

A Work Project presented as part of the requirements for the Award of a Master's  
degree in Management from the Nova School of Business and Economics

ARE UGLY PRODUCTS COOL? A STUDY ON REBELLIOUSNESS  
AND PRODUCT DESIGN PREFERENCES

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17-12-2021

## **Abstract**

**Title:** Are ugly products cool? A study on rebelliousness and product design preferences

Previous research has shown that consumers often prefer aesthetically pleasing over ugly products. However, a question arises whether this is always the case. This research examines whether consumers who are rebellious may perceive ugly products as cool and subsequently prefer these over beautiful ones. To test this prediction, an experiment was conducted, and data was analyzed using Hayes Model 1, ANOVA and ANCOVA. The results showed that rebelliousness is not related to perception of coolness on ugly products, but originality is. Finally, possible future mechanisms are suggested, and managerial implications are discussed based on the findings.

**Keywords:** *ugly product design, perceived coolness, rebelliousness, product attitude, purchase intention.*

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209)

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## **1. Introduction**

In a reality driven by consumerism, leading consumers to an endless search for the perfect purchase, product design plays a crucial role in keeping brands competitive in the market and up to date with the leading trends (Page & Herr 2002). Product design is what differentiates products that satisfy the same need and enable companies to compete with different attributes apart from the product itself. The product design role is, therefore, threefold (Homburg, Schwemmler, and Kuehnl 2015): delivering aesthetic value, communicating functional value, and expressing symbolic value.

Most of the previous research on design focused on the importance of visual aesthetics and external appeal (Hoegg, Alba, Dahl 2010), and the contribution of aesthetics on overall product evaluation. Furthermore, the findings of these studies have shown that aesthetics can influence overall judgment, changing preferences even in situations where the design should be irrelevant (Hoegg, Alba, Dahl 2010). It is unusual to question the advantages of attractiveness since previous studies have already shown that consumers are drawn to people and objects that are aesthetically pleasing (Hoegg, Alba, Dahl 2010). Moreover, research has indicated how aesthetics can influence the consumer perception of functionality, revealing how consumers associate more attractive products to be also more functional (Creusen & Schoormans 2005).

In contrast to conventional wisdom and some previous research, studies have also shown that in some cases unattractive designs can also be advantageous (Hoegg, Alba, Dahl 2010). This happens in particular because consumers perceive that product designers wasted more time and resources on improving performance, rather than focusing on aesthetics (Hoegg, Alba, Dahl 2010). The question then arises: is aesthetically pleasing

product design always preferred or is there any situation or any consumer group that would prefer aesthetical-unpleasing products?

Some industry research shows that sometimes ugly products work better and sell better than beautiful ones (Rocksauce 2019), and the reason for that is because design is all about communication (Rocksauce 2019). A practical example: in a big box retailer like Target, there are several different products on the shelves, some fancy ones, wrapped in aesthetically pleasing packages, and some ugly ones, in ugly and odd designs, like a garish plastic orange bottle with a logo plainly yelling the brand name. Interestingly, sales figures show that the ugly product is a better sales leader, than the beautiful one (Rocksauce 2019). This happens because ugly products communicate in a simple way to the consumer what it does. They work towards execution, rather than sophistication (Rocksauce 2019). Another market research found that the trick to navigate through consumer taste is to appeal to their emotional sources (Edson 2009). So, what an odd black clock with a flashy red rose in the middle may seem horrific for some consumers, it may be preferred by others, for its associations to pleasant memories from home (Edson 2009).

If consumers prefer beautiful products as previous research has shown, then ugly designs should not be in the market, and would not work. Certainly, there are consumers in the market who prefer these ugly designs over beautiful ones.

Additionally, perception of coolness is an important factor to consider when analyzing this preference for ugly products. In the literature, the concept of coolness converges on the idea of non-socially accepted behavior and a conception of a stance against the mainstream (Frank, 1997; Heath & Potter, 2004; Lasn 1999). Since ugly products stand out from the norm, the perception of coolness constitutes a reasonable

justification for consumers who prefer them. In other words, consumers may prefer ugly products as they perceive them to be cooler than beautiful ones.

Despite the substantial interest and important previous research on how aesthetics and attractive products have a positive influence on consumers, not much is known about preferences for ugly products. This dissertation aims at addressing this question and filling a gap in the literature on whether there is a group of consumers in the market that may prefer ugly products over beautiful ones.

Supported by several relevant empirical studies, a detailed literature review was conducted to identify and elaborate on the importance of product design in consumer behaviour, and the concept of coolness.

## **2. Literature Review**

### **2.1. Aesthetics in product design**

Previous relevant studies showed that aesthetic product designs improve positively the consumers' responses (Norman 2004) towards consumer goods. Beautiful and aesthetically pleasing designs play, positively, as a differentiator, thus increasing the value of a product for its reward value. (Norman 2004). *Reward* works as a stimulus, and it can be defined as the positive value an individual ascribes to an object, behavioral act, or an internal physical state (Wise & Rompre 1989).

A study carried out by Nadal *et al.* (2008) demonstrates how aesthetically pleasing views and rewards are positively correlated. In his research, Nadal argued that the beautiful visual stimuli were linked with a higher reward value on participants than the ugly ones (Nadal *et al* 2008). Additionally, research also identified how aesthetics do not only play a role as reward value but how affective involvement is associated with the aesthetic product package design (Reimann *et al* 2010).

Despite the extensive previous research on how aesthetics is crucial to consumers' purchase decision process, little is known about possible preferences for non-aesthetic product designs and the reasons behind this preference. We know that beautiful packages positively influence consumer responses, but does the opposite also happen: are ugly product designs preferred by certain consumer groups?

In contrast to what most may believe, studies have shown that ugly product designs can be positive (Hoegg, Alba, Dahl 2010). In turn, ugly designs work against the mainstream strategy of aesthetically pleasing designs, thus standing out from being different. Additionally, coolness can be characterized as a stance against what is perceived to be mainstream. The question then arises: do consumers prefer these ugly products because they are different, therefore, cooler?

## **2.2. Perception of coolness**

The concept of “cool” is an extremely subjective and ever-changing construct (Warren *et al* 2019). It is dynamic and what is considered to be “cool” changes over time, across cultures and generations (Danesi 1994; MacAdams 2001; O'Donnell and Wardlow 2000). In fact, “appeal of coolness is presumably enhanced by the mysteriousness of what cool is”<sup>1</sup>, and a standard definition took several studies to emerge.

The word “cool” is usually pronounced as slang for socially desirable, for example, “very good,” or “all right” (Landau 1983). On the other hand, scholarly definitions for the concept of coolness, converge on the idea of non-socially accepted behavior, namely rebelliousness (Eggertsen 1965), toughness (Aloise-Young & Hennigan 1996; Denborough 1996; Rodkin, Farmer, Pearl, & Van Acker 2000), to smoking and drug use (Griffin, Epstein, & Botvin 2001; Martin, & Leary 2001;

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<sup>1</sup> Dar-Nimrod *et al.*: “Coolness: An Empirical Investigation”. 175.

Plumridge, Fitzgerald,&Abel 2002), and a conception of a stance against what is perceived to be mainstream (Frank 1997; Heath & Potter 2004; Lasn 1999). The most popular and universal idea of what coolness is relies on what most people consider as socially acceptable and desirable (Dar-Nimrod 2012).

A canvas of the literature reveals agreement on four defining properties to the conception of coolness: coolness is subjective and dynamic, is socially constructed (Belk, Tian, and Paavola 2010; Connor 1995; Gurrieri 2009; Leland 2004), is perceived to be a positive quality (Bird and Tapp 2008; Heath and Potter 2004; Pountain and Robins 2000), and it requires more beyond the perception that something is desirable (Leland 2004; MacAdams 2001).

