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**Enhancing Consumers' Buy-Intention by Matching Product's
Symbolic Values to People's Cultural Values**

Author Note

Andrej Uhrich (s0157511, Department of Psychology, Twente University, Enschede, The
Netherlands;

Thesis for the Bachelor in Consumer & Behaviour Psychology; First supervisor: Thomas van
Rompay; Second supervisor: Mirjam Galetzka;

Correspondence concerning this article should be addressed to Andrej Uhrich
(andrej.uhrich@gmail. com) or Thomas Van Rompay (T. J. L. vanRompay@utwente. nl).

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ABSTRACT

The purpose of this paper was to examine whether it is possible to manipulate product shapes that are matching cultural values. The goal was to enhance product's appeal and consumers' buy-intention. Literature reviews in product aesthetics demonstrated that people tend to favour products that match their values on a symbolic level. Since it is widely accepted that products carry symbolic values, such as impressiveness or modesty, it was hypothesized that these symbolic values can be designed through product shape manipulation.

Values of a masculine (Germany) and a feminine (The Netherlands) culture were used to establish a guideline on which a product shape was manipulated. Size and form of a smart phone were altered and resulted in four smart phone versions; big-angular, small-angular, big-round and small-round. This stimulus material was used to communicate masculine and feminine symbolic values to 121 Dutch and 108 participants.

Results indicated no differences between Dutch and German participants. However, there were significant differences between high and low masculine condition defined by a median split. Big stimulus material was perceived more appealing and enhanced participants' buy intention in the high masculine condition. Furthermore an three way interaction effect on buy-intention was found and indicated that the big-angular version was significantly more favoured by the high masculine condition in contrast to the low masculine one, whereas the small-angular version was significantly more preferred by the low masculine condition than in high masculine one.

Enhancing Consumers' Buy-Intention by Matching Product's Symbolic Values to People's Cultural Values

Product's design has been recognized to be an influential factor in the market place and is influencing not only consumer's evaluation but also product choice (Creusen & Schoormans, 2005). Furthermore design is mentioned to be the most important buy decision factor for costumers (Bruce and Whitehead, 1998). Because of its importance researchers from all over the world are challenged to develop theories why people like one particular design and dislike the other, designers are paid very well to design the next appealing product and market research is evaluating thousands of questionnaires to find clues of a successful design. Still, after decades of research there is neither a all-embracing theory nor a widely accepted framework.

Especially in recent years researches developed theories about product communication and tried to understand the dynamic interplay between user and product that seems to account for appeal and buy intention. For instance, Gotzsch (2006) mentioned that products carry and transmit meaningful messages to consumers and by matching consumer's identity (s)he would perceive this product as more attractive. Demirbilek & Sener (2003) implied that certain product designs could communicate with the consumer at an emotional level and, if done right, this would enhance consumers' buy-intention. Marc Hassenzahl (2005) described in his publication "The Thing and I: Understanding the Relationship between User and Product." that each product has a character which can be experienced differently by each consumer while communicating its identity.

Furthermore it has to be said that within the last decades new terminology has been introduced to describe product's symbolic values. Gotzsch (2003) described them as “product charisma”, Desmet (2002) called them “emotional value”, or “product emotions” and Goovers (2004) “product personality”, to mention a few.

The purpose of this research paper is to analyse the underlying principle of product communication and use this knowledge to manipulate product shapes in order to match cultural values and in turn enhance product's attractiveness for a group or culture. This research is directed to communicate products' symbolic values, first and foremost by product shapes. Literature review indicated that product and object communication is based to a great deal on symbolic meaning of forms and shapes (Kandinsky, 1977; Arnheim, 1954; Kreidler and Kreidler, 1972; Goovers, 2004). Even though this paper is approaching the interplay between group/cultures and their perception of certain shapes, we will have a look at object shapes and their symbolic value first, to gain a broad understanding how objects and products could communicate to an individual or a group.

Symbolic Values: Theoretical Background

Object Oriented Approach. The idea that shapes have symbolic meaning goes nearly 100 years back, when the famous artists Wassily Kandinsky postulated that every shape is an outward expression of its inner meaning (Kandinsky, 1977) and that it could express a certain emotion to people. Kandinsky wrote that through shapes' variation, motion, rhythm, geometrical character, position, function and relationship to other shapes an unique message to the outer world transmits itself to the observer. However, if this message effectively reached and could be fully understood by the beholder was arguable.

Rudolf Arnheim (1954) elaborated the assumption that shapes have an psychological effect on the beholder. His theory includes that shape influences the human psychological state by having an interplay with tension, plane and depth. Furthermore he mentioned that through shapes' arrangement, orientation, weight, overlapping and other visual information brain areas get activated and enables the human mind to perceive intangible values of forms. In other words he assumed an interplay between, shapes' expression, the nervous system and the ability to perceive shapes' symbolic values. Yet how this principle works remained unclear and nebulous in his works.

