire dealt with the design of the product. The twelve items were an assortment of the study of Moon, Park and Kim (2014) and Kumar and Noble (2015). These design items can also predicate something over the participants' overall impression of the displayed products. It can be investigated whether respondents like the appearance of the product or whether they can impress others with such a product. Examples of items were *The aesthetic design of the product is advanced* or *My peers would be impressed with my design choice if they saw me using*.

Data-analysis. All analyses were conducted with SPSS, version 23. Firstly, factor analysis with principal axis factoring and varimax rotation was done to investigate variable relationships in the arranged constructs. Secondly, Cronbach's alphas of the constructs were calculated to measure the reliability of these constructs. Thirdly, bivariate correlations were calculated between the dependent variables of the study (emotions, impression, need to build up relationship, identification and design). Fourthly, multivariate analyses of variance (MANOVA) with post hoc test Bonferroni are calculated.

Results

Manipulation checks

There were two manipulation checks performed. On the one hand, it was analyzed whether there are significant differences between the manipulations of the cars and the bottles with mineral water. On the other hand, it was checked whether the stimulus material actually embodied the desired emotion. In total, thirteen items were used to measure the emotions (one item of the original fourteen was deleted to increase Cronbach's alpha of the scale).

For the first manipulation check ten items measured on a semantic differential were used. An independent samples *t* test was used to compare the two product types car and bottle. Levene's test was non-significant, assuming that there were equal variances. The ten items display only significant differences between the conditions (car and bottle) on the *impulsive-sensible* item (Table 3). The difference found between the conditions bottle (M = 3.62; SD = 1.13) and car (M = 3.26; SD = 1.11) on *impulsive-sensible* is as expected since automobiles are more impressive products than bottles. Moreover, a near significant difference between the product types is found on the *strained-relaxed* item (car M = 3.30; SD = 0.92; bottle M = 3.10; SD = 1.03).

Table 3
T-Tests of semantic differential items measuring emotions for product type

	t-Test						
						95% CI	
Items	t	df	p	Mean Diff	$SE_{mean\ diff}$	LL	UL
negative-positive	-1.16	276	.25	-0.15	0.12	-0.39	0.10
unhappy-happy	-0.53	276	.60	-0.06	0.11	-0.27	0.16
aggressive-friendly	1.40	276	.16	0.17	0.12	-0.07	0.40
sad-cheerful	-1.23	259	.22	-0.15	0.12	-0.39	0.09
arrogant-humble	0.54	276	.59	0.07	0.12	-0.17	0.30
shy-open	-0.95	276	.34	-0.10	0.11	-0.32	0.11
rude-polite	-1.19	276	.23	-0.13	0.11	-0.35	0.08
strained-relaxed	-1.83	276	.07	-0.21	0.12	-0.45	0.02
agitated-calm	1.09	276	.27	0.14	0.13	-0.11	0.39
impulsive-sensible	-2.68**	276	.01	-0.36	0.13	-0.63	-0.10

* $p < .05$ level. ** $p < .01$

For the second manipulation check, the same ten items measured on a semantic differential were used. A one-way ANOVA was used to check whether the stimulus

material actually measured the desired emotion (descriptives can be found in appendix A). There were significant main effects for the items *negative-positive* $F_{(4,273)} = 18.33$, $p < 0.01$, *unhappy-happy* $F_{(4,273)} = 19.71$, $p < 0.01$, *aggressive-friendly* $F_{(4,273)} = 3.79$, $p < 0.01$, *sad-cheerful* $F_{(4,273)} = 18.71$, $p < 0.01$, *arrogant-humble* $F_{(4,273)} = 3.34$, $p < 0.05$ and *strained-relaxed* $F_{(4,273)} = 3.76$, $p < 0.01$.

The facial expression sadness scored significantly lowest on the item *negative-positive* and on the item *unhappy-happy* indicating that this facial expression actually is perceived as looking sad. Moreover, the facial expression sadness scored significantly lowest on the item s*ad-cheerful*.

The facial expression anger scores lowest on the item *aggressive-friendly* indicating that the angry stimulus material is perceived as desired by the researcher.

The facial expression joy and combination score significantly highest on the items *negative-positive* and *unhappy-happy*. There is no significant difference between the two facial expressions. However, the facial expression combination (anger + joy) scores most negative on the item *arrogant-humble* indicating that there are also angry elements perceived in this facial expression.

Scale refinement

Factor analysis. To investigate the underlying structure of the constructs of the questionnaire, the constructs were subjected to principal axis factoring with varimax rotation. The items measuring the dependent variables overall impression and design were subjected to the factor analysis (scree plots can be found in appendix A).

Three underlying factors were found for the fourteen-item scale measuring the ***overall impression*** of the product. In total, these factors accounted for around 76% of the variance in the questionnaire data. Factor 1 was called *potency* and consists of six items (4, 5, 8, 9, 10, 11). Factor 2 was called *value* and consists of five items (1, 2, 3, 6, 7). Factor 3 was called *desire* and consists of three items (12, 13, 14). An overview of the results of the factor analysis for the dependent variable overall impression can be found in Table 4.

Table 4
Varimax rotation factor structure of the fourteen items of the *overall impression* construct

		Factor Loadings		
		1	2	3
1.	Beautiful-ugly		.62	
2.	Good-bad		.79	
3.	Pleasant-unpleasant		.86	
4.	Strong-weak	.72		
5.	Attractive-unattractive	.59		
6.	Lively-lifeless		.48	
7.	Positive-negative		.77	
8.	Impressive-unimpressive	.86		
9.	Interesting-uninteresting	.75		
10.	Modern-out of fashion	.80		
11.	When I look at the car/the bottle I think it is an exciting product.	.63		
12.	When I look at the car/the bottle, I want to drive/drink it.			.79
13.	When I look at the car/the bottle, I find it appealing.			.69
14.	When I look at the car/the bottle, I like it.			.68

Three factors were identified as underlying the twelve questionnaire items for the construct ***design***. In total, these factors accounted for around 70% of the variance in the questionnaire data. Factor 1 was called *social function* and consists of six items (1, 2, 9, 10, 11 12). The items of this factor measure whether a product increases a person's reputation in his/her social environment and also whether a product has a sort of social appearance. Factor 2 was called *user-friendliness* and it describes if a product can be easily used by anyone. This factor consists of four items (5, 6, 7, 8) . Finally, factor 3 was called *uniqueness* so whether the appearance of the product is exceptional. Factor 3 consists of 2 items (3, 4). An overview of these results is illustrated in Table 5.

Table 5
Varimax rotation factor structure of the twelve items of the *design* construct

		Factor Loadings		
		1	2	3
1.	The product is very stylish.	.73		
2.	The aesthetic design of the product is advanced.	.73		
3.	The aesthetics of the product are exceptional.			.91
4.	The appearance of the product is exceptional.			.81
5.	The product design is comfortable for anyone to use.		.85	
6.	The product design is intuitive for consumers to use.		.81	
7.	The product is designed to be user-friendly.		.81	
8.	The product is designed to accommodate user abilities.		.51	
9.	My peers would be impressed with my design choice if they saw me using.	.84		
10.	If others saw me using this product, the design of the product will help increase.	.83		
11.	By using this design, I will make a good impression on others.	.83		
12.	This design of this product can help increase my stature in society.	.84		

Reliability tests. To test the scales' reliability, the scales' internal consistency was calculated. Internal consistency refers to the degree to which items of a scale measure the same construct. The most common method to measure internal consistency is Cronbach's alpha (Pallant, 2010). Cronbach's alpha was calculated for the constructs emotions, overall impression (with three underlying dimensions), need to build relationship, identification and design (with three underlying factors). For further analyses some scales were refined. Firstly, the scale of need to build relationship (CPR) was reduced from seven items to four items. Some items needed to be deleted to increase Cronbach's alpha. Only the last four items were used for analyses (see appendix C for complete scale). Secondly, the scale measuring identification was refined. From the original thirteen items only the first three items will be used for further analyses (see appendix C for complete questionnaire). This action also increased Cronbach's alpha.

Table 6
Cronbach's alpha's of the constructs of the present study

Construct	Sub dimensions	N	Cronbach's alpha
Overall Impression		14	.95
	Potency	6	.91
	Value	5	.89
	Desire	3	.91
CPR		4	.89
Identification		3	.93
Design		12	.83
	Social Function	6	.90
	User Friendliness	4	.75
	Uniqueness	2	.87

Correlations

To assess the size and direction of the relationships between the key dependent variables of the present study (potency, value, desire, need to build up relationship (CPR), identification, social function, user friendliness and uniqueness), bivariate Pearson's correlation coefficients (r) were calculated. Table 7 provides an overview of the correlations among the dependent variables of the present study. The correlations are relatively high. The correlation between potency and desire is highest at 0.79, followed by the correlations between potency and value, potency and desire and potency and social function at 0.72 and 0.70, respectively. The correlation between user friendliness and uniqueness is lowest at 0.12 followed by the correlation between social function and user friendliness at 0.17. To interpret the stronger correlations in the correlation matrix, one can say that if someone's potency (impression) of a product is

positive, desire (impression), value (impression) and social function are high as well. Moreover, it catches attention that the three factors of the variable *overall impression* (potency, value and desire) are strongly correlating which is indicating that the three factors of this variable are strongly relating to each other. In contrast to that, the three factors of the variable d*esign* (social function, user-friendliness and uniqueness) only correlate weakly to moderately which is indicating that the three factors are not strongly relating to each other. The factors of these variables seem to measure different effects.