Dar-Nimrod *et al* (2010), conducted an empirical study to examine whether coolness was a reflection of content-free social desirability or whether “cool,” was trait-like, denoting specific patterns of basic characteristics. The research was conducted in three different approaches, to investigate the popular overlap in perceptions of coolness and social desirability. The results for the first study demonstrated that people associated coolness with popular concepts of it, but not to a specific set of characteristics. In the second study, results indicated how coolness and social desirability were distinguishable, despite the conceptual overlapping between the two. Moreover, from the results of this study, two different types of coolness emerged: Cachet Coolness and Contrarian Coolness. Cachet Coolness comprises the “contemporary overlap between coolness and social desirability as objects of striving for peer approval.”<sup>2</sup> In contrast to this, Contrarian Coolness embodies coolness as less engaged and as a “detachment and camouflage.” Lastly, the third study aimed at measuring the coolness evaluations in a concrete way,

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<sup>2</sup> Dar-Nimrod *et al.* 180.



rather than abstractly. The results from this study indicate how perceived coolness is driven by social desirability and the darker history of the word cool. Additionally, it shows how popularizing the word cool, has increasingly affected its perception.

Following the Contrarian Coolness construct, it has been hypothesized that coolness posturing serves a self-defensive function (Connor 1995; Majors & Mancini Billson 1992). Hence, it can be hypothesized that Contrarian coolness factors increase an outsider's perception of self-worth through cognitive (rebelliousness), emotional (detachment), and behavioral (roughness) defenses against the judgments of mainstream culture (Connor 1995; Majors & Mancini Billson 1992).

Given this, it is possible to highlight a similarity between ugly product design and coolness: they are both against the mainstream. Thus, it is plausible to conclude that not all consumers would see ugly products as cool. This perception would depend on a certain consumer characteristic.

### **2.3. Rebelliousness**

It is extremely difficult for companies to differentiate their products based only on their basic functions (Dumaine 1991; Veryzer 1995). With many different brands competing in the market for the same technical functions and qualities, products' symbolic meaning adds another way to differentiate among themselves in the market. Extensive research was already done to extrapolate the symbolic meaning of products. Most of the literature, that goes from the cultural meaning to tools for self-expression of products, is considerably related to personality concepts, such as brand personality and product-user image. Brand personality refers to "the set of human personality

characteristics associated with a brand”<sup>3</sup> (Aaker 1997), whilst product-user image reflects the stereotypical image of users of a product class or brand (Sirgy *et al.* 1997). Following these two concepts, comes the one called *product personality*, which comprises the symbolic meaning that refers to the physical product itself and is described with human personality characteristics (Jordan 1997, 2000). Product personality enables consumers to differentiate a certain product from the others, through the human personality characteristics that it reflects. This is strongly influenced by its appearance (Govers *et al.* 2004) and thus carries a great deal of relevance as it can create differentiation even within a brand. In 2005, a study carried out by Govers and Schoormans has also shown that congruence between product personality and the consumer has a positive effect on consumer preference.

Rebelliousness is defined in the dictionary as showing a desire to resist authority, control, or convention (Oxford Pocket Dictionary 2013). Additionally, in the literature what seems to be the most unanimous opinion about what is rebelliousness, is the desire to contradict and fight against the authority of a convention (Stenner, Paul; Marshall, Harriette 1995). In other words, being rebellious comprises the rejection and resistance of a convention.

Through product personality, rebellious consumers would feel more connected to a product that conveys the same values as its personality. Therefore, it is plausible to say that a rebellious consumer is more likely to prefer ugly products, as they are cooler because they stand against the mainstream. On the other hand, people who are not rebellious are more likely to prefer aesthetically pleasing products.

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<sup>3</sup> Govers, P. C. M.; Schoormans, F.P.L. “Product personality and its influence on consumer preference”. 189.

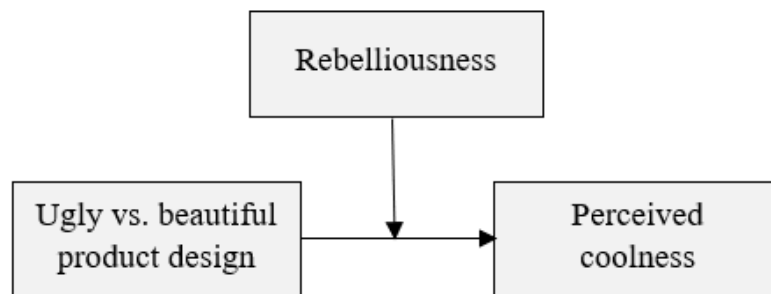
### 3. Hypothesis

Given the discussion above, the hypotheses are as follows:

**H1:** Consumers with rebellious traits perceive an ugly product to be cooler than a beautiful product.

**H2:** Non-rebellious consumers perceive a beautiful product to be less cool.

The statistical model implies a moderator model with the main moderator being rebelliousness between the aesthetics of the product (ugly vs. beautiful) and perception of coolness. An overview of the hypothesis is shown in the conceptual diagram below:



**Figure 1:** Overview of conceptual framework

### 4. Methodology

#### 4.1. Design and Sample

To test the outlined hypothesis, the current research employed a single factor 2 (beautiful vs. ugly product design) between-subjects design. In the online survey, which was built on Qualtrics and was available only in English, the participants were randomly assigned to one of two conditions.

The sample consisted of 158 participants (N=158) from 4 different nationalities who completed a short online survey voluntarily for this study. Participants were randomly assigned to one of the two groups of the independent variable, i.e., beautiful, or

ugly product design. The most representative nationality was Portuguese, illustrating 98.1% of the sample (see appendix 1.1). Out of the 158 responses, 127 agreed to share their age and gender. Gender distribution indicated 61.4% to be female and 38.6% to be male (see appendix 1.2). The age distribution illustrated most participants to be between 18 to 25 years old, representing 37.8% of the cases, followed by the 26-33-year-old and 49-56-year-old groups, which represented 24.4% and 11% of the answers, respectively (see appendix 1.3).

## **4.2. Procedure**

To control some characteristics from affecting participants' opinion on the product, three different products, from three different categories, with different colors, shapes, and forms, were used. Participants in the ugly product design group viewed three pictures featuring basic products with an ugly design (a jar, a computer mouse, and a set of cutleries, all with an odd and uncomfortable design and conflicting colors) (see appendix 2). Participants in the beautiful product design group viewed products from the same categories (i.e., a jar, a computer mouse, and a set of cutleries) but with a beautiful and aesthetically pleasing design (see appendix 2).

*Perception of coolness.* The first part of the survey was used to assess the participants' perception of coolness of the product. For both conditions (ugly and beautiful) and following Caleb Warren's past research on characteristics of brand coolness (2019), participants were asked to evaluate three different products concerning ten different adjectives: extraordinary/useful, aesthetically appealing, energetic, original, authentic, rebellious, high status, subcultural, iconic, and popular. The evaluation requested was rated on a 7-point scale (1 – "Not at all"; "7 – Extremely").

*Manipulation check.* After being exposed to the product and evaluating the items mentioned previously, participants were asked to evaluate the same product also in its

appearance and its technical functions. They were asked to indicate at which level they considered the product to be beautiful, aesthetically pleasing, functional, durable, high quality, and valuable. This part was essentially used to assess if participants considered the product to be beautiful or not, without them realizing that directly. On this part, a 7-point scale was also used (1 – “Not at all”; “7 – Extremely”).

Furthermore, they were required to give their opinion on several statements regarding their personality. This part was subdivided into three groups, one regarding rebelliousness, one regarding the need for uniqueness, and one regarding originality.

*Rebelliousness.* To assess the moderator *rebelliousness*, and inspired on previous research (Paul Stenner and Harriette Marshal 1995), on the second part of the survey subjects were requested to rate on a 7-point Likert scale (1 – “Strongly disagree”; 7 – “Strongly agree”), and using a scale composed by three items to which extent they agreed or disagreed with the following statements: “I do not like to follow the norms”, “I find it exciting to do something shocking” and “I like to think of myself as a bit of a rebel”.