Another object oriented approach was introduced by James Gibson (1979) and dealt with the concept of affordance. Affordance means all “action possibilities” that an object can offer. For instance, a chair may offer a seating possibility, a bed a possibility to lie down and a stairs to climb them up. Furthermore chair's, bed's and staircase's shape could indicate their “character” through affordance. For instance, a deck-chair should be deemed as more relaxing because of its form than a than a pew. Gibson was not really interested in a theory that explained symbolic values of objects and its forms/shapes.

The ideas of Kandinsky, Arnheim and Gibson tried to give the world an explanation about objects/shapes their communication and symbolic meaning. This theories still seem to lack an explanation how the complex phenomena of the symbolic value perception works. All theories tend to be object oriented, assuming only, if at all, a secondary role to the observer. By ignoring the beholder and attributing fixed intangible properties, such as “warm”, “cold”, “tense” and “loose”, to a shape or an object a certain problem occurs: incapability of measurement. This problem makes the conduct of scientific research difficult and frustrating. Furthermore this approach revealed nothing about the appeal of objects or shapes.

The Human Oriented Approach. Visser (1873) described the principle of “Einfühlung” in perceiving an object. He argued when a human observes an object s(he) “merges” with the object while perceiving its “soul”. Lipps (1887) gave this thought a more concrete form and mentioned that people have an inner tendency to experience other person’s feelings by empathizing with him/her and extended this thought to objects. He argued that if someone feels e. g. anger by observing a person or object, (s)he experiences it by empathizing with the person or object since anger cannot be perceived through our senses (Lipps, 1907).

Another widely accepted human centred approach is the theory of *dynamization*. According to many theorists people generate a feeling or emotion while perceiving a shape by following the outer boundaries of it. Thereby a circle might appear as infinitive whereas a rectangle may be perceived as thrilling through the sudden changes of its direction and a long curve as calm because of its “slow motion” (Kreitler and Kreitler, 1972).

Berlyne (1960, 1976) introduced another approach which dealt with shapes’ complexity and their impact on human’s evaluation. His point of view was that the more complex a shape gets, the more physiological response (arousal) a human experiences and this in turn influences his evaluation. This direction shifted the emphasis from the object to the process that is underlying the perception of symbolic meaning. He argued that every human pursues an optimal level of arousal while perceiving the environment. An object may be irregular, asymmetrical while containing a lot of angular shapes and would be therefore perceived as energetic and tough (Berlyne, 1976). Evidently every human experiences and prefers different arousal states by perceiving the world.

The process of *Einfühlung* and *Dynamization* describe the human's part in observing and evaluating symbolic values of shapes. Nevertheless these theories remain vague in the light of scientific research. In addition they did not explain why a certain shape is perceived as appealing by one person and as unattractive by the other.

Berlyne's theory of arousal contributes more to the uniqueness of the beholder and enables the possibility of a tailored object creation that fits the beholder level of arousal and in turn enhances appeal perception. However, this goal is not mentioned in Berlyne's publications. By contributing only to humans' arousal, complex social, cultural and psychological factors which could also play a role in object/shape preference are ignored. In the following section theories are discussed that highlight these factors.

The Group Oriented Approach. Krippendorff and Butter (1984) coined the term product semantics and emphasized the relationship between the product, the consumer and the use of the object in its social context. According to product semantics every man-made object communicates a message through colour, shape, texture etc. in a certain social context (Creusen & Schoormans, 2005). According to Creusen and Shoormans (2005) every designer should not only know how to design products with certain symbolic values but also possess knowledge of the target group and its social and cultural values. People tend to favour products that are useful to them in terms of the social and cultural context.

According to Griffin (1999), who did research on product semantics, a two step process is underlying every evaluation of a product. People first associate product appearance to social and cultural values and then respond with an emotional reaction. This process tends to be automatic and is connected to people's beliefs, attitudes and values which are triggered by a situation or object.

These beliefs, values etc. are established during infancy and early puberty (Hofstede, 2001). According to Creusen and Schormans (2005) it is possible to create a product in a defined form and shape to evoke a certain feeling (e. g. pleasure or happiness) which would result in appeal enhancement. Based on this information a designer could tailor a product and gain advantages in the marketplace (Creusen & Schoormans, 2005).

Govers and Mugge (2004) did research on products' symbolic values and their perception. They argued that every product has certain, measurable symbolic values. Govers (2004) coined and defined product personality as symbolic meaning that is referred to the product itself, and is described with human values, such as friendly, warm, impressive etc. His research indicated that designers could be able to design a product that has a predetermined personality that matches certain personality values of the target group. By matching product-personality with group values an improvement in appeal and buy intention was recognized. Furthermore Govers (2004) mentioned also that product personality is mostly influenced through shape and form. For instance, a product is perceived as friendly and modest through rounded shapes and serious through angular shapes.

Through the approaches of Creusen and Schormans (2005) and Govers (2004) it could be possible not only to design a tailored product for an individual but also for a group.