Table 7
Correlation matrix between the dependent variables

	Correlations						
Variables	1.	2.	3.	4.	5.	6.	7.
1. Potency							
2. Value	.72**						
3. Desire	.72**	.79**					
4. CPR	.54**	.59**	.62**				
5. Identification	.57**	.64**	.68**	.58**			
6. Social Function	.70**	.62**	.64**	.61**	.55**		
7. User Friendliness	.20**	.40**	.35**	.35**	.32**	.17*	
8. Uniqueness	.35**	.15*	.22**	.33**	.29**	.36**	.12*

* p < .05 level, ** p < .01 level.

MANOVA

A multivariate analysis of variance (MANOVA) was used to examine the effects of anthropomorphism with two different product types (IV) and four different facial expressions (IV) on overall impression (potency, value, desire), need to build up relationship, identification and design (social function, user-friendliness, uniqueness) (*N* = 278). Before conducting the MANOVA, the data was examined using SPSS to ensure all underlying assumptions were met. Skewness and kurtosis were used to assess the normality assumption of the dependent variables. Due to the robustness of the MANOVA procedure a range of -2 to +2 of Skewness and kurtosis seems acceptable. Skewness and kurtosis were found to fall into this range by running from -0.89 up to 0.70 and -0.82 up to 1.87, respectively. Table 8 provides an overview of the results of the multivariate F-tests and between subject effects.

Table 8
Multivariate analysis of variance main effects and interaction effects on the eight dependent variables

Multivariate F-Tests			Between subject effects		
	F	p		F	p
A. Facial Expressions	4.34	.000			
			Potency	6.55	.000
			Value	13.67	.000
			Desire	8.05	.000
			CPR	2.88	.023
			Identification	7.04	.000
			Social function	2.98	.020
			User-friendliness	6.61	.000
			Uniqueness	6.27	.000
B. Product Type	14.32	.000			
			Potency	11.95	.001
			Value	3.02	.083
			Desire	0.00	.968
			CPR	0.23	.635
			Identification	0.25	.619
			Social function	27.90	.000
			User-friendliness	23.78	.000
			Uniqueness	1.48	.226
A x B. Interaction	3.02	.000			
			Potency	5.51	.000
			Value	5.67	.000
			Desire	4.66	.001
			CPR	1.90	.110
			Identification	2.61	.036
			Social function	4.55	.001
			User-friendliness	2.77	.028
			Uniqueness	3.19	.014

Main effect A. Multivariate analysis shows a statistically significant main effect for the independent variable ***facial expression*** (W's $\lambda = .61$; $F_{(32; 964)} = 4.34$; $p < .05$). Between subjects effects analyses show that there are statistically significant differences between the facial expressions for all dependent variables.

Table 9
Overview means and standard error for main effect A

	Facial expression	*Mean*	*SE*
Potency	Anger	2.67	0.12
	Joy	2.41	0.11
	Combination	3.10	0.12
	Sadness	2.42	0.12
	Control	2.41	0.12
Value	Anger	2.77	0.11
	Joy	3.10	0.10
	Combination	3.33	0.11
	Sadness	2.28	0.11
	Control	2.80	0.11
Desire	Anger	2.71	0.14
	Joy	2.68	0.12
	Combination	3.21	0.13
	Sadness	2.18	0.13
	Control	2.50	0.13
CPR	Anger	2.49	0.13
	Joy	2.55	0.12
	Combination	2.85	0.13
	Sadness	2.23	0.13
	Control	2.50	0.13
Identification	Anger	1.97	0.13
	Joy	2.05	0.12
	Combination	2.55	0.13
	Sadness	1.63	0.12
	Control	2.00	0.12
Social function	Anger	2.27	0.11
	Joy	2.20	0.10
	Combination	2.53	0.11
	Sadness	2.01	0.11
	Control	2.24	0.11
User-friendliness	Anger	3.34	0.09
	Joy	3.52	0.09
	Combination	3.70	0.09
	Sadness	3.09	0.09
	Control	3.55	0.09
Uniqueness	Anger	2.38	0.14
	Joy	2.12	0.13
	Combination	2.55	0.14
	Sadness	2.93	0.14
	Control	2.08	0.14

Table 9 provides an overview of the means and standard errors for main effect A. We found that for all dependent variables, except for *uniqueness*, the facial expression combination of anger and joy scores highest. Further, we found that for all dependent

variables, again except for uniqueness, the facial expression sadness scores lowest. In contrast to that, for the dependent variable *uniqueness*, the facial expression sadness scores highest (*M* = 2.93, *SE* = 0.14) followed by the facial expression combination. For this dependent variable the control condition scores lowest (*M* = 2.08, *SE* = 0.14), followed by the facial expression joy (*M* = 2.12, *SE* = 0.13).

Main effect B. Furthermore, there is a statistically significant main effect for the independent variable ***product type*** (W's $\lambda = 0.70$; $F_{(8; 261)} = 14.32$; $p < .05$). Between subjects effects analyses show that for the dependent variables *potency, social function* and *user-friendliness* there is a statistically significant difference between the product types.

Table 10
Overview means and standard error for main effect B

	Product type	*Mean*	*SE*
Potency	Car	2.78	0.07
	Bottle	2.42	0.07
Value	Car	2.94	0.07
	Bottle	2.77	0.07
Desire	Car	2.65	0.08
	Bottle	2.66	0.08
CPR	Car	2.55	0.08
	Bottle	2.50	0.08
Identification	Car	2.01	0.08
	Bottle	2.07	0.08
Social function	Car	2.50	0.07
	Bottle	2.00	0.07
User-friendliness	Car	3.24	0.06
	Bottle	3.64	0.06
Uniqueness	Car	2.34	0.09
	Bottle	2.49	0.09

Table 10 provides an overview of the means and standard errors for main effect B. We found a significant difference between the two product types for the dependent variable *potency.* We found higher potency for product type cars (*M* = 2.78, *SD* = 0.07) than for product type bottle with mineral water (*M* = 2.42, *SD* = 0.07). Further, significant differences between the product types were found for the dependent variable *social function*. Cars (*M* = 2.50, *SD* = 0.07) show significantly higher effects on social function than bottles with mineral water (*M* = 2.00, *SD* = 0.07). Finally, we found statistically significant differences between cars and bottles for the dependent variable *uniqueness*. Bottles (*M* = 2.49, *SD* = 0.09) show significant higher effects on uniqueness than cars (*M* = 2.34, *SD* = 0.09). In H_1 we state that anthropomorphism shows a more

positive effect for FMCG on overall impression. The results show that for *potency* and *value* cars score higher than bottles with mineral water. Further, we state in H_1 that the need to build up a relationship with an anthropomorphized consumer durable is higher than with an anthropomorphized FMCG. There were no significant effects found that would support this hypothesis. Moreover, in $H_{2,}$ it was stated that anthropomorphizing a consumer durable shows higher effects on identification than anthropomorphizing a FMCG. Here we did not found any significant effects that would support or reject this hypothesis.

Interaction effects. Multivariate analysis shows a statistically significant interaction effect for ***facial expression * product type*** (W's $\lambda = 0.70$; $F_{(32;\ 964)} = 3.02$; $p < .05$). Between subjects effects analyses show that for all dependent variables, except for need to build up relationship (CPR), there is a statistically significant difference depending on the facial expressions and depending on the product type. In the following sections, the interaction effects will be discussed per variable illustrated by line charts.

For the dependent variable ***potency*** (impression) (Figure 4), it is notable that the angry car scores considerably higher than the angry bottle as stated in H_{3a}. The facial expression combination scores for both product types high. For bottles with mineral water, the facial expression combination scores highest on potency (overall impression) as stated in H_{5a}. Also in H_{5a}, we stated that combination has highest effects on overall impression for consumer durables. However, for potency, we found that the facial expression anger scores a little higher for cars. For cars, the facial expression joy scores lowest on potency while for bottles, the facial expression anger and the control condition score lowest on the dependent variable potency. We found that the facial expression joy scores higher for bottles with mineral water than for cars as stated in H_{3b}. The facial expression sadness seems to have similar (small) effects for both product types. The most important conclusion from this line graph is, that the facial expression anger seems to be highly preferable for cars (consumer durables) but not for bottles (FMCG) as stated in H_{3a}. Thus, FMCG should not obtain the facial expression anger, unless it is combined with smiling design elements (facial expression combination). The results found for this dependent variable will be interpreted later on in the discussion paragraph.