*Control variables.* To control for other individual differences across participants, control variables were also included. Since consumers with a higher need for uniqueness tend to deviate from the norm, as an attempt to be one of a kind, *need for uniqueness* was also assessed using a scale composed of three items (Wan, Xu and Ding 2013): “Being distinctive is important to me”, “I intentionally do things to make myself different from those around me”, “I have a need for uniqueness”, and using a 7-point Likert scale rating (1 – “Strongly disagree”; 7 – “Strongly agree”). Similarly, consumers with originality traits tend to deviate from the conventional, as an attempt to stand out from others. Thus, originality was also measured using again a scale composed of three items: “Being new and inventive is important to me”, “I like to think ahead of others and come up with

groundbreaking ideas”, “I have a need for originality” (1 – “Strongly disagree”; 7 – “Strongly agree”).

### **4.3. Outliers and Missing Data**

SPSS version 28, was the software used to analyze the data. Firstly, an analysis of the missing data was performed. Firstly, from the 224 answers retrieved from Qualtrics, 14 were from the preview mode, i.e., before distributing the survey there were some attempts to see if the survey was working correctly, therefore, these were not considered for the analysis. Additionally, crucial data that was missing from the dependent variable was removed. Such cases had unusual short response times, confirming respondents’ lack of involvement in the survey, and quitting to perform it. These total 52 answers and as a result, 158 answers were the data set used to perform the following analysis.

Thereafter, an outlier analysis was performed. In the *perception of coolness* variable, there were no outliers found (see appendix 3.1). On the *manipulation check*, there were found 6 outliers on the “High-Quality” item (see appendix 3.2). Lastly, there were no outliers found both on the moderator *Rebelliousness* and the control variables *Need for Uniqueness* and *Originality* (see appendix 3.3). In order to keep the sample size and considering these outliers did not have an impact on the results, neither violated any of the assumptions, these were not removed from the sample for the following analysis.

### **4.4. Reliability Analysis**

A reliability analysis was conducted to check the internal consistency of the scales. The measures used for analysis were Cronbach’s alpha, mean inter-item correlations, and Cronbach’s alpha if an item is removed. Cronbach’s alpha is ideally bigger than 0.7 (DeVellis 2003), however, values above 0.8 are desirable.

All scales resulted in a Cronbach alpha above 0.7: 0.809 in *perception of coolness* (see appendix 4.1.), 0.885 in *manipulation check* (see appendix 4.2.), 0.723 in the moderator *rebelliousness* (see appendix 4.3.), and for the control variables, 0.798 in *need for uniqueness* (see appendix 4.4.1.), and 0.823 in *originality* (see appendix 4.4.2.). Considering that both the *manipulation check* and the *personality traits* variables had less than ten items (five and three respectively), the Cronbach alpha values can be smaller (DeVellis 2003). For this case, the prevalent criteria to assess the reliability of the scales was Cronbach's alpha, as all the mentioned variables were verified to be above 0.7.

## 5. Results

### 5.1. Main analysis

*Moderation Analysis.* A moderation analysis was conducted to examine whether the relationship between the independent variable *ugly vs. beautiful product design* on the dependent variable *perception of coolness* was moderated by *rebelliousness*. For this analysis, it was applied a separate bootstrap analysis with 5,000 draws using the Process Model 1 of Hayes (2013).

In this model, the interaction between the independent variable and the dependent variable was not statistically significant ( $B = 0.0158$ ,  $SE = 0.1211$ ,  $p = 0.8967$ ) (see appendix 5.1), indicating that *rebelliousness* was not a significant moderator of the effect of ugly product design on the perception of coolness.

*Control variables.* Moreover, the control variables *need for uniqueness* and *originality* were added to the model as covariates, to assess their potential influence on the dependent variable *perception of coolness*. Similarly, the interaction term was not statistically significant ( $B = 0.0087$ ,  $SE = 0.1210$ ,  $p = 0.9425$ ) in this model (see appendix 5.2), indicating that, even when controlling for individual differences in personality traits,

rebelliousness was not a significant moderator of the effect of ugly product design on perception of coolness. Additionally, the results indicated that *need for uniqueness* was a negative and insignificant predictor of perception of coolness, not controlling for the other effects in the model ( $B = -0.0639$ ,  $SE = 0.0684$ ,  $p = 0.3519$ ) and *originality* was a positive and insignificant predictor of perception of coolness ( $B = 0.0839$ ,  $SE = 0.0798$ ,  $p = 0.2956$ ) (see appendix 5.2).

## 5.2. Additional analysis

*One-way ANOVA.* A one-way ANOVA was conducted to further investigate the impact of product design on perceived coolness. The following study involved one independent variable, which was product design, which is a categorical variable with two groups: ugly and beautiful product design; and one dependent variable, which was perceived coolness, which is a continuous variable. The main goal of this analysis was to assess if there was a statistically significant difference between the means of the two groups. All assumptions of ANOVA were checked first, including normality and homogeneity of variances (see appendix 6.1).

Participants in the beautiful product design condition indicated higher levels of perceived coolness when compared to the ugly product design group. This was represented by a statistically significant difference at the  $p < .05$  level in perceived coolness for the two groups:  $M_{\text{Beautiful}} = 3.88$  vs.  $M_{\text{Ugly}} = 3.60$ ,  $F(1, 155) = 3.116$ ,  $p = 0.079$  (see appendix 6.1). Nevertheless, the level of significance =  $0.079 < 0.05$  indicated that there is no statistical significance of product design (beautiful vs ugly) on perception of coolness (see appendix 6.1).

*One-way ANCOVA.* Following a one-way ANOVA, it was performed a one-way ANCOVA, as an attempt to control for potential variables which might influence the



dependent variable. This enabled a more accurate conclusion and detailed analysis. The covariates used for the analysis of covariance (ANCOVA) were *rebelliousness*, *need for uniqueness*, and *originality*. Assumptions of normality ANOVA were checked first, as previously mentioned for the performance of one-way ANOVA. Homogeneity of variances was verified in Levene's Test of Equality of Error Variances (see appendix 6.2).

Even when controlling for individual differences in personality traits, the analysis still showed that participants in the beautiful product design condition indicated higher levels of perceived coolness when compared to the ugly product design group. This was represented by a statistically significant difference at the  $p < .05$  level in perceived coolness for the two groups:  $M_{\text{Beautiful}} = 3.792$  vs.  $M_{\text{Ugly}} = 3.607$ ,  $F(1, 124) = 1.379$ ,  $p = 0.243$  (see appendix 6.2). Additionally, the ANCOVA analysis indicated a level of significance of 0.724 for *need for uniqueness*, and 0.124 for *originality* (see appendix 6.2).

Overall, when adding the control variables, the interaction remained the same, which means that neither *need for uniqueness* nor *originality* have an effect on perceived coolness for ugly product designs.

*Need for uniqueness.* More moderation analyses were conducted to further investigate other possible moderators. Firstly, a moderation analysis was conducted to examine whether the relationship between the independent variable *ugly vs. beautiful product design* on the dependent variable *perception of coolness* was moderated by *need for uniqueness*. For this analysis, it was applied a separate bootstrap analysis with 5,000 draws using the Process Model 1 of Hayes (2013).

In this model, the interaction between the independent variable and the dependent variable was not statistically significant ( $B = 0.0784$ ,  $SE = 0.1320$ ,  $p = 0.5535$ ) (see

appendix 6.3), indicating that *need for uniqueness* was not a significant moderator of the effect of ugly product design on perception of coolness. Moreover, both the effect of ugly product design on perceived coolness and *need for uniqueness* were negative and not significant:  $B = -0.5526$ ,  $SE = 0.6022$ ,  $p = 0.3606$ , and  $B = 0.0132$ ,  $SE = 0.0801$ ,  $p = 0.8698$ , respectively (see appendix 6.3). Interestingly, meaning that the more consumers with a need for uniqueness think a product is ugly, the less they perceive it to be cool.