A group is widely defined as at least two individuals that are somehow connected (time, place, social relationship) and interact with each other. Through this interaction psychological and social dynamics influence the group and separate its members from a random collective of individuals (Forstyh, 2010). In its essence it is meant that a group shares certain attributes among its members which separate them from non-members. Hence, a group could be a family, a sport club, a minority or even a culture (Hofstede, 2001). Since it is possible to create a product for a group, could it also be possible to design a product particular for a culture.

Culture oriented approach. Hofstede (2001) defined culture as cultural programming of the mind distinguishing members of one category from each other. The category can refer to nations, regions, occupations, religions, organized groups and gender. According to Hofstede culture is a result of 100 thousand years of evolution. In the modern world people are still influenced by basic cultural factors such as group membership, authority, gender roles, morality, anxiety, emotions and drives (Hofstede, 2001). Culture affects people's friendships, love- and professional lives, their dreams and their plans. It is obvious to assume that culture also influences the design process. Products from different cultural backgrounds often differ from each in their form, colours and shape properties.

Moalosi (2008) argued that through certain design features a product could embody certain cultural values. Leong (2003) mentioned also that certain cultural values could be represented by product design. Leong is convinced that through detailed cultural research and the development of new design theories it is possible to tailor products for a cultural group.

Throughout this paper we can come to the conclusion that cultural values as well as group values could affect product's evaluation process positively or negatively. Furthermore it should be possible to design a product that is carrying messages which are favoured by one culture significantly more than by another. In the next section we are going to analyse a process by which it is presumed possible to manipulate product shape and create certain values that match cultural value characteristics thereby altering product's appeal and consumer's buy intention.

Cultural Values and Product Shapes

Cultural values. Literature review revealed several theories about cultural contrasts and values. Geert Hofstede is a psychologist who did pioneer work in cultural studies. He defined cultural values as: “a broad tendency to prefer certain states of affairs over others” (Hofstede, 1980, p. 19). Cultural values distinguish one culture from another and are measurable (Hofstede, 1980). Decades of research resulted in five cultural dimensions that are widely accepted and used in science, business and in the market place: Power-Distance, Individualism-Collectivism, Masculinity-Femininity, Uncertainty Avoidance and Long-Short Term Orientation. Each cultural dimension holds a certain amount of cultural values. The implications in science, business and in the market place are enormous and the cultural differences that are displayed in each dimension are valuable for many purposes. For further progress it seems self evident to examine only one cultural dimension, identify its values, modify products shapes accordingly and test them between cultures.

Masculinity Dimension and Values. Masculinity dimension was chosen for further purposes. According to Mooi (2010) Hofstede's masculinity dimension is defined by people's contribution to achievement and success (masculine society) or quality of life and caring for others (feminine society). In order to compare between cultures two countries were chosen and their values analysed. According to Hofstede's results from 2001 the Netherlands scored low on the masculinity dimension and Germany high. By virtue of its geographical proximity, similar socio-economic status and no significant differences on the other four cultural dimensions the Netherlands were chosen to serve as feminine culture and Germany as masculine culture.

Through the works of Hofstede (1980, 2001, 2011) and Mooi (2010) this paper came to the conclusion that the following main cultural values are rooted in the feminine Dutch and a masculine German culture.

Feminine culture values; The Netherlands. (1) *Modesty* is a very important value within a feminine culture. From childhood on children are told not to show off, even if they perform best. This modest behaviour is deeply rooted in people's minds while the ego remains suppressed and hidden (Hofstede, 1980). (2) A lot of people are less interested in leadership, independence and recognition while pursuing an interdependent ideal of life. Within the Dutch society people with power or status are perceived equal. Group decisions are important and living among each other is highly valued. Achievement is defined in terms of human contact and a good living environment. Many people would define this life as *harmonic*.

Masculine culture values; Germany. The examination of Germany's masculine culture resulted in following main values: (1) The entire population is attracted by large organization, large-scale enterprises and big and fast things. Economic growth and development in the working place is important. Because of these reasons it is hypothesized that to be or act *impressive* is a major factor within a masculinity culture. (2) Life tends to be more *serious* in a masculine culture. To be in a challenge, earn lots of money and possess material values are seen as more important than a friendly atmosphere and quality of life. People live to work, are more likely to dislike their jobs and experience higher job stress. Success is an important factor on the working place, in students' life and people are more willing to sacrifice happiness for achievement.

Based on these finding following table is presented to summarise masculine and feminine cultural values.

Femininity Values	Masculinity Values
Harmony	Impressiveness
Modesty	Seriousness

Table 1: Presented are values of masculine culture and a feminine culture.

Product Shapes. According to masculine and feminine cultural value identification it should be consequent to design or alter product shapes accordingly. The goal was to design a product shape that carries attributes presented in table 1. Predicated on Govers' (2004) personality-product congruence theory and Creuse's and Schoormans's (2005) sociocultural context design approach it should be possible to enhance product's appeal by designing a impressive, recognizable, serious and respectful product in a masculine culture. A cosy, modest, harmonic, and caring product should elicit the same but in a feminine culture.