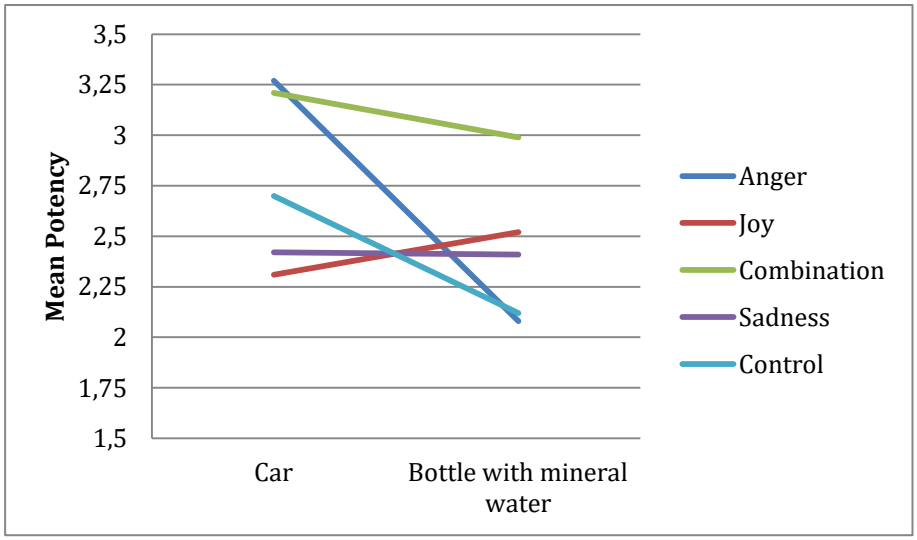


***Figure 4*. Effects of product type and facial expression on dependent variable potency (impression).**

For the dependent variable ***value*** (impression) (Figure 5), the facial expression anger scores considerably higher for cars than for bottles as it was stated in H_{3a}. Furthermore, it should be mentioned that the bottle with the facial expression joy scores higher than the car with the facial expression joy, as stated in H_{3b}. The facial expression combination scores for both product types highest as it was stated in H_{5a}. Nevertheless, for cars the facial expression anger shows almost as high effects as combination does. The facial expression sadness scores for both product types almost equally low. Furthermore, the control condition shows for both product types moderate effects. Again, it is evident that the facial expression anger is obviously not suitable for bottles with mineral water (FMCG) when it comes to overall impression unless it is combined with smiling design elements such as in the facial expression combination. Interpretations for these findings will be given in the discussion section.

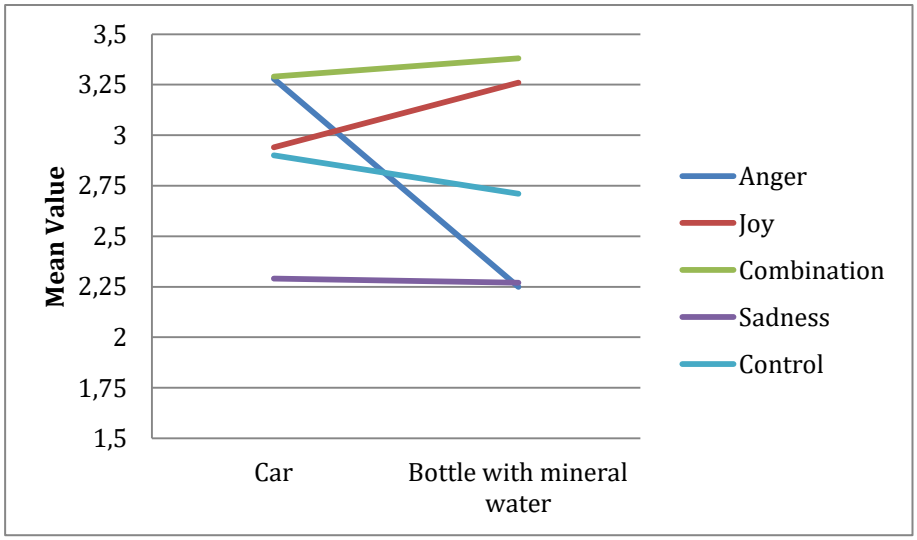


***Figure 5*. Effects of product type and facial expressions on dependent variable value (impression).**

For the dependent variable ***desire*** (impression) (Figure 6), the findings are comparable with the findings of the dependent variable *value*. The angry car scores noticeably higher than the angry bottle on this variable (H_{3a}). Furthermore, the facial expression joy scores higher for bottles than for cars (H_{3b}). The facial expression combination scores for both types high although the facial expression anger shows even higher effects for cars than the facial expression combination. The facial expression sadness scores in both categories equally low.

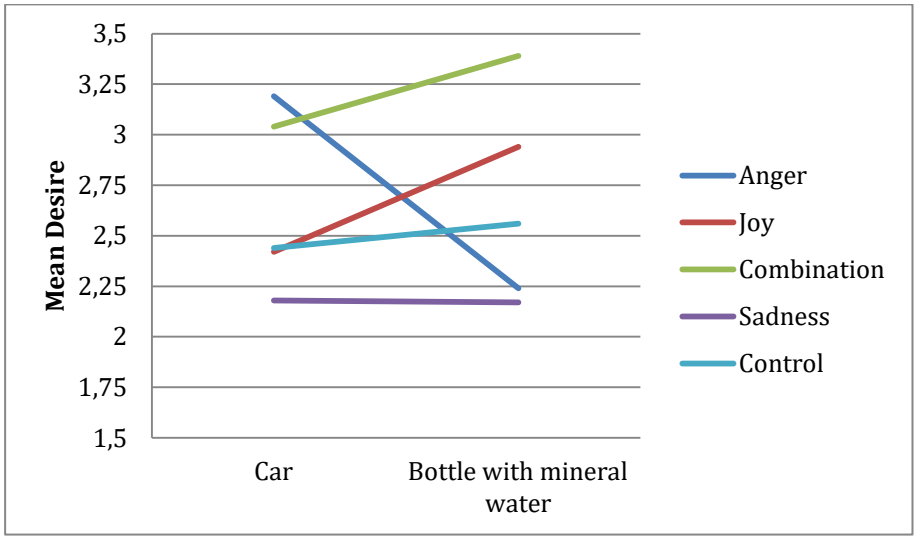


***Figure 6.* Effects of product type and facial expressions on dependent variable desire (impression).**

For the dependent variable ***need to build up relationship*** (CPR) (Figure 7) no significant interaction effect was found (p = .11). Nevertheless, the line chart will be discussed to examine whether these findings would support the other findings of the

present study and the hypotheses given in the theoretical framework. Angry cars, again, score noticeably higher than angry bottles on the need to build up relationship scale (H_{4a}). Furthermore, bottles with the facial expression joy score higher than cars with this facial expression (H_{4b}). The facial expression combination scores for both product types highest on this dependent variable as it was stated in H_{5b}. The facial expression sadness shows higher values for cars than for bottles which was assumed before data analyses in H_6.

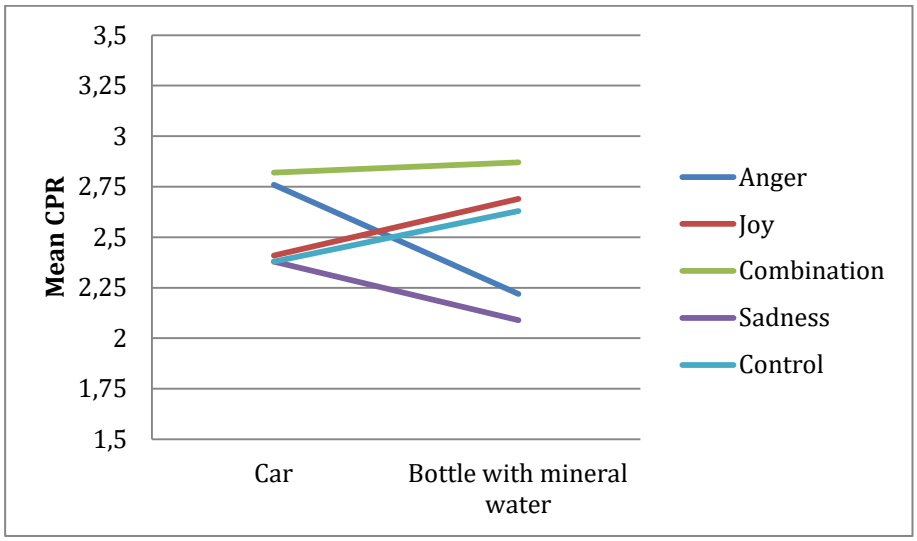


***Figure 7*. Effects of product type and facial expressions on dependent variable need to build up relationship (CPR).**

To gain more insights into the results of the dependent variable ***need to build up relationship***, the analysis was repeated without the facial expression combination and the control condition (Figure 8). Also in this case, there were no significant differences found between the facial expressions anger, joy and sadness ($F_{(2)} = 2.72$; $p = .069$). However, we found for bottles with mineral water that the facial expression joy scores higher for bottles than for cars as it was stated in H_{4b}. Furthermore, we found that the facial expression anger scores high on the need to build up a relationship for cars but not for bottles as we stated in H_{4a}. Interestingly, also the facial expression sadness seems to score higher for cars than for bottles as it was stated in H_6.

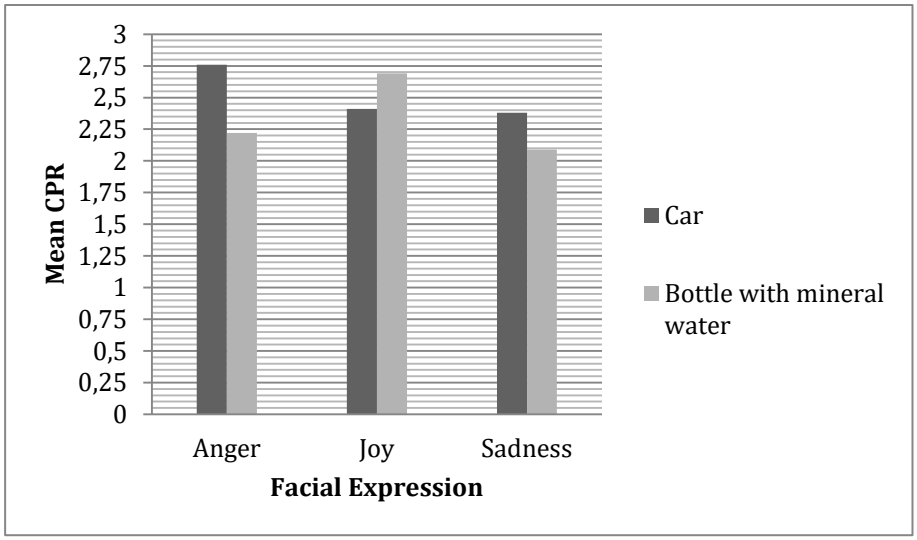


Figure 8. **Effects of product type and facial expressions anger, joy and sadness on dependent variable need to build up relationship (CPR).**

For the dependent variable ***identification*** (Figure 9) we did not find significant differences between the two product types. Analyzing the interaction effect for this dependent variable, we found significant differences. The facial expression combination scores for both product types highest while the facial expression sadness scores for both product types lowest. For cars, anger also scores relatively high while joy scores relatively low. In contrast to that, bottles score high with the facial expression joy but not with anger. The lines of anger and joy form a cross which indicates that there are contrary effects found for cars and bottles with these facial expressions. Moreover, the control condition is located right in the centre of this cross. Figure 9 illustrates that the participants of the present study experience high identification with products with the facial expression combination of anger and joy. In addition to that, figure 9 demonstrates clearly that there are considerable differences between the facial expressions anger and joy when it comes to the type of product. The results will be interpreted later in the discussion paragraph.