*Originality.* Additionally, a moderation analysis using the Process Model 1 of Hayes (2013) was conducted to examine whether the relationship between *ugly vs. beautiful product design on perception of coolness* was moderated by *originality*.

In this analysis, the interaction between the independent variable and the dependent variable was statistically significant ( $B = 0.3553$ ,  $SE = 0.1444$ ,  $p = 0.0153$ ) (see appendix 6.4), indicating that *originality* was a significant moderator of the effect of ugly product design on perception of coolness. Furthermore, for consumers who scored high on originality, the effect of product design on perceived coolness was positive and not significant meaning that there is no difference in perception of coolness between ugly and beautiful products ( $B = 0.1609$ ,  $SE = 0.2071$ ,  $p = 0.4385$ ) (see appendix 6.4) for more original consumers. Whereas, on a low score of originality, the effect of product design on perceived coolness was negative and significant. Hence, for consumers who scored low on originality, ugly products are perceived to be less cool than beautiful ones ( $B = -0.5497$ ,  $SE = 0.2145$ ,  $p = 0.0116$ ) (see appendix 6.4).

## **6. Discussion**

### **6.1. Summary of findings**

The attempt of manipulating participants on whether they would perceive an ugly product cooler than a beautiful one did not have the intended effect. Interestingly, the group of beautiful product design presented higher results on perceived coolness, which

goes in the opposite direction of the purpose of this study. Additionally, rebellious personality traits did not show to moderate the perceptions of coolness, and neither need for uniqueness. However, additional analysis showed that originality moderated this relationship.

The main purpose of this study was to understand whether there were any consumer groups on the market that may perceive ugly and odd products to be cooler than the beautiful and aesthetically pleasing ones. On the first analysis (moderation analysis using Hayes Model 1), the results indicated that *rebelliousness* did not moderate the relationship between product design and perception of coolness, which was the main hypothesis for this study.

Then, a second analysis was performed using the control variables as covariates. This intended to evaluate whether *need for uniqueness* and *originality* would influence the *perception of coolness*. Although these variables were assumptions made only for this experiment and not being inspired by other authors' theories, it made sense that the two were also individual characteristics that influence behaviors that deviate from the norm. However, the results of this analysis indicated that even when controlling for individual differences in personality traits, *rebelliousness* was not a moderator on the relationship between product design and perception of coolness.

Furthermore, additionally analyses were performed to increase the accuracy and in-depth of the results. A first analysis, using ANOVA demonstrated there is no significant relationship between product design and perception of coolness. Further, an ANCOVA was performed, to assess whether rebelliousness moderated this interaction. Which, again, proved to be unsuccessful since the results showed that *rebelliousness* did not have any significant influence on the relationship between the two. Thirdly, a moderation analysis using Hayes Model 1 was conducted using *need for uniqueness* as a

moderator (instead of rebelliousness). Which the results of the test, indicated that *need for uniqueness* did not moderate the interaction between the dependent and independent variables. Lastly, a similar analysis was carried out, but using *originality* as a moderator. Interestingly, this prediction was proved to be right indicating that *originality* moderated the relationship between product design and perception of coolness. This analysis concluded that for consumers with low levels of originality, ugly products are less cool than beautiful ones.

## **6.2. Managerial implications**

Based on the findings of the present study, there are some managerial recommendations deserving attention. Even though the manipulation of participants (ugly vs beautiful product design) did not work, previous research shows that consumer preferences are facing a shift to companies that sustain values that are congruent with their own (Gerzema & D'Antonio, 2011; Ki & Kim, 2016; Noble, Haytko & Phillips, 2009). Nowadays, companies must analyze in-depth the consumer's profiles in order to appeal to consumers and/or compete with other companies (Ozkan, Mustafa; Solmaz, Betul, 2017). Additionally, the originality factor is one to consider. The study showed that less original consumers, perceive ugly products as less cool than beautiful ones, meaning that for this type of consumer in the market, managers should focus on investing in more simple and aesthetically pleasing products, to satisfy their preferences. Furthermore, the influence of the powerful Generation Z should also be addressed. Along with the recent changes in consumer preferences and purchase behavior, it is necessary to analyze the gen Z consumer, which values different attributes and is more interested in technology than Generations X and Y. In fact, companies' implications for this generation are threefold: consumption not as a possession, but as access, as an expression of individual identity, and as an issue of ethical discussions. This challenges companies to

switch their strategies and rethink how to deliver value to the consumer. There is a window of opportunity for managers to take advantage of this generation. Over time, managers, and marketers should strive to understand this generation, in terms of their preferences and respective motivations to better serve this segment of society. Directly related to this study, managers should continue to look for a reason why some consumer groups prefer different product designs and the motivations behind them.

## **7. Limitations and Future Research**

The present study exhibits several limitations. Firstly, the survey was distributed through social media platforms such as Instagram, Facebook, WhatsApp, and LinkedIn. Thus, this might have influenced the data collected, since many of the participants were acquaintances, therefore, may have shared information with other people about the survey. Additionally, the study would have benefited from a more diverse sample population. The results have shown a majority of responses from female participants and a significant concentration on the age group of 18 to 25-years-old (almost 40%).

Secondly, the images used for the ugly product design group were not ideal. The pictures were randomly chosen and did not follow previous research. For the choice of images, it was only considered the strange and ugly looks of it. It was only based on self-judgment, which does not follow a specific pattern or rationale. Additionally, the pictures lacked a subtitle, which made it difficult for respondents to even understand which product they were evaluating. For future research, I would recommend performing a pretest of the images and picking those pairs that show a statistical difference in terms of beauty, and nothing else (i.e., color, lighting, etc.). This will improve the choice of pictures, thus improving the accuracy and reliability of the study.

Thirdly, the subgroup of the survey used for the manipulation check asked participants to indicate to which extent they believed the object to be beautiful, aesthetically pleasing, functional, durable, high quality, and valuable. This intended to understand if respondents thought the product was ugly or beautiful without asking them directly. However, the following items were again chosen randomly and did not follow any previous research. For future research, I would recommend sustaining these on previous research to support the consistency of the study.

Lastly, the moderator should have been analyzed apart from the control variables and should have been addressed in a more detailed way. Moreover, the questions should have been posed in a different direction. I.e., instead of saying “I do not like to follow the norms”, maybe say “I always follow the norms”. Even though, this followed previous research, I personally believe that people tend to relate less to this kind of direction.

Future studies could focus on finding if there are any consumer groups in the market that prefer ugly over beautiful product design, and if it is not perception of coolness, then what motivates them?

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## 9. Appendices

### Appendix 1: Sample

#### Appendix 1.1.: Nationality distribution

**What is your nationality?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	American	1	.6	.6	.6
	Italian	1	.6	.6	1.3
	Norwegian	1	.6	.6	1.9
	Portuguese	155	98.1	98.1	100.0
	Total	158	100.0	100.0	

#### Appendix 1.2.: Gender distribution

**What is your gender?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	49	31.0	38.6	38.6
	Female	78	49.4	61.4	100.0
	Total	127	80.4	100.0	
Missing	System	31	19.6		
Total		158	100.0		

#### Appendix 1.3.: Age distribution

**What is your age?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	48	30.4	37.8	37.8
	26-33	31	19.6	24.4	62.2
	34-40	13	8.2	10.2	72.4
	41-48	7	4.4	5.5	78.0
	49-56	14	8.9	11.0	89.0
	57-64	10	6.3	7.9	96.9
	65-72	1	.6	.8	97.6
	+72	3	1.9	2.4	100.0
	Total	127	80.4	100.0	
Missing	System	31	19.6		
Total		158	100.0		

## **Appendix 2: Survey**

### **Start of Block: Introduction**

Introduction

Dear participant,

My name is Francisca Mastbaum Faria and I'm a MSc student in Management at Nova School of Business and Economics. The following survey aims to collect useful data for the research project being conducted as part of my master thesis about product design perceptions.