Based upon literature review product shapes can possess attributes that are mentioned in table 1. For instance, products with angular shapes are perceived as *serious* (Goovers, 2004) and big objects, on a vertically scale as impressive (Van Rompay, Hekkert, Saakes, & Russo, 2005). Furthermore mentioned Rompay, Hekkert, Saakes and Russo (2005) that the smaller the object on a vertically scale get the more *modest* it is perceived. Zhang and colleagues (2006) found that round shapes are preferred by people that respect solidarity and *harmony* in a group. In accordance with the theories mentioned above it was deemed possible to change product shape's size and angularity to embed masculine and/or feminine cultural values.

Hence, following assumptions were hypothesized:

Hypothesis 1: A product shape that is more angular should be perceived as serious, whereas round shapes should be perceived as harmonic.

Hypothesis 2: A product shape that is big should be perceived as impressive, whereas small shapes should be perceived as modest.

Hypothesis 3: A product that is carrying similar values than a group or culture should evoke higher appeal perception and buy-intention in this particular group or culture than in a group that is non-congruent with product's values.

Method

Overview. To test whether a group or culture prefers a object that carries its values it was assumed that a product of daily use could be appropriate to serve as stimuli in this research paper. A smart phone was chosen. Because of its simple shape patterns (case and buttons) it was assumed that appropriate manipulations as mentioned above could be achieved easily. Product shape preference were compared between two cultures. The Netherlands served as feminine culture and Germany as masculine culture in consensus with Hofstede's MFI results from 2001. The goal was to compare participants's buy intention and products' appeal.

Research Model. To give an overview with which concept this study is working a research model was developed. All expectations are based on literature review and own ideas.

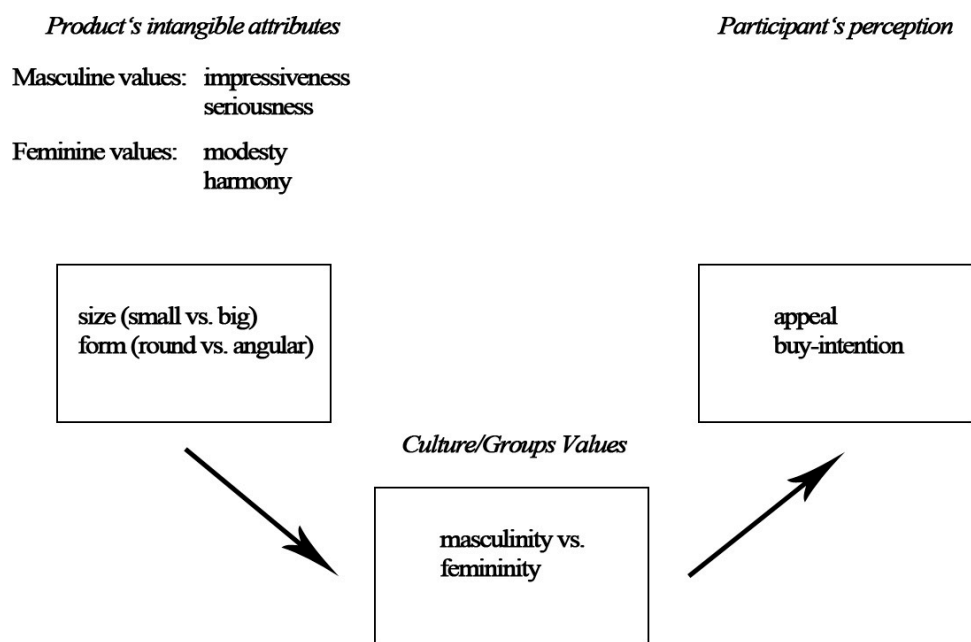


Figure 1: The product communicates through size and form either feminine or masculine values as independent variables. Appeal and buy intention are dependent variables. The impact of the independent variables on the dependent variables is expected to be mediated by cultural or groups values, namely by masculinity or femininity

Stimulus Material & Pretests

Stimulus Material. Form and size were used as stimuli in this research to manipulate pictures of a smart phone.

Picture manipulation. Size and form of a smart phone picture were manipulated with aid of an image editor program. Size of original photograph were altered by ten percent to enlarge or shrink the photograph. Form were manipulated by round off the original smart phone picture (shape and buttons) or make it more angular by 20%. This resulted in four different pictures by 150x150px. A big-angular, a small-angular, a big-round and a small-round smart phone shape were the outcomes. To ensure clarity of the manipulation the altered smart phones pictures were “placed” in a hand. The used photographs illustrated a hand which is holding a smart phone. Furthermore brand name and screen visuals were made imperceptible (see Appendix A).