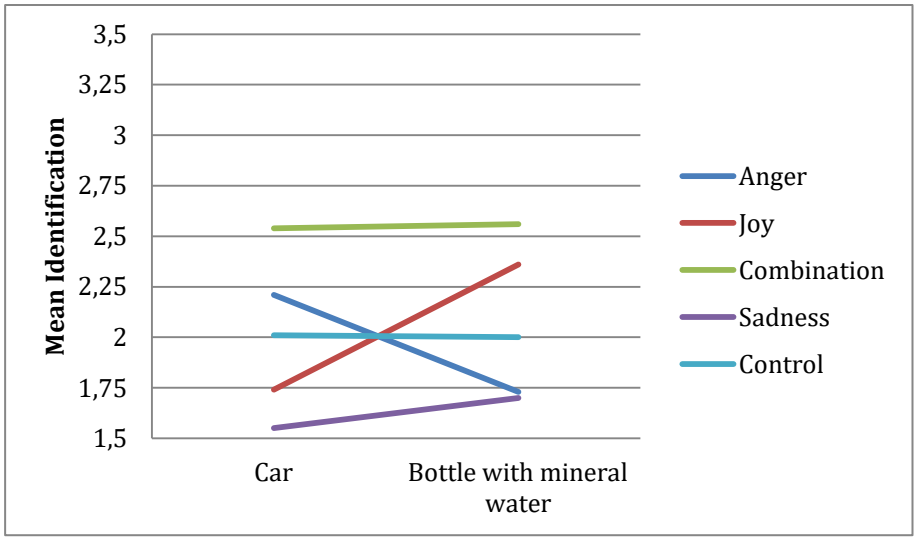


***Figure 9*. Effects of product type and facial expressions on dependent variable identification.**

For the dependent variable ***social function*** (design) (Figure 10), the facial expression anger scores highest for cars while the facial expression combination scores highest for bottles. For bottles, the facial expression anger scores lowest and for cars the facial expression sadness scores lowest. For the first time, the facial expression joy scores slightly higher for cars than for bottles. All facial expressions score higher for cars than for bottles which raises most attention in figure 10. This finding may indicate that consumer durables, in general, have a higher social function in society than FMCG. Interpretations will be given later on in the discussion paragraph.

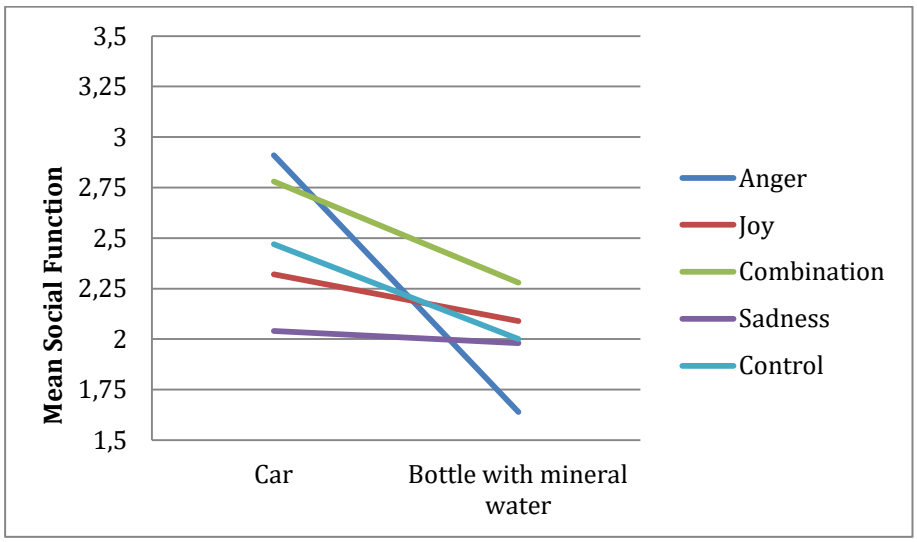


***Figure 10*. Effects of product type and facial expressions on dependent variable social function (design).**

In contrast to social function, we find for the dependent variable ***user-friendliness*** (design) (Figure 11), that FMCG seem to have more positive influence on

user-friendliness than consumer durables. All of the five facial expressions score considerably higher for bottles than for cars, even the facial expression anger scores higher for bottles, for the first time. Still, the facial expression sad scores lowest in both product categories. Moreover, the facial expression combination scores considerably higher for bottles than all the other facial expressions. For product type cars, the facial expressions do not differ very much. These findings may indicate that FMCG are more user-friendly than cars, which is admittedly a logical finding of the present study.

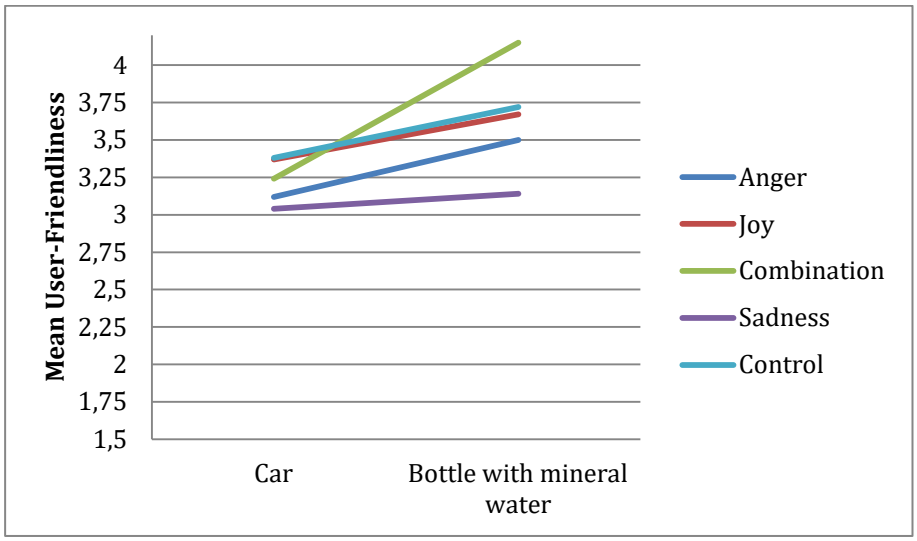


Figure 11. **Effects of product type and facial expressions on dependent variable user-friendliness (design).**

For the dependent variable ***uniqueness*** (design) (Figure 12), again some interesting results were found. In this case, it was found that the facial expression sadness scores noticeably higher on uniqueness than on all other dependent variables of the present study. Moreover, it is striking that all facial expressions seem to score higher for bottles except for sadness. Sadness, however, scores considerably higher for cars than for bottles. In addition to that, it should be mentioned that sadness scores highest for cars while all other facial expressions score relatively low. For bottles, the facial expression combination scores highest and joy lowest. The findings may indicate that an automobile with the facial expression sadness is very unique. Moreover, the results for the dependent variable uniqueness may indicate that, in general, anthropomorphized design elements are more unique for bottles than for cars. It may be an indicator that cars lend themselves more for the technique of anthropomorphism than bottles. Detailed interpretations of the findings will be given in the discussion paragraph.