All the data will be collected anonymously and remain like that. The procedure involves filling an online survey, divided in two parts, that will not take more than 5 minutes to complete.

Lastly, I want to thank you very much in advance for answering this questionnaire, your help is extremely important to me and will be very much appreciated!

For any additional information please reach out to me by: 44762@novasbe.pt

Francisca Mastbaum Faria

### **End of Block: Introduction**

---

### **Start of Block: Part 1**

#### **Part 1**

In this part, I would like to get your opinion on several products. Please take a look at each product carefully and indicate how you would evaluate them.

### **End of Block: Part 1**

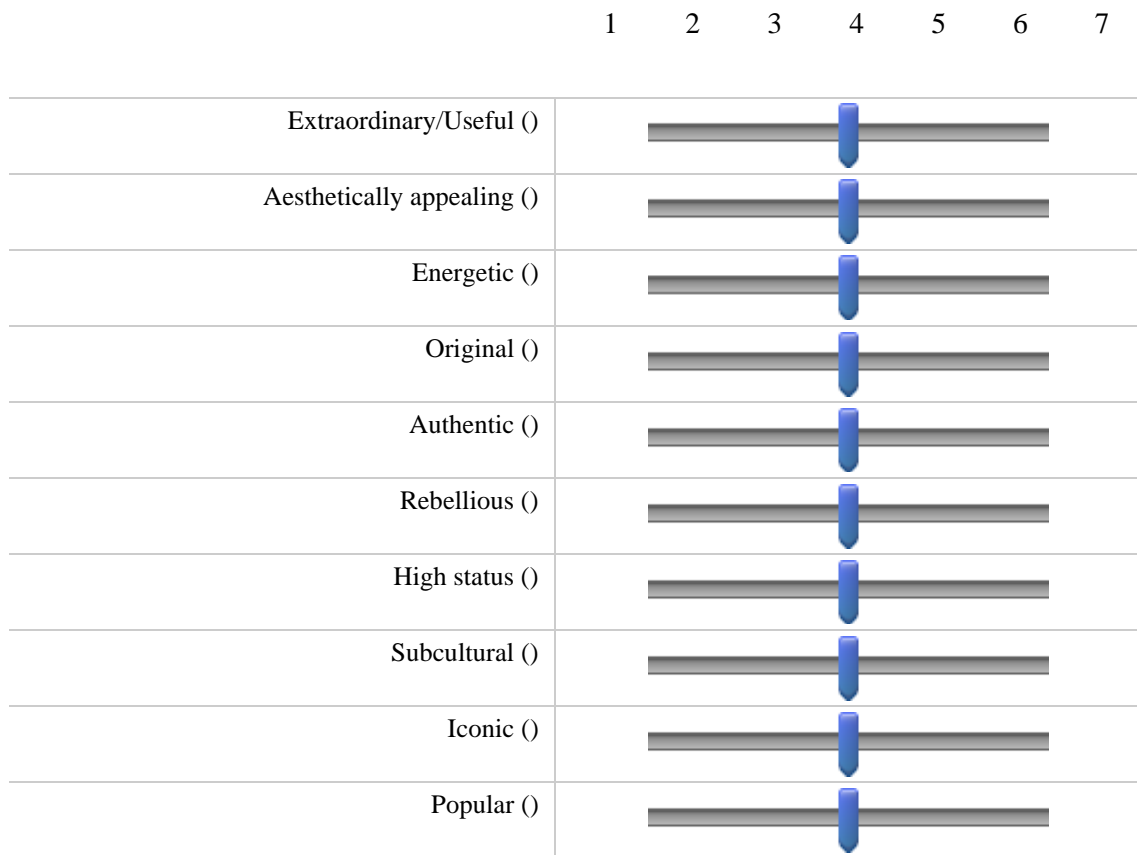
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### **Start of Block: Manipulation check - Ugly**

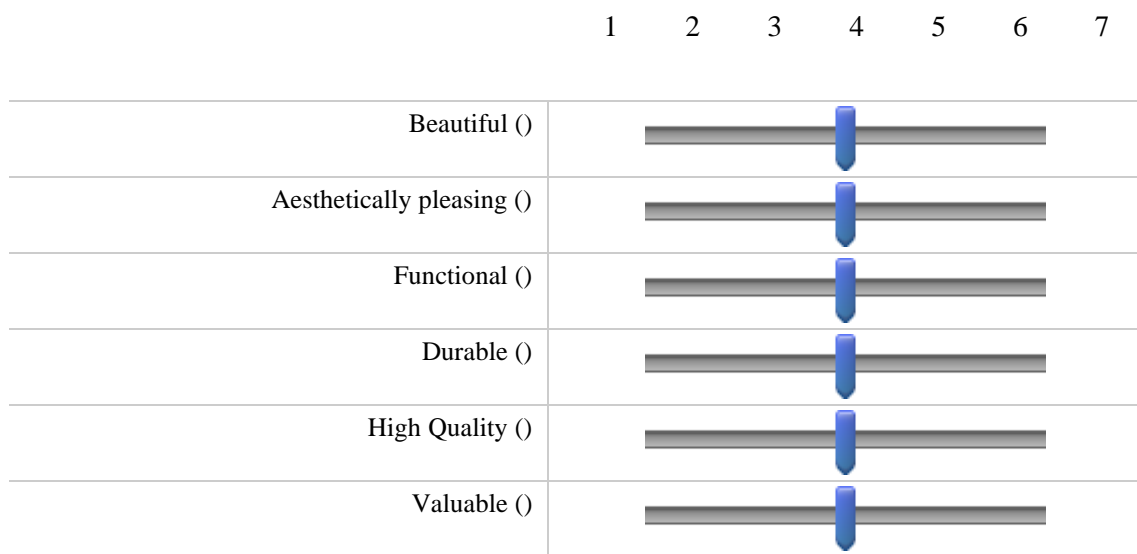
Please take a close look at the following product.



Please evaluate the product concerning the following:



Now, please indicate at which level you think the product is:



Please take a close look at the following product.



Please evaluate the product concerning the following:

	1	2	3	4	5	6	7
Extraordinary/Useful ()							
Aesthetically appealing ()							
Energetic ()							
Original ()							
Authentic ()							
Rebellious ()							
High status ()							
Subcultural ()							
Iconic ()							
Popular ()							



Now, please indicate at which level you think the product is:

	1	2	3	4	5	6	7
Beautiful ()				<input checked="" type="checkbox"/>			
Aesthetically pleasing ()				<input checked="" type="checkbox"/>			
Functional ()				<input checked="" type="checkbox"/>			
Durable ()				<input checked="" type="checkbox"/>			
High Quality ()				<input checked="" type="checkbox"/>			
Valuable ()				<input checked="" type="checkbox"/>			

---

Page Break

Please take a close look at the following product.