Pretest. A pretest was conducted to indicate whether the manipulations have been perceived as realistic. Furthermore three different smart phones (HTC deisre, Acer X960, Sharp SH8118U) were used to analyse which one is most suitable for the main study purpose. Each photograph of a smart phone resulted in four manipulations. Hence, 12 pictures were presented to 20 Dutch participants (see Appendix B). Those photographs were tested on four items to operationalize manipulation-perception, realisms and up-to-dateness.

Results. HTC desire seemed to be most suitable for further purposes. It was perceived as most up-to-date ($M = 2,71$; $SD = .73$) and slightly more realistic ($M = 2,86$; $SD = .90$) in comparison to Sharp's smart phone which was perceived as far less up-to-date ($M = 3,46$; $SD = .77$) and slightly less realistic ($M = 2,93$; $SD = .69$). Also Acer's smart phone were perceived as far less up-to-date ($M = 4,02$; $SD = .82$) and slightly less realistic ($M = 2,90$; $SD = .73$).

Repeated measures ANOVA revealed that up-to-dateness differ significantly between the three smart phones ($F(2, 38) = 24.89$, $p < .01$). No significant results on realism were found.

Furthermore a repeated measures ANOVA test was performed on the chosen HTC desire smart phone. Angularity was tested to identify whether the manipulation was successful. The results showed that there was an significant main effect on perception of angularity ($F(1, 19) = 21.65$, $p < .01$). Same test were conducted on size and indicated also a significant main-effect ($F(1, 19) = 113,43$, $p < .01$).

Because of this tests it could be assured that the manipulations are done properly and are perceived as intended by participants.

Participants and Research Design.

In total 229 people from the Netherlands ($N=121$) and Germany ($N=108$) participated in this study. 125 of them were men and 104 were women. The age of the participants was between 18 and 69 with an average of 27 years ($M = 27,03$; $SD = 6.77$). All participants were asked to fill out an online questionnaire by receiving a personal message through *Facebook*, *StudiVZ* or *Couchsurfing*. The questionnaire was created with aid of an online application named *Thesistools*.

Thirteen people were excluded from the study because (1) they filled in the questionnaire partial or (2) had another nationality than Dutch or German.

Research Design. The research knows a 2* from (angular vs. round) 2* size (big vs. small) 2* masculinity (high vs. low) between-participants design. Participants were randomly assigned to one of four questionnaire versions with an angular-big, angular-small, round-big or round-small HTC smart phone as stimulus material.

Procedure and Description of the Questionnaire

All participants received a personal message with a request to participate within a psychological study referring to design-element perception and evaluation of a smart-phone. After a short introduction which referred that the participants should answer spontaneously without long consideration, the questionnaire started. It consisted of six pages and took participants about five minutes to finish.

Description of the Questionnaire. First, the participants were asked about their demographics. They had to give information about their gender, age and nationality. After that the participants had to rate the smart phone on four items that measured smart phone's symbolic values. Through literature study two items were chosen to represent Hofstede's masculinity (*impressive, serious*) femininity (*harmonious, modest*).

All participants rated a smart phone version on theses items. Both scales have an acceptable reliability for the masculine (Cronbachs alpha: .826) and feminine items (Cronbachs alpha: .710).

Following a scale was used to measure product's appealing. This scale was created by Sirgy (1997) and slightly modified for this research. It had an excellent reliability (Cronbachs alpha: .893), and contained following statements that are measured by a five-point Likert scale e.g. , *I think this product is beautiful, I thinks this product is attractive*. Handlogten (2002) used successfully a scale which measured buy-intention. Within this research it had also an excellent reliability (Cronbachs alpha: .896) and contains four items which are measured on a five-point Likert scale e.g. , *I would like to have this product, If I see this product in a shop I would consider to buy it*.

The last page measured on a five-point Likert Hofstede's Masculinity/Femininity dimension. Four items, that represented the MFI index, were extracted from Hofstede's 28 item questionnaire on Individualism, Power Distance, Masculinity, Uncertainty Avoidance and Long/Short Term Orientation from 2008. Reliability tests for Cronbach's alpha on MFI are measured not on individual scores but are based on country mean scores. Therefore Hofstede's IBM study computed a Cronbach's alpha for MFI between 40 countries that is acceptable (Cronbachs alpha: .76). Towards the end all participants get a "thank you" and had the possibility to leave their email addresses and be informed about the oucomes(whole questionnaire is presented in Appendix C).

Results

Nationality

Hofstede's scores on masculinity dimension differs significantly between German and Dutch participants ($F(1, 227) = 22.42, p < .01$). German participants score on average higher on masculinity dimension ($M = 3.09; SD = .037$) than their Dutch counterparts ($M = 2.82; SD = .046$).

Analysis of variance revealed no significant results on appeal and/or buy-intention between Dutch and German participants.

Masculinity and Femininity Items

Several analysis of variance (ANOVA) have been conducted to analyse whether the smart phone versions differ among each other (size and form), between men and women, between nationalities (Dutch versus German) and between high and low masculine conditions.