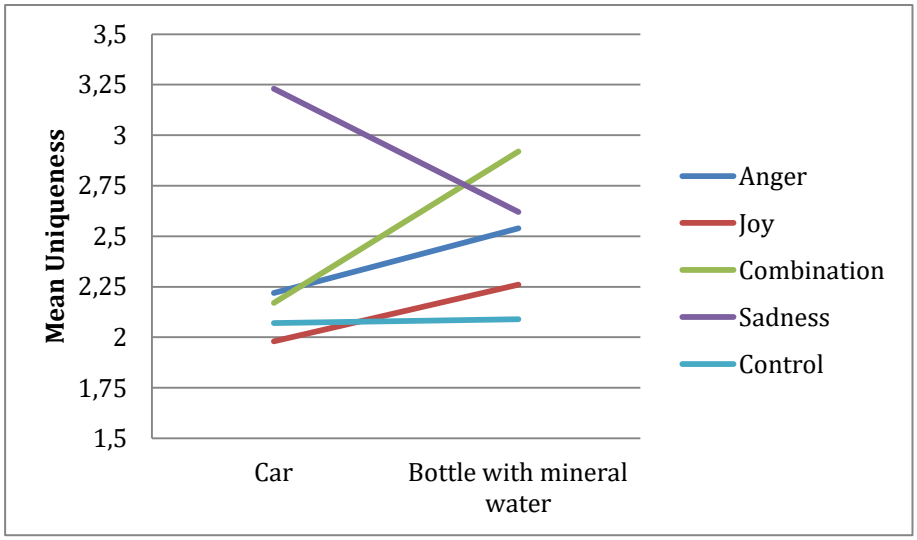


***Figure 12*. Effects of product type and facial expressions on dependent variable uniqueness (design).**

Conclusions and Discussion

People frequently see human attributes in products and marketers sometimes design facial expressions on their products to create a brand/product personality and to increase consumer-brand/product relationships. The present study examined the effect of anthropomorphism on cars as consumer durable as well as on bottles with mineral water as fast moving consumer good. Cars, for instance, may easily be perceived as having a face because of the headlights and the grille which can be interpreted as parts of a face. Bottles do not have those practical components. However, the label on the bottle was manipulated in the present study so that consumers could perceive a face on the bottles as well as on the cars. Prior research has investigated that anthropomorphism draws attention, triggers emotions, and affects liking a product (Fournier, 1998; Landwehr, McGill, & Herrmann, 2011). However, product designers currently cannot base their design choices on research. There is only a little guidance which design features are preferred by consumer for particular product types. The present study aims to fill this gap and explores consumer durables and FMCG regarding to which facial expressions are suitable for which product type. We obtained several interesting insights with theoretical and practical implications through this study.

First of all, the study investigated that the overall impression as well as the need to build up a relationship with an anthropomorphized product do not depend on the product type alone, but in fact on the 'facial' expression the product exhibits. In the first hypothesis of the study, we stated that the appreciation (overall impression) of an anthropomorphized FMCG is higher than the appreciation (overall impression) of a consumer durable. This hypothesis cannot be supported by the findings of the present study. Even on the contrary, we found that cars (consumer durables) show a more positive overall impression than bottles with mineral water (FMCG) on one of the underlying dimensions of the dependent variable *overall impression*, namely *potency*. Thus, anthropomorphism may have more positive effects when applying this technique on consumer durables. This should be investigated in more detail in future research. In the second part of the first hypothesis we stated that the need to build up a relationship with an anthropomorphized consumer durable will be higher than the need to build up a relationship with a FMCG. This cannot be significantly supported by the findings of the present study. In addition to that, hypothesis two of the present study cannot be significantly supported by the present findings. We did not find that anthropomorphized

consumer durables have a stronger effect on identification than anthropomorphized FMCG. Those findings should be addressed in future research to gain more explicit insights in this field of research.

Second, several interesting findings regarding the different facial expressions and their effects on *overall impression* and *need to build up a relationship* will be discussed. When looking at the results of the present study, the most obvious finding is that the facial expression anger seems to work very well for automobiles when it comes to appreciation of a product. It seems that angled and sharp forms indeed convey positive attitudes about an automobile. One explanation for this finding may be that automobiles should embody attributes like power, speed, and dynamics (Belk, 2004) and these attributes are, for instance, visualized by angled forms, like for example angry facial features. For consumer durables, especially for automobiles, we conclude that sharp and angled forms (angry faces) are preferred by consumers because they convey an impression of power and speed which seems to be important attributes for an automobile. Moreover, these forms are to some extent more impressive and are more suitable for social competitions. However, when designing FMCG, especially bottles with mineral water, product designers should not make use of the facial expression anger. Like we stated in the theoretical framework, consumers seem to appreciate friendly design elements (facial expression joy and combination) when it comes to the overall impression of a FMCG. This also supports prior research which found that curved forms are preferred by consumers because these forms convey warmth (Bar & Neta, 2006). The facial expression anger, on the contrary, shows very negative effects for bottles with mineral water. This result of the present study is congruent to the findings of Bar and Neta (2006). Sharp forms seem to be perceived as some kind of threat by consumers which is why the appreciation of bottles with mineral water as an emotionally neutral product decreases. We conclude that consumers want to a experience joy while using an everyday-product like bottles of mineral water and therefore they prefer curved forms (smiling faces) when it comes to FMCG. In summary, it is striking that there seem to be significant differences between the two product types regarding to the most suitable facial expression when it comes to appreciation. This may be connected to the different functions of the two product types. Automobiles should embody power and speed which can be illustrated by sharp forms while bottles with mineral water should simply fulfil their task and provide a pleasant feeling which is illustrated by more curved forms.

Moreover, the current study supports the findings of Landwehr et al. (2011) regarding to the combination of the facial expressions anger and joy. Landwehr et al. (2011) found that a mix of facial expressions is preferred by consumers when it comes to automobile design and mobile phone design. In the present study, we examined that such an combination of facial expressions has also a positive effect on the appreciation of FMCG, like bottles with mineral water. The facial expression combination scored constantly high on the dependent variables *overall impression* (with its three underlying dimensions) and on *identification.* Additionally, we also found automobiles to be evaluated positively when their design contains slanted (sharp formed) headlights and an upturned (curved) grille. Landwehr et al. (2011) explain the preference for a combination of facial expressions by a high level of pleasure and arousal. Consumers experience the mix of emotions as enjoyable and thus, they appreciate these kind of products. In any case, it should be investigated in future research why consumers prefer a mix of emotions when it comes to anthropomorphized product design. Furthermore, it should be investigated whether the positive effects of a mix of emotions can be generalized to other products that are not that much associated with the face-metaphor.

The findings for overall impression may also count for the need to build up relationships with products, however, the differences between the four facial expressions were not found to be statistically significant. Thus, we are only assuming that the tendencies found in the results could be generalized to this variable. In this case, future research should examine the effects of anthropomorphizing different product types on the need to build up a relationship with a product. Nevertheless, significant differences were found for the identification with a product. For both product types, people seem to prefer a combination of angry and friendly design elements. So, people identify with a product when it has a little bit of both, an expression of anger and joy. Furthermore, for the dependent variables *potency, value, desire, identification*, (and *need to build up relationship*) the facial expression anger was found to be rated positively for consumer durables while the facial expression joy was found to be rated positively for FMCG. Finally, it should be mentioned that the facial expression sadness may have influence on the need to build up a relationship with consumer durables, for instance automobiles. However, this effect was also not found to be statistically significant in the present study. So, this should also be further investigated in future research.

Third, some insights were examined while looking at the additional variable *design* which need to be mentioned. As seen by the results of main effect B, automobiles seem to have a larger social function than bottles with mineral water. Additionally, bottles seem to be more user-friendly than automobiles. These findings may be logical. However, these findings support the general assumptions people have of the two product types: automobiles are often seen as some sort of status symbol and have some kind of impact on the owner's environment (Belk, 2004) while bottles with mineral water are easy to "use" for nearly anybody. Furthermore, it is interesting that, in this case, the different facial expressions do not play such an urgent role. There was found a clear tendency that cars have a larger social function than bottles and, in contrast to that, bottles are more user-friendly than cars.

Finally, there may be an interesting conclusion regarding to the design-variable *uniqueness*. The findings on this variable show the tendency that bottles with mineral water score higher on *uniqueness* than automobiles, except for the facial expression sadness, which was found to be highly unique in automobile design. Thus, the first and more obvious conclusion might be that a sad facial expression is very unique and extraordinary. Consumers are not used to automobiles as well as bottles with such a design. The second conclusion we took of this variable is that, in general, cars are more suitable for the technique of anthropomorphism than bottles. Certainly, we assumed this before conducting the present study and also prior literature suggested this. Nevertheless, it is a conclusion that should be taken from the present findings. Moreover, one might conclude that cars are perceived more easily as having a face because of their practical components. People do not expect a face on a bottle with mineral water because they are often not familiar with this metaphor.

Summarizing the findings of the present study, we may conclude that anthropomorphism can work for both product categories. Consumers seem to like products when they contain humanlike design elements presupposing the facial expression of the product is applied properly. Not any facial expression fits any product. The present study investigated that automobiles should contain angry design elements and bottles with mineral water should contain friendly design elements to be evaluated positively. We may conclude that consumer durables often are experienced as status symbol (Belk, 2004). So, with consumer durables, it is more important to consumers

that their environment is attracted by the product they own. The consumer durable has a sort of social function. Perhaps, an angry-looking car (including the facial expression combination) may provide a higher social function. Additionally, curved forms may have negative effects on the appreciation of an automobile because they do not convey power, speed, dynamics, or even threat (Bar & Neta, 2006). With FMCG, it seems more important that it provides a good and pleasant feeling and that consumers are enjoying it. Consumers prefer joyful FMCGs because they are smiling at the consumer and they get happy while using the product.

Theoretical and managerial implications

The present study contributes to the understanding of the technique of anthropomorphism in product design of different product types. The study combines consumer durables and FMCG and examines the effects of anthropomorphism on overall impression and the need to build up a relationship. These specific effects have not been studied before which is why this study provides new insights in this field.

Theoretical implications. The findings of the present study are adding knowledge to the field of anthropomorphism and provide insights into new perspectives, namely anthropomorphizing different product types. It was examined, that there are facial expressions that are suitable for one product category but not for another. The present study provides several contributions to existing literature. First of all, the study reveals that there are, indeed, differences between product types when it comes to anthropomorphism, especially with different emotional expressions. Automobiles are evaluated positively when containing angry design elements while bottles with mineral water are evaluated positively when containing friendly design elements. Thus, anthropomorphism can have positive influence on the overall impression of a product. Additionally, the present research shows that automobiles are preferred by consumers when their design contains sharp and angled forms (facial expressions anger) although Bar and Neta (2006) have stated that normally curved forms are preferred by consumers.