---

Please evaluate the product concerning the following:

1 2 3 4 5 6 7

Extraordinary/Useful ()	
Aesthetically appealing ()	
Energetic ()	
Original ()	
Authentic ()	
Rebellious ()	
High status ()	
Subcultural ()	
Iconic ()	
Popular ()	

Now, please indicate at which level you think the product is:

1 2 3 4 5 6 7

Beautiful ()	
Aesthetically pleasing ()	
Functional ()	
Durable ()	
High Quality ()	
Valuable ()	

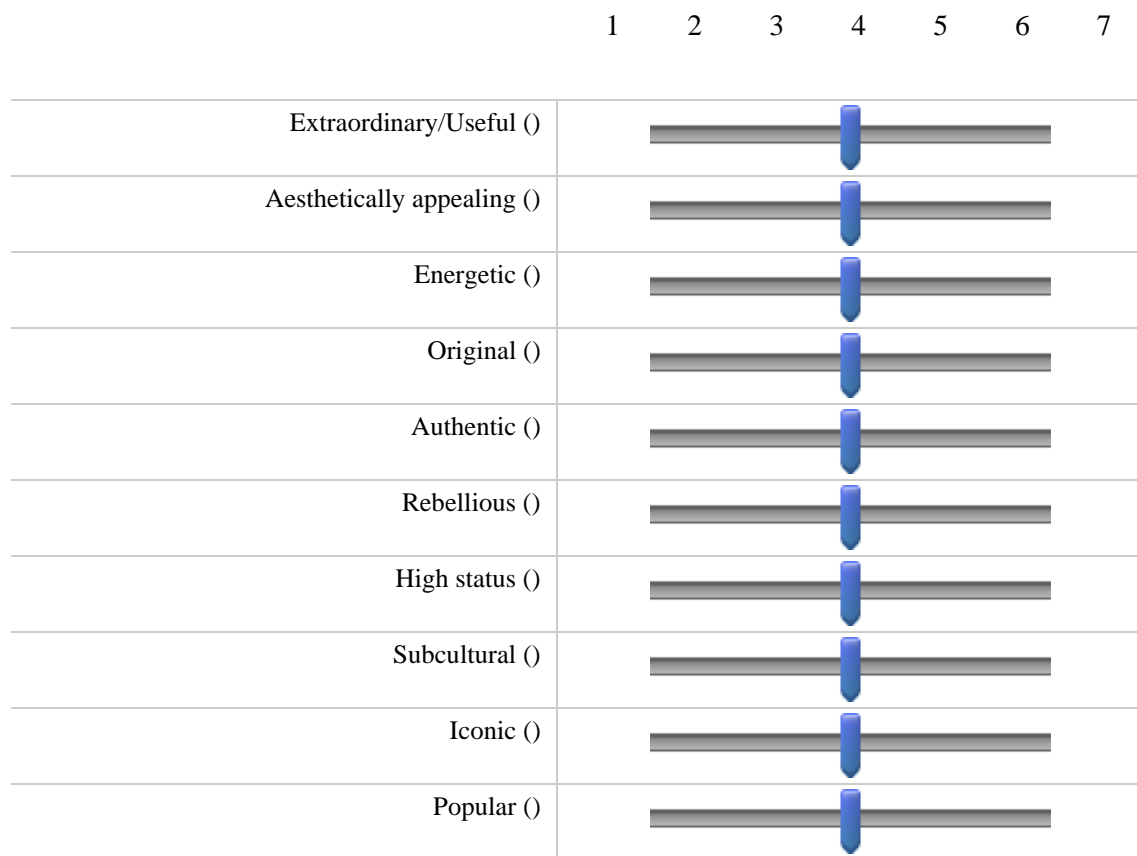
End of Block: Manipulation check - Ugly

Start of Block: Manipulation Check - Beautiful

Please take a close look at the following product.








Please evaluate the product concerning the following:



Now, please indicate at which level you think the product is:

1 2 3 4 5 6 7

Beautiful ()	
Aesthetically pleasing ()	
Functional ()	
Durable ()	
High Quality ()	
Valuable ()	











Page Break

Please take a close look at the following product.









Please evaluate the product concerning the following:

1    2    3    4    5    6    7

Extraordinary/Useful ()	
Aesthetically appealing ()	
Energetic ()	
Original ()	
Authentic ()	
Rebellious ()	
High status ()	
Subcultural ()	
Iconic ()	
Popular ()	

Now, please indicate at which level you think the product is:

1    2    3    4    5    6    7

Beautiful ()	
Aesthetically pleasing ()	
Functional ()	
Durable ()	
High Quality ()	
Valuable ()	

Page Break

Please take a close look at the following product.






Please evaluate the product concerning the following:

	1	2	3	4	5	6	7
Extraordinary/Useful ()							
Aesthetically appealing ()							
Energetic ()							
Original ()							
Authentic ()							
Rebellious ()							
High status ()							
Subcultural ()							
Iconic ()							
Popular ()							

Now, please indicate at which level you think the product is:

1 2 3 4 5 6 7

Beautiful ()	
Aesthetically pleasing ()	
Functional ()	
Durable ()	
High Quality ()	
Valuable ()	

End of Block: Manipulation Check - Beautiful

Start of Block: Personality Check

Part 2

**Part 2**

On this part, I would like to get your opinion on several statements.

-----  
 Page Break

Please indicate to which extent do you agree or disagree with the following statements

	1 (Strongly disagree) (1)	2 (Disagree) (2)	3 (Somewhat disagree) (3)	4 (Neither agree nor disagree) (4)	5 (Somewhat agree) (5)	6 (Agree) (6)	7 (Strongly agree) (7)
I do not like to follow the norms. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find it exciting to do something shocking. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like to think of myself as a bit of a rebel. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Please indicate to which extent do you agree or disagree with the following statements



	1 (Strongly disagree) (1)	2 (Disagree) (2)	3 (Somewhat disagree) (3)	4 (Neither agree nor disagree) (4)	5 (Somewhat agree) (5)	6 (Agree) (6)	7 (Strongly agree) (7)
Being distinctive is important to me. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I intentionally do things to make myself different from those around me. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a need for uniqueness. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Please indicate to which extent do you agree or disagree with the following statements

	1 (Strongly disagree) (1)	2 (Disagree) (2)	3 (Somewhat disagree) (3)	4 (Neither agree nor disagree) (4)	5 (Somewhat agree) (5)	6 (Agree) (6)	7 (Strongly agree) (7)
Being new and inventive is important to me. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like to think ahead of others and come up with groundbreaking ideas. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a need for originality. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Personality Check

## Start of Block: Demographics

What is your gender?

- Male (1)
  - Female (2)
  - Prefer not to say (3)
- 

What is your nationality?

---

What is your age?