Analysis of variance (ANOVA). Average of masculine (*impressive and serious*) and feminine (*harmonious and modest*) items were computed and several analysis of variance were performed. Unfortunately form, size, nationality, gender and high/low MFI condition does not influences the mean scores of masculine and feminine items.

Appeal

To analyse whether participant's perception of smart phone's appeal differs among high/low masculinity groups an univariate analysis of variance was conducted.

Univariate Analysis of variance. First size and form of the different smart phone stimuli material was coded. Whereas size was coded with 1 for small and 2 for big, form was coded with 1 for angular and 2 for round. Second, a median split for MFI scores were performed and coded as following: 1 for low scores in the MFI and 2 for high scores in MFI. Following an univariate analysis of variance is performed with size, form and masculinity as independent variables and appeal as dependent variables.

There is no significant main effect of size ($F(1, 221) = .047$ $p = .829$, *ns*) or form ($F(1, 221) = 0.958$ $p = .329$, *ns*) on appeal. Masculinity, however, shows a marginally significant main effect on appeal ($F(1, 221) = 3.550$ $p < .10$) and indicates that participants with high masculinity scores tends to rate smart phone's appeal higher than their low score condition ($M = 3.27$; $SD = .863$ versus $M = 3.06$; $SD = .916$).

The univariate analysis of variance shows no interaction effect between form and size on smart phone's appeal ($F(1, 221) = .046$, $p = .830$, *ns*). However, there is a marginally significant two way interaction effect between masculinity and size on appeal ($F(1, 221) = 2.76$, $p < .10$). Participants with high scores in the MFI rate big stimuli material higher than the low MFI condition ($M = 3.35$; $SD = .841$ versus $M = 2.93$; $SD = .911$). This outcome is predicted by the theoretical background. Unfortunately participants with high MFI scores rate small stimuli material higher than their low score counterparts ($M = 3.20$; $SD = .884$ versus $M = 3.17$; $SD = .960$), which contradicts the predictions.

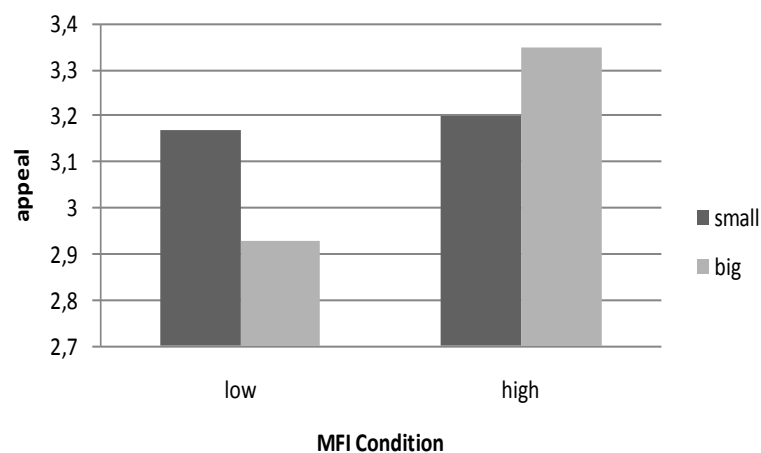


Figure 2: High masculinity condition rated significantly higher on big stimuli material than low masculinity condition. No significant effect on small stimuli material.

No significant interaction effect between MFI condition and form on appeal ($F(1, 221) = 1.69, p = .195, ns$) is found. Here, although no significant results, participants with high MFI scores rate angular stimuli material higher than the low MFI condition ($M = 3.41; SD = .811$ versus $M = 3.04; SD = 1.03$), which was also predicted by the theoretical background section. Participants with high MFI scores rate round stimuli material higher than their low masculinity counterparts ($M = 3.15; SD = .895$ versus $M = 3.09; SD = .764$).

Ultimately no three way interaction effect between size, form and MFI condition could be found ($F(1, 221) = 1.50, p = .699, ns$).

Buy-Intention

To analyse whether participant's buy-intention differs between a high and low masculinity condition an univariate analysis of variance was conducted.

Univariate Analysis of variance. The same coding and research design is used with the exception of buy-intention as dependent variable.

No significant main effect of size ($F(1, 221) = .609, p = .436, ns$) or form ($F(1, 221) = 0.702, p = .403, ns$) on buy-intention could be found. Masculinity also does not show a significant main effect on the dependent variable ($F(1, 221) = .702, p = .403, ns$).

Further analysis reveal a marginal significant interaction effect between masculinity and size on buy-intention ($F(1, 221) = 2.909, p < .10$). Participants in the high MFI condition, defined by the median-split, rate big stimuli material higher than the low MFI condition ($M = 2.94, SD = .980$ versus $M = 2.60; SD = .958$) and participants with high scores on MFI rated small stimuli material slightly lower than their low score counterparts ($M = 2.86; SD = 1.02$ versus $M = 2.98, SD = .951$) (see Figure 3).