However, it is significant that the emotional expression fits the product category. Disregarding the fact that some facial expressions are not suitable for a particular product type may evoke negative effects on, for instance, the overall impression of a product. An automobile with curved shapes and forms may not convey an impression of

power and speed. Moreover, the study investigated the tendency that the emotional expression sadness may have an influence on building up relationships with consumer durables.

Managerial implications. Marketers often tend to anthropomorphize their products because of the general belief that anthropomorphizing products leads to a more appealing appearance (Aggarwal & McGill, 2007). However, scientific research on this topic often showed conflicting results. There are, on the one hand, studies which find a friendly facial expression to be preferred by consumers (Aggarwal & McGill, 2007) and on the other hand, studies which find an angry facial expression to be preferred (Windhager, et al., 2010). These conflicting findings can be reconciled by the results of the present study. There are products which are preferred when they have smiling design elements and other products which are preferred when they have angry design elements. Additionally, the present study provides several implications and guidelines for marketing managers and product designers tasked with designing products (FMCG and consumer durables) which are evaluated positively by consumers. Thus, the findings reported in this study suggest design-guidelines for marketers which facial expressions are suitable for which type of product. The present findings are first guidelines for product designers which emotions are congruent with which product. We assume that sharp and angled forms (angry facial expressions) are beneficial for products with characteristics like speed, dynamics and power. Those design elements could, for example, be suitable for motor cycles. Curved forms, like in the facial expression joy, could be suitable for even more product categories. Along with the findings of Bar and Neta in 2006, we find curved and round forms to be preferable with a emotionally neutral product. This can be applied to a wide range of other products, especially products that are used in everyday-life, like for example, drugstore products, foods, and drinks. These products have a relatively neutral valance. People mostly want to enjoy the use of these products and they are not looking for tensions or threat (like with some consumer durables). To summarize the aspects above, the positioning of the particular product seems to play a significant role when applying the technique of anthropomorphism. What place should be occupied by a product in the mind of the consumer relative to competing products? What are the desired attributes people should associate with the product? These should be important questions when designing a product with facial elements.

Limitations

As with any empirical study, this study has several limitations that need to be discussed. The first limitation addresses the stimulus material of the present study, especially the facial expression combination of anger and joy. This facial expression is probably perceived differently in the product categories. The upturned mouth on the label catches more attention than the slanted eyes. In contrast to that, the slanted headlights (eyes) of the automobile are very present in contrast to the downturned grille. In addition to this, the stimulus material was designed by the researcher himself and not by a professional designer. There may be some discrepancies because of this.

Additionally, a limitation of the present study was that the variable *need to build up relationship* showed no statistically significant differences between the product types and the facial expressions. Therefore, no explicit conclusions could be taken from this variables and some open questions could not be answered by the present study. There are only assumptions made and tendencies found regarding to this particular variable.

Furthermore, there is an limitation regarding to the choice of product. As seen by the results of the dependent variable *uniqueness* and by prior research cars may be more suitable for the technique of anthropomorphism than bottles. Bottles normally do not exhibit any buttons or components which can act as parts of the human face. We had to manipulate the label of the bottle and had to create a lettering which could be perceived as eyes and mouth. It may be that consumers rated differently on the bottles because they do not expect a sort of face on a bottle.

Moreover, there are limitations concerning the use of online questionnaires as instrument. When using this method, the researcher has no control over the participants. It cannot be monitored whether the participants were paying full attention to the questionnaire and whether they were concentrated. Additionally, the drop-out rate was very high. Many participants closed the questionnaire directly after opening it. This was also difficult to control by the researcher. A concern which is connected to the high drop-out rate is, that the sample size of the current study could be higher. Another limitation of the current study addressing the instrument is that the sample is not randomly drawn, since the majority of respondents are students from the personal environment of the researcher. So, it is questionable whether the results of the study can be generalized to other age groups than students (18-25 years).

Suggestions for future research

First of all, the current study should be repeated with a larger sample size and more differentiated age groups. By doing so, results of the study can be generalized more and the result would be more representative. This may also deliver more insights in the context of consumer-product-relationships since the findings of the present study were non-significant. Moreover, it could be interesting to conduct a similar study with a qualitative research method. This may deliver valuable insights to the precise thoughts respondents have over the facial expressions of products. The research could examine more in-depth insights in the field of anthropomorphism and product design of consumer durables and FMCG. The dependent variables *overall impression* (or appreciation), *need to build up relationship,* and *identification* should be investigated in more detail. Besides, more detailed information about the facial expression sadness could be examined. It may be an avenue to investigate the effects of the facial expression sadness on consumer durables. As found in the present study, it may be that consumers are influenced by an impression of sadness. It may be interesting to research cognitive processes which are linked to the technique of anthropomorphism, especially when it comes to this particular facial expression. In, for instance, focus groups participants could discuss their overall impressions of anthropomorphized consumer durables and FMCG.

Speaking of alternative research methods, it might be interesting to conduct a likewise study with a longitudinal research design. Since purchasing consumer durables is related to a high financial risk (Gu, Park, & Konana, 2012) it should be investigated whether the evaluation of anthropomorphized products changes over a longer period of time. Perhaps, consumer like automobiles with an expression of anger at first sight but not after being exposed to the product for two or more times.

In addition to that, it might be interesting if there are differences between different cultures. It may be an avenue to conduct research which is related to the present study with different cultural groups to examine whether people with different cultural backgrounds would estimate the facial expressions similarly to a German sample. For example, Landwehr et al. (2011) state that anger is cued by the shape of both, eyes and mouth while joy is mostly cued by the shape of the mouth. This effect is supposed to be depending on the cultural background of the consumer (Landwehr, McGill, & Herrmann,

2011; Yuki, Maddux, & Masuda, 2007). Asian people, for instance, may decode a facial expression more from the eyes and therefore, future findings on this field may differ from the present findings. This could deliver valuable instance for both theory and practice.

Finally, the acquired knowledge of the present study should be expanded to a wide range of products. The current study tests the effect of anthropomorphism for only two products, namely automobiles and bottles with mineral water. By conducting further research on this field it could be generalized which emotional shapes are congruent with particular products but not with others. For instance, the facial expression anger: are there any other products which will be appreciated by customers when their design contains angry elements or is this positive effect of angled and sharp forms limited to motorized products? Perhaps, the focus should not lay on the product category (consumer durable/FMCG, hedonic/utilitarian) but on the positioning of the product on the market: which attributes should people assign to a product? Should the product be associated with attributes like speed, threat, or power - or should the product convey warmth, familiarity, and joy? Another example, the combination of two facial expressions anger and joy: why do people prefer this mix of emotions? Do they like it because it contains a little bit of both, threat and joy? Even more important, are the positive effects of the mix applicable to any other product category or is this limited to the products which already have been researched? Obviously, there are many open and, interesting questions that need to be addressed in future research on the field of product design and marketing.

References

Aaker, J. L. (1997). Dimensions of Brand Personality. *Journal of Marketing, 34*, pp. 347-356.

Aaker, J. L., Fournier, S., & Brasel, A. (2004). When Good Brands Do Bad. *Journal of Consumer Research, 31*, pp. 1-16.

Aggarwal, P. (2004). The Effects of Brand Relationship Norms on Consumer Attitudes and Behavior. *Journal of Consumer Research, 31*, pp. 412-432.

Aggarwal, P., & McGill, A. L. (2007). Is that car smiling at me? Schema Congruity as a Basis for Evaluating Anthropomorphized Products. *Journal of Consumer Research, 34*, pp. 468-479.

Alfa Romeo. (2011). *YouTube.* Retrieved 01 09, 2016, from https://www.youtube.com/watch?v=vIjoNYLqobg

Audi. (2005). *YouTube.* Retrieved 05 20, 2015, from https://www.youtube.com/watch?v=9l-HAFm7TPo

Bar, M., & Neta, M. (2006). Humans Prefer Curved Visual Objects. *Psychological Science, 17*, pp. 645-648.

Belk, R. W. (2004). Man and Their Machines. *Advances in Consumer Research, 31*, pp. 273-278.

Brierley, S. (2002). *The advertising handbook By Sean Brierley.* Routledge.

Carroll, B. A., & Ahuvia, A. C. (2006). Some antecedents and outcomes of brand love. *Market Lett*(17), pp. 79-89.

Chandler, J., & Schwarz, N. (2010). Use Does Not Wear Ragged the Fabric of Friendship: Thinking of Objects as Alive Makes People Less Willing to Replace Them. *Journal of Consumer Psychology, 20*(2), pp. 138-145.

Chang, P., & Chieng, M. (2006). Building Consumer–Brand Relationship: A Cross-Cultural Experiential View. *Psychology & Marketing, 23*(11), pp. 927-959.

Cho, V. (2010). The Endorser's Persuasiveness on the Purchase Intention of High-Involvement Products: A Comparison Between a Newly Launched Product and a Mature One. *Journal of Global Marketing*(23), pp. 226-242.

Donavan, D. T., Janda, S., & Maxham, J. G. (2015). Identification and Aftermarket Personalization with Durables Goods. *Psychology and Marketing, 6*(32), pp. 611–623.

Ekman, P. (2003). Darwin, deception, and facial expression. *Annals of the New York Academy of Sciences, 1000*(1), pp. 205-221.

Ekman, P., & Friesen, W. V. (2003). *Unmasking the face: A guide to recognizing emotions from facial clues.* Los Altos: Malor Books.

Epley, N., Waytz, A., & Cacioppo, J. T. (2007). On Seeing Human: A Three-Factor Theory of Anthropomorphism. *Psychological Review*(114), pp. 864-886.