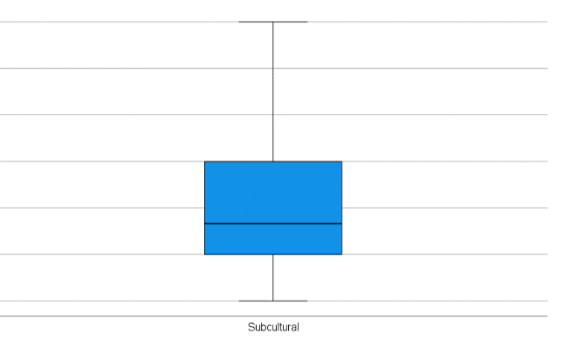
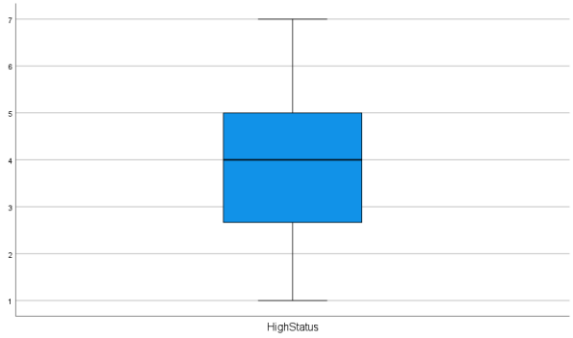
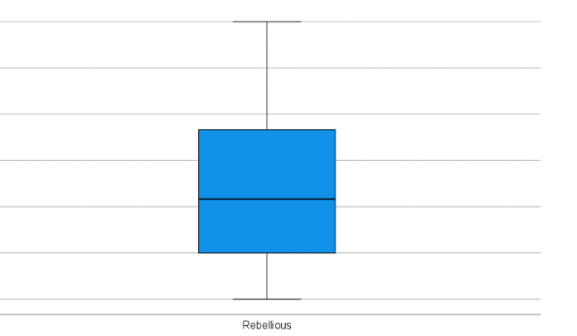
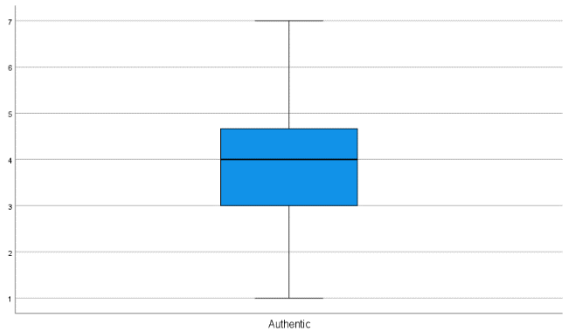
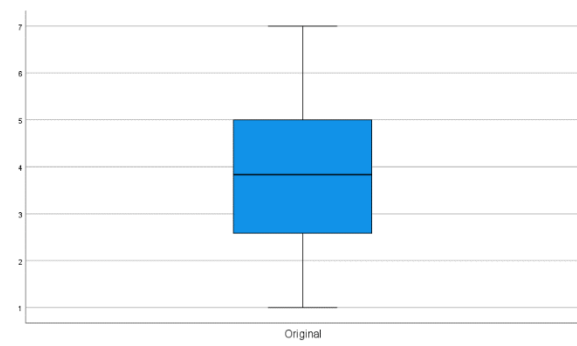
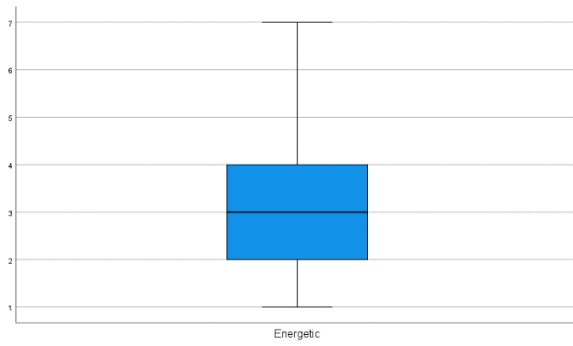
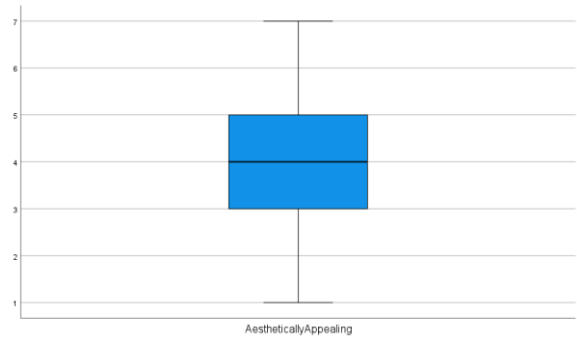
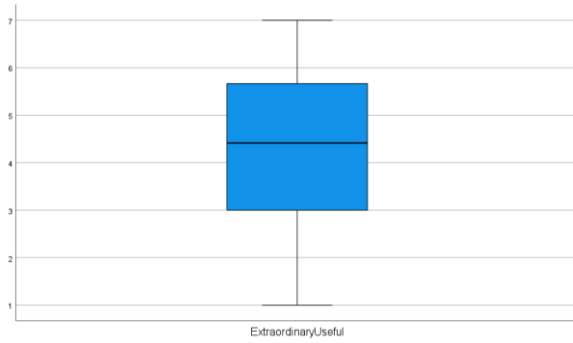
- <18 (1)
- 18-25 (2)
- 26-33 (3)
- 34-40 (4)
- 41-48 (5)
- 49-56 (6)
- 57-64 (7)
- 65-72 (8)
- +72 (9)

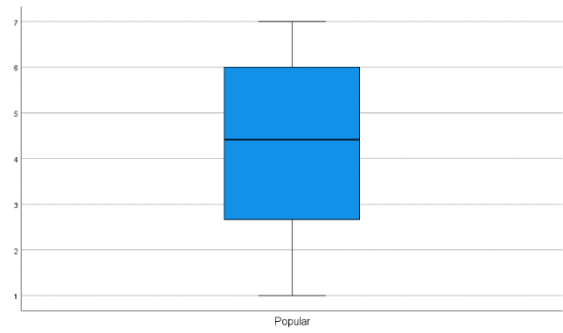
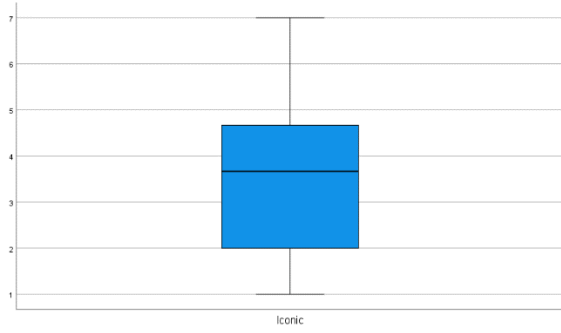
End of Block: Demographics

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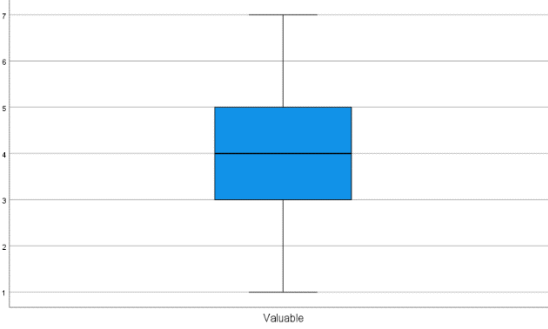
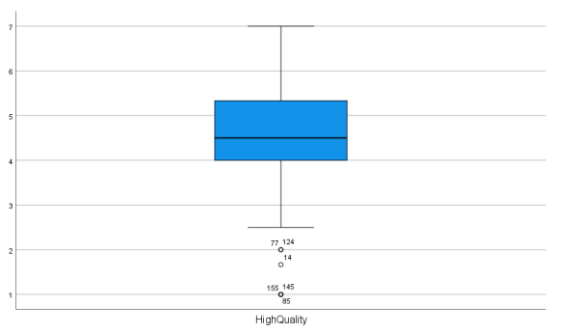
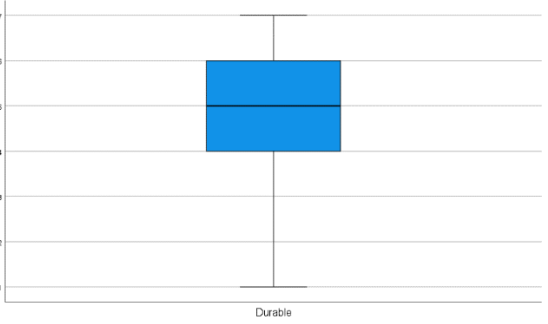
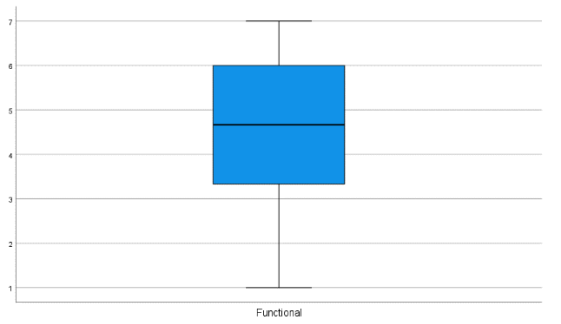
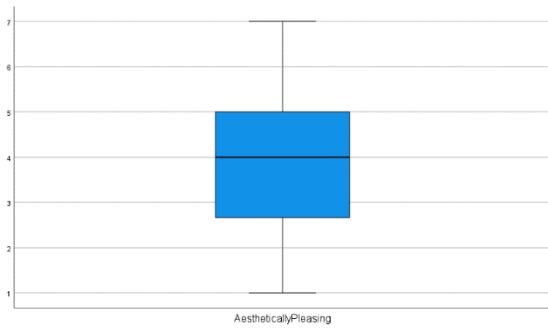
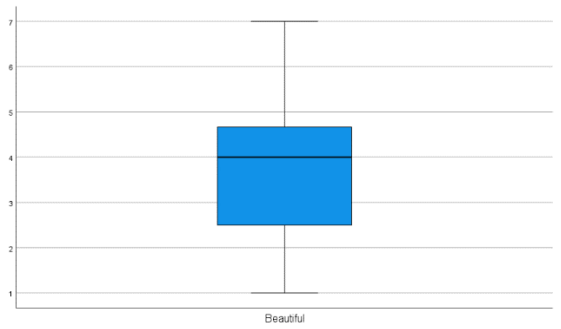
## Appendix 3: Outliers