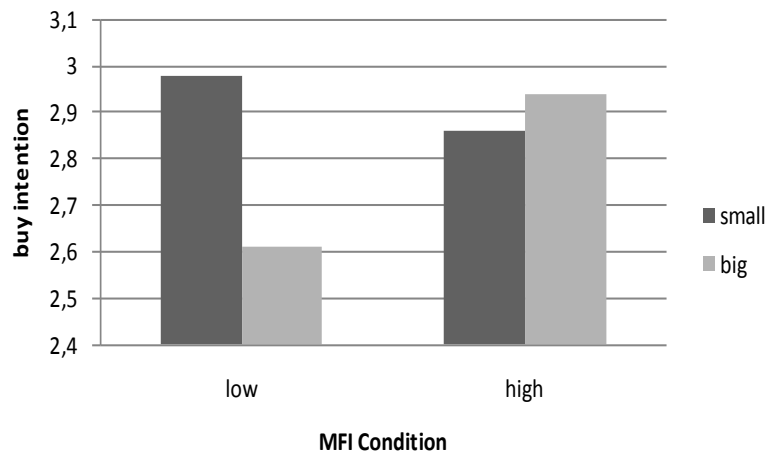


Figure 3: Effect of high/low masculinity scores, defined by median split on intention. High masculinity condition rated significantly higher on big stimuli material than low masculinity condition. No significant effect on small stimuli material.

No significant interaction effect is found between masculinity and form on buy-intention ($F(1, 221) = 1.94, p = .165, ns$). Here, the high MFI condition rate angular stimuli material higher than the low MFI condition ($M = 3.03; SD = 1.04$ versus $M = 2.76; SD = 1.07$). In addition participants with high MFI scores rate round stimuli material slightly lower than their low MFI counterparts ($M = 2.78; SD = .952$ versus $M = 2.87; SD = .820$).

Finally an marginal significant three way interaction effect between form, size and MFI condition is found ($F(1, 221) = 3.216, p < .10$). On the one hand participants rate the angular-small smart phone version higher than the angular-big stimulus but only in the low MFI condition ($M = 3.03; SD = 1.13$ versus $M = 2.48; SD = .971$). On the other hand participants in a high MFI condition, defined by the median split, rate an angular-small stimulus much lower than the angular-big one ($M = 2.87; SD = 1.14$ versus $M = 3.24; SD = .870$). Round-big and round-small stimuli material display no significant effect between high and low MFI condition (see figure 4).

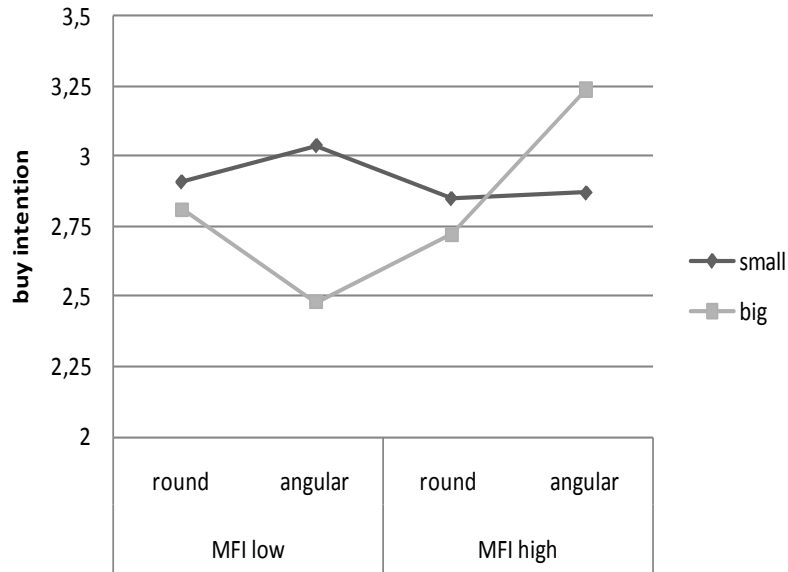


Figure 4: Three way interaction effect between high/low MFI, size (small/big) and form (round/angular) is displayed. High or low MFI seems only to have an distinguishing effect on stimuli that are angular and small or big. For round-small or round-big stimuli material there seems no significant effect of high/low MFI.

Discussion

The purpose of this study was to manipulate product shapes and establish certain symbolic values. These symbolic values were supposed to fit group or cultural values and enhance products' appeal and consumers' buy-intention. The intention was mainly based on work of Govers (2004), Creusen and Schoormans (2005) and Griffin (1999).

Cultural values on masculinity dimension were analysed within this research. A masculinity-femininity tests were conducted with aid of Hofstede's masculinity-femininity questionnaire between Germany and the Netherlands. Paper's findings supported Hofstede's results from 2001 and confirmed that Germany is more a masculine culture and the Netherlands more a feminine culture. By virtue of that it could be said that Dutch people are more defined feminine and German people by masculine values.