Fernandez-Villaverde, J., & Krueger, D. (2011). Consumption and saving over the Life-Cycle: How important are Consumer Durables. *Macroeconomic Dynamics*(15), pp. 725–770.

Fournier, S. (1998). Consumers and Their Brands: Developing Relationship Theory in Consumer Research. *Journal of Consumer Research, 24*, pp. 343-373.

Fredrickson. (2001). The role of positive emotions in positive psychology: The broaden-and-built theory of positive emotions. *Am Psychol., 56(3)*, pp. 218-226.

Freling, T. H., Crosno, J. L., & Henard, D. H. (2011). Brand personality appeal: conceptualization and empirical validation. *Journal of the Academy of Marketing Science*(3), pp. 392-406.

Frijda, N. H. (1986). *The Emotions.* London: Cambridge University Press.

Graham, S. A., & Poulin-Dubois, D. (1999). Infants' Reliance on Shape to Generalize Novel labels to Animate and Inanimate Objects. *Journal of Child Language, 26*(2), pp. 295-320.

Gu, B., Park, J., & Konana, P. (2012). Research Note—The Impact of External Word-of-Mouth Sources on Retailer Sales of High-Involvement Products. *Information Systems Research*(23), pp. 182–196.

Herm, S., & Möller, J. (2014). Brand Identification by Product Design: The Impact of Evaluation Mode and Familiarity. *Psychology & Marketing, 31*(12), pp. 1084–1095.

Hirschman, E., & Holbrook, M. (1982). Hedonic Consumption: Emerging Concepts, Methods and Propositions. *Journal of Marketing*(46), pp. 92-101.

Hosany, S., Prayag, G., Martin, D., & Lee, W. (2013). Theory and strategies of anthropomorphic brand characters from Peter Rabbit, Mickey Mouse, and Ronald McDonald, to Hello Kitty. *Journal of Marketing Management*(29), pp. 48–68.

Kaiser, W. (2007). Fast Moving Consumer Goods: Zwischen Artefakt und Consumer Insight. In *Qualitative Marktforschung in Theorie und Praxis* (pp. 583-593). Gabler.

Kim, S., & McGill, A. L. (2011). Gaming with Mr. Slot or Gaming the Slot Machine? Power, Anthropomorphism and Risk Perception. *Journal of Consumer Research*(38), pp. 94-107.

Kinder. (2011). *YouTube.* Retrieved 01 09, 2016, from https://www.youtube.com/watch?v=gzixagzunxQ

Kinder. (2012). *YouTube.* Retrieved 01 09, 2016, from https://www.youtube.com/watch?v=sPXObwKtfOY

Kumar, M., & Noble, C. H. (2015). Beyond form and function: Why do consumers value product design? *Journal of Business Research, 69*(2), pp. 613–620.

Landwehr, J. R., McGill, A. L., & Herrmann, A. (2011). It's Got the Look: The Effect of Friendly and Aggressive "Facial" Expressions on Product Liking and Sales. *Journal of Marketing, 75*, pp. 132-146.

Maarsman, M. L. (2011). When to present a product as a human? *A study into anthropomorphized "think" and "feel" products and their effects on consumer attitude and purchase intention*. Unpublished Master Thesis. Amsterdam.

Majumdar, R. (2004). *Product Management in India.* PHI Learning Pvt. Ltd.

Moon, H., Park, J., & Kim, S. (2014). Importance of an innovative product design on customer behavior. *Journal of Product Innovation Management*(32), pp. 224-232.

Moon, H., Park, J., & Kim, S. (2014). Importance of an innovative product design on customer behavior. *Journal of Product Innovation Management*(32), pp. 224-232.

Pallant, J. (2010). *SPSS Survival Manual (4th edition).* Maidenhead, Berkshire: Open University Press – McGraw-Hill.

Richins, M. L., & Bloch, P. H. (1991). Post-Purchase Product Satisfaction:Incorporating the Effects of Involvement and Time. *Journal of Business Research*(23), pp. 145-158.

Rossiter, J. R., Percy, L., & Donovan, R. J. (1991). A Better Advertising Planning Grod. *Journal of Advertising Research*(31), pp. 11-21.

Sheffrin, S. M. (2003). *Economics: Principles in action.* New Jersey: Upper Saddle River.

Ulrich, K. T. (2011). Design Is Everything? *Journal of Product Innovation Management*(28), pp. 394–398.

Valenzuela, A., & Hadi, R. (2010). Come Closer: Anthropomorphized Products as Intimate Companions. *Advances in Consumer Research*(38).

Windhager, S., Hutzler, F., Carbon, C. C., Oberzaucher, E., Schaefer, K., & Thorstensen, T. (2010). "Laying Eyes on Headlights: Eye Movement Suggest Facial Feautures in Cars. *Collegium Antropologicum, 34*(3), pp. 1075-1080.

Yuki, M., Maddux, W. W., & Masuda, T. (2007). Are the windows to the soul the same in the East and West? Cultural differences in using the eyes and mouth as cues to recognize emotions in Japan and the United States. *Journal of Experimental Social Psychology, 2*, pp. 303-311.

Zaichkowsky, J. L. (1987). The emotional Affect of Product Involvement. *Advances in Consumer Research*, pp. 32-35.

Appendix

A. SPSS Output
A.1 Pilot Study

Table 1
Results of the pilot study

Product	Item	N	Mean
Car anger	Positive - negative	10	3.60
	Happy - unhappy	10	4.00
	Peaceful - aggressive	10	4.80
	Cheerful - sad	10	4.50
	Interesting - uninteresting	10	3.30
Car combi	Positive - negative	10	2.70
	Happy - unhappy	10	3.00
	Peaceful - aggressive	10	3.50
	Cheerful - sad	10	3.10
	Interesting - uninteresting	10	2.60
Car control	Positive - negative	10	4.30
	Happy - unhappy	10	4.30
	Peaceful - aggressive	10	4.20
	Cheerful - sad	10	4.10
	Interesting - uninteresting	10	5.10
Car sadness	Positive - negative	10	6.00
	Happy - unhappy	10	5.90
	Peaceful - aggressive	10	3.80
	Cheerful - sad	10	6.30
	Interesting - uninteresting	10	6.30
Car joy	Positive - negative	10	2.70
	Happy - unhappy	10	3.00
	Peaceful - aggressive	10	2.20
	Cheerful - sad	10	3.10
	Interesting - uninteresting	10	3.90
Bottle anger	Positive - negative	10	5.90
	Happy - unhappy	10	6.00
	Peaceful - aggressive	10	5.00
	Cheerful - sad	10	5.90
	Interesting - uninteresting	10	5.70
Bottle combi	Positive - negative	10	2.00
	Happy - unhappy	10	2.30
	Peaceful - aggressive	10	2.80
	Cheerful - sad	10	2.10
	Interesting - uninteresting	10	2.30
Bottle control	Positive - negative	10	4.00
	Happy - unhappy	10	4.20
	Peaceful - aggressive	10	3.70
	Cheerful - sad	10	4.20
	Interesting - uninteresting	10	4.30
Bottle sadness	Positive - negative	10	6.10
	Happy - unhappy	10	6.30
	Peaceful - aggressive	10	4.30
	Cheerful - sad	10	6.40
	Interesting - uninteresting	10	5.70
Bottle joy	Positive - negative	10	2.10
	Happy - unhappy	10	2.20
	Peaceful - aggressive	10	2.70
	Cheerful - sad	10	1.80
	Interesting - uninteresting	10	3.50

A.2 Manipulation Check emotions

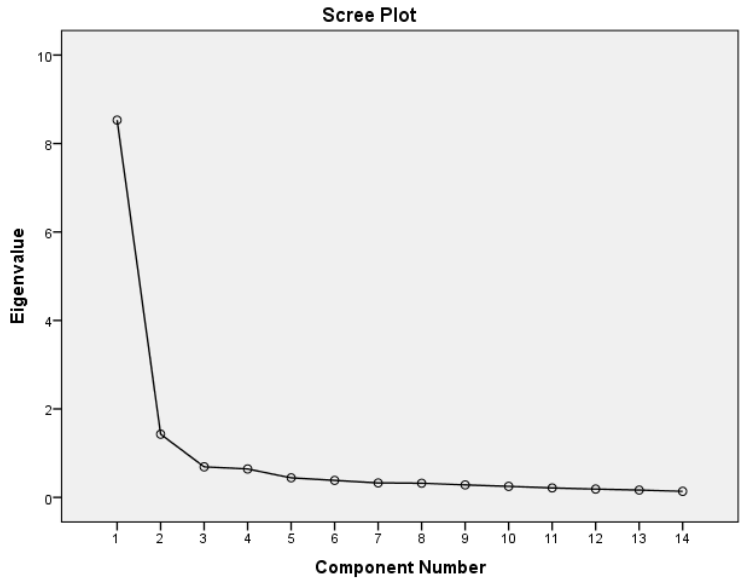
Table 2
One-way ANOVA emotion scale on facial expressions

	Facial expression						
Item		M	SE				
negative-positive	Sadness	2.38	0.11				
	Control	2.89	0.80	Sadness/control**			
	Anger	2.94	0.87	Sadness/anger**	Control/anger		
	Joy	3.42	1.03	Sadness/joy**	Control/ joy*	Anger/ joy	
	Combi	3.66	1.04	Sadness/combi**	Control/combi**	Anger/combi**	Joy/combi
unhappy-happy	Sadness	2.31	0.92				
	Control	2.89	0.56	Sadness/control**			
	Anger	2.88	0.78	Sadness/anger**	Control/anger		
	Joy	3.37	0.94	Sadness/joy**	Control/joy*	Anger/joy*	
	Combi	3.55	0.77	Sadness/combi**	Control/combi**	Anger/combi**	Joy/combi
aggressive-friendly	Anger	3.08	1.06				
	Combi	3.40	0.97	Anger/combi			
	Sadness	3.44	0.88	Anger/sadness	Combi/sadness		
	Control	3.45	1.00	Anger/control	Combi/control	Sadness/control	
	Joy	3.79	0.98	Anger/joy**	Combi/joy	Sadness/joy	Control/joy
sadness-cheerful	Sadness	2.18	1.00				
	Anger	2.67	0.92	Sadness/anger			
	Control	2.95	0.67	Sadness/control**	Anger/control		
	Combi	3.42	0.91	Sadness/combi**	Anger/combi**	Control/combi	
	Joy	3.42	0.98	Sadness/joy**	Anger/joy**	Control/joy*	Combi/joy
arrogant-humble	Combi	2.93	0.94				
	Anger	3.04	1.03	Combi/anger			
	Control	3.32	1.03	Combi/control	Anger/control		
	Joy	3.34	1.01	Combi/joy	Anger/joy	Control/joy	
	Sadness	3.53	0.90	Combi/sadness*	Anger/sadness	Control/sadness	Joy/sadness
shy-open	Sadness	2.40	0.85				
	Control	2.52	0.85	Sadness/control			
	Combi	2.70	0.91	Sadness/combi	Control/combi		
	Anger	2.71	0.80	Sadness/anger	Control/anger	Combi/anger	
	Joy	2.85	1.08	Sadness/joy	Control/joy	Combi/joy	Anger/joy
rude-polite	Combi	2.85	0.95				
	Anger	2.92	0.88	Combi/anger			
	Sadness	3.00	0.79	Combi/sadness	Anger/sadness		
	Control	3.00	0.91	Combi/control	Anger/control	Sadness/control	
	Joy	3.29	0.96	Combi/joy	Anger/joy	Sadness/joy	Control/joy
strained-relaxed	Sadness	2.87	0.90				
	Anger	3.02	1.06	Sadness/anger			
	Control	3.20	0.96	Sadness/control	Anger/control		
	Combi	3.32	1.00	Sadness/combi	Anger/combi	Control/combi	
	Joy	3.50	0.90	Sadness/joy**	Anger/joy	Control/joy	Combi/joy
agitated-calm	Anger	3.19	1.21				
	Combi	3.34	1.11	Anger/combi			
	Control	3.46	0.95	Anger/control	Combi/control		
	Sadness	3.64	0.97	Anger/sadness	Combi/sadness	Control/sadness	
	Joy	3.65	0.98	Anger/joy	Combi/joy	Control/joy	Sadness/joy
Impulsive-still	Anger	3.23	1.23				
	Combi	3.34	1.24	Anger/combi			
	Control	3.34	1.08	Anger/control	Combi/control		
	Joy	3.55	1.07	Anger/joy	Combi/joy	Control/joy	
	Sadness	3.75	1.14	Anger/sadness	Combi/sadness	Control/sadness	Joy/sadness

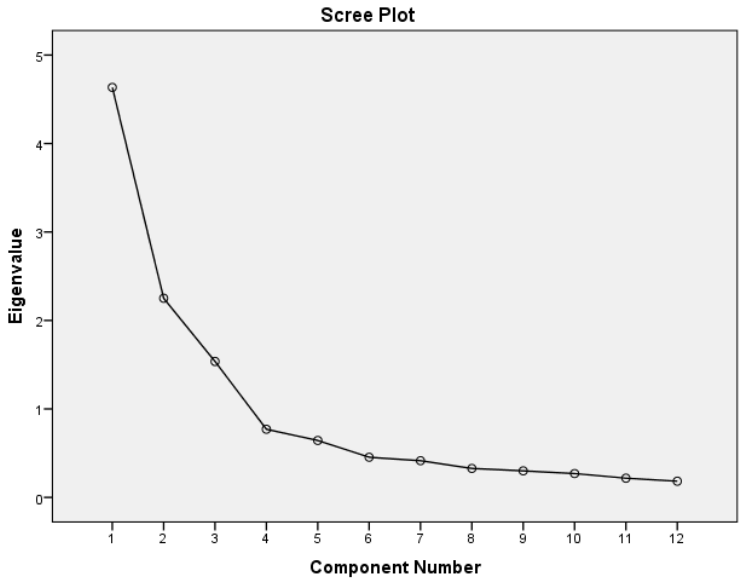
* $p < .05$ level. ** $p < .01$

A.3 Scree plots factor analyses for dependent variables *overall impression* and *design*

Scree Plot *Overall impression*



Scree Plot *design*



B. Stimulus material

B.1 Bottle anger

B.2 Bottle joy

B.3 Bottle sadness

B.4 Bottle combination

B.5 Bottle control

B.6 Car anger

B.7 Car joy

B.8 Car sadness

B.9 Car combination

B.10 Car control

C. Questionnaire

Dear participant,

thank you for participating in this survey for my master thesis at the University of Twente in Enschede. The study should help a car/mineral water company by designing their newest product. You will be exposed to a prototype of the new car/water bottle of this company and there will be asked some questions about this product.

In general, your overall impression of the product and your feelings about the product are important to the company's product designers. So, please look at the product carefully and after that you should answer the questions. You should do this without thinking too much about it. There are no false answers.

While answering the questions, you can always take a look at the product again. Your data will be analyzed anonymously. If you have any questions, you can always contact the researcher by e-mail.

Again - Thank you for participating.

Julia Riesenbeck

j.riesenbeck@student.utwente.nl

Emotions

Please take a look at the photo. What emotional impression do you get? Further, how are you feeling while looking at the product?

1. Positive _ _ _ _ _ negative

2. Happy _ _ _ _ _ unhappy

3. Friendly _ _ _ _ _ aggressive

4. Cheerful _ _ _ _ _ sad

5. Humble _ _ _ _ _ arrogant

6. Open _ _ _ _ _ shy

7. Polite _ _ _ _ _ rude

8. Relaxed _ _ _ _ _ strained

9. Calm _ _ _ _ _ agitated

10. Impulsive _ _ _ _ _ sensible

Impression

Imagine you would see this product in an advertisement or in a shop. What do you think about it? Please mention your first and overall impression of the product illustrated in the photo.

11. Beautiful _ _ _ _ _ ugly

12. Good _ _ _ _ _ bad

13. Pleasant _ _ _ _ _ unpleasant

14. Strong _ _ _ _ _ weak

15. Attractive _ _ _ _ _ unattractive

16. Lively _ _ _ _ _ lifeless

17. Positive _ _ _ _ _ negative

18. Impressive _ _ _ _ _ unimpressive

19. Interesting _ _ _ _ _ uninteresting

20. Modern _ _ _ _ _ out of fashion

21. Average _ _ _ _ _ superior

Please, rate the following statements:

(strongly agree, agree, neither agree nor disagree, disagree, strongly disagree)

22. When I look at the car/the bottle I think it is an exciting product.

23. When I look at the car/the bottle, I want to drive/drink it.

24. When I look at the car/the bottle, I find it appealing.

25. When I look at the car/the bottle, I like it.

Need to build up relationship (CPR)

Imagine you would own/use the car/the bottle yourself. Would you like it? Please, rate the following statements:

(strongly agree, agree, neither agree nor disagree, disagree, strongly disagree)

26. This is a nice car/mineral water bottle.

27. This car/mineral water would make me feel good while driving/drinking it.

28. This car/mineral water would make me feel very happy while driving/drinking it.

29. If I would own this car/this bottle, I would feel very connected to it.

30. If I would own this car/this bottle, I would be very attached to it.

31. I am passionate about this car/this bottle.

32. If I would own this car/this bottle it, would make me feel good.

Identification

(strongly agree, agree, neither agree nor disagree, disagree, strongly disagree)

33. I recognize attributes of myself in the product.

34. The product fits my personality.

35. I can identify myself with the car/the bottle.

In which way does the product fit your personality (the items were measured on a 5-point Likert Scale):

36. Beautiful

37. Nice

38. Athletic

39. Attractive

40. Strict

41. Arrogant

42. Sad

43. Powerful

44. Friendly

45. Conscious

Design

Look at the design of the product carefully and rate the following statements:

(strongly agree, agree, neither agree nor disagree, disagree, strongly disagree)

Aesthetic attribute (Moon, Park, & Kim, Importance of an innovative product design on customer behavior, 2014)

46. The product is very stylish.

47. The aesthetic design of the product is advanced.

48. The aesthetics of the product are exceptional.

49. The appearance of the product is exceptional.

Ergonomic design (Moon, Park, & Kim, Importance of an innovative product design on customer behavior, 2014)

50. The product design is comfortable for anyone to use.

51. The product design is intuitive for consumers to use.

52. The product is designed to be user-friendly.

53. The product is designed to accommodate user abilities.

Social Value (Kumar & Noble, 2015)

54. My peers would be impressed with my design choice if they saw me using.

55. If others saw me using this product, the design of the product will help increase.

56. By using this design, I will make a good impression on others.

57. This design of this product can help increase my stature in society.

5. Demographic variable

58. Age: _____

59. Gender:

- Male
- Female

60. Highest Education (German):

- Hauptschulabschluss
- Mittlere Reife
- Abitur
- Hochschulabschluss