According to Forsyth (2010) people who respect different values distinguish from each and are seen as two different groups. Through careful literature research the attempt was made to extract the core values from a masculine and a feminine culture. Although done thoroughly the accurateness and trueness of the core value outcomes is questionable. By means of the extensive amount of masculine and feminine values in Hofstede's publications it was a challenge to summarize the two important ones that defines either a masculine or a feminine culture. Afterwards it is to say that this task could easily result in different core values.. Nevertheless the used values are very important ones in a masculine or feminine culture and their utilization resulted in no contradiction with paper's purpose.

Impressiveness and seriousness are used as core masculine values and harmony and modesty as core feminine values to manipulate product shapes accordingly. The manipulation of product shape's size was chosen to embed symbolic values in a product. Product shape's size was enlarged to evoke impressiveness in participant's eyes, as well as shorten to evoke modesty. Furthermore product's shape angularity was manipulated to trigger either perception of seriousness (angular product shape) or harmony (round product shape). This approach was supported by literature and pretest indicated overall significant results on manipulation perception. This findings indicated that product shape alteration were done properly and were perceived as intended.

The purpose to embed certain symbolic values through product shape alteration could not be obtained. There was no significant results that size or form effect participants perception regarding to masculine or feminine values. Neither, size was attributed to impressiveness or modesty nor form to seriousness or harmony. By virtue of these findings hypotheses one and two could not be confirmed.

The reason of the shortcoming of this approach could be explained by following arguments. First the presented smart phone versions were presented in an online environment and the medium was a 150px by 150px picture. Picture's size may be too small in its presentation. It is possible that participants were not able to perceive the manipulations properly and hence, their embedded symbolic values. Second, is to say that higher value daily goods, such as a smart phone, have very strong embedded values referring to its social context. Shape manipulation of such an product, as done within this paper, may not lead to trigger the perception of the desired values. Participants may recognized the round or angular shapes but the value of the smart phone itself may excelled the designed symbolic values.

Hypotheses three was partly confirmed by paper's findings. No significant effect was found between German and Dutch participants on buy intention or appeal among product shape manipulations. Although Dutch and German people differ significantly on the masculine-femininity index the effect was moderate. According to Hofstede (1980) significant results between a masculine and feminine cultures such as the Netherlands and Germany should appear by comparing 25 to 50 people from each culture. Within this research significant results started to appear by comparing at least 45 people from each culture. Hence, the results were moderate. One reason for this finding is probably participants' residence. Most participant live along the border between Germany and the Netherlands. Therefore cultural values could interchange among Dutch and German people.

According to Hofstede (1980) cultural values could not only apply to cultures but also to individuals and groups. Therefore all participants were divided by a median split into a high masculine condition (group) and low masculine condition (group).

Based upon the approach marginally significant results could be found between the high and low masculine condition on buy intention and appeal. The findings indicated the influence of Hofstede's masculinity condition by acting as a mediator variable between the embedded values and buy intention and appeal. Hypothesis three was partly confirmed. Big stimuli were preferred by the high masculine condition whereas small stimuli was favoured by the low masculine condition. Furthermore a three-way interaction effect on buy-intention was found. Figure 4 indicated that angular small smart phone version are favoured by the low masculine condition and more rejected by the high masculine condition whereas it is vice versa by the angular smart phone.

Furthermore an unexpected effect was recognized. Appeal was perceived as significantly higher in the masculine condition among all smart phone version. It is assumed that due the reason that people in a masculine culture prefer material possession and status objects a smart phone was perceived as more appealing. A smart phone as usually seen as a status object and a luxury good.

As conclusion is to say that within this research mistakes have been made which contributed to paper's moderate results. Nevertheless it is believed that the approach to match cultural values to product intangible attributes should result in enhancement of product's appeal in a particular culture. This approach needs to be further examined.

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Appendix A: Stimulus Material



Appendix B: Pretest Stimulus Material



Appendix C: Questionnaire

Variable	Items
<i>Demographics</i>	sex
	age
	nationality
<i>Intangible Values</i>	<u>I perceive the smart phone as:</u>
<i>of smartphone</i>	impressive
<i>(masculine)</i>	serious
<i>Intangible Values of</i>	<u>I perceive the smart phone as:</u>
<i>smartphone (feminine)</i>	harmonious
	modest
<i>Appeal</i>	<u>What do you think about this particular smart phone?</u>
	I think this product is beautiful.
	I thinks this product is attractive.
	I think this is a nice/good product.
	I like this Product.

Buy-Intention

What do you think about this particular smart phone?

I would like to have this product.

If I would go to a shop for a smart phone I would consider to take this one.

If I am going to buy a mobile-phone it would be this one

I like this Product.

This product would be relevant in a purchase decision

Masculinity Dimension

Please think of an ideal job, disregarding your present job, if you have one. In choosing an ideal job, how important would it be to you to . . .

-get recognition for good performance

-have pleasant people to work with

-live in a desirable area

-have chances for promotion