### Appendix 3.1: Perception of Coolness

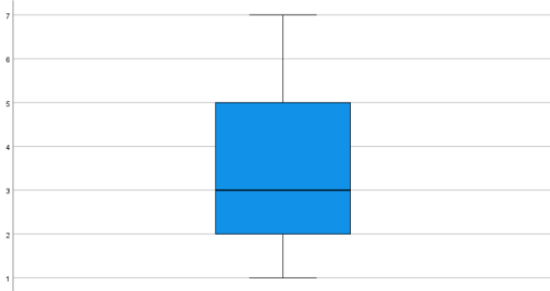




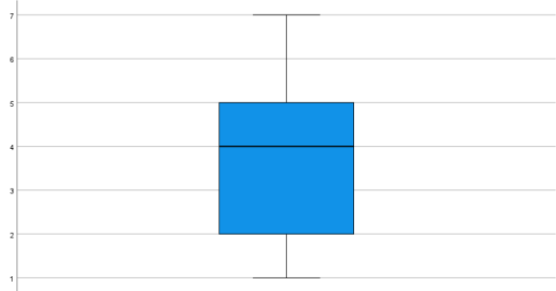
**Appendix 3.2: Manipulation Check**



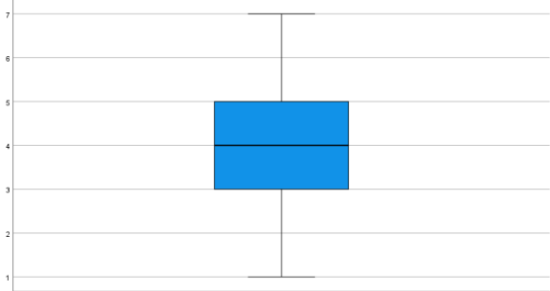
**Appendix 3.3.: Personality Traits**



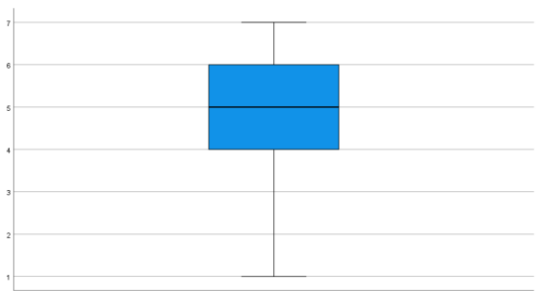
Please indicate to which extent do you agree or disagree with the following statements - I do not like to follow the norms.



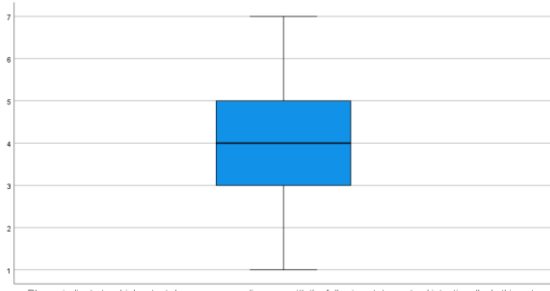
Please indicate to which extent do you agree or disagree with the following statements - I find it exciting to do something shocking.



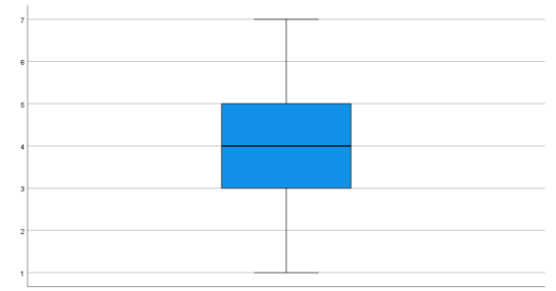
Please indicate to which extent do you agree or disagree with the following statements - I like to think of myself as a bit of a rebel.



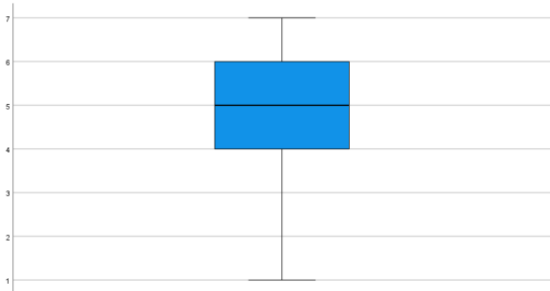
Please indicate to which extent do you agree or disagree with the following statements - Being distinctive is important to me.



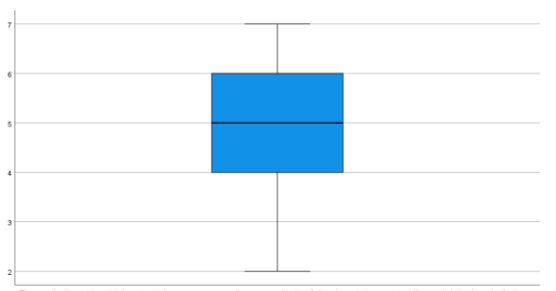
Please indicate to which extent do you agree or disagree with the following statements - I intentionally do things to make myself different from those around me.



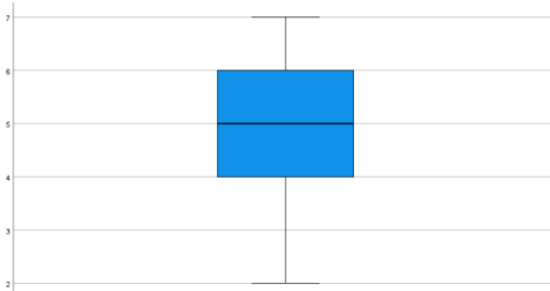
Please indicate to which extent do you agree or disagree with the following statements - I have a need for uniqueness.



Please indicate to which extent do you agree or disagree with the following statements - Being new and inventive is important to me.



Please indicate to which extent do you agree or disagree with the following statements - I like to think ahead of others and come up with groundbreaking ideas.



Please indicate to which extent do you agree or disagree with the following statements - I have a need for originality.

## Appendix 4: Reliability Analysis Outputs

### Appendix 4.1.: Perception of Coolness

#### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.809	.818	10

#### Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.707	2.958	4.268	1.310	1.443	.208	10

#### Item-Total Statistics

	Scale Mean if Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Extraordinary/Useful	32.7986	76.587	.341	.681	.809
Aesthetically Appealing	33.0203	74.302	.462	.607	.795
Energetic	33.8928	73.292	.693	.544	.776
Original	33.3145	77.143	.329	.685	.810
Authentic	33.1275	72.600	.548	.539	.786
Rebellious	33.8072	76.142	.400	.716	.802
High Status	33.1942	70.784	.608	.470	.779
Subcultural	34.1087	74.245	.521	.397	.789
Iconic	33.5130	68.589	.672	.526	.771
Popular	32.8232	72.946	.403	.579	.805

### Appendix 4.2.: Manipulation Check

#### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.885	.887	6

#### Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	4.242	3.730	4.794	1.064	1.285	.183	6

*Item-Total Statistics*

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Beautiful	21.7235	34.710	.733	.812	.859
Aesthetically Pleasing	21.5235	34.636	.724	.806	.860
Functional	20.9494	33.513	.674	.523	.871
Durable	20.6593	35.776	.691	.646	.866
High Quality	20.9037	36.478	.728	.657	.861
Valuable	21.5062	36.172	.655	.491	.871

**Appendix 4.3.: Moderator**

*Reliability Statistics*

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.723	.725	3

*Summary Item Statistics*

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.741	3.476	3.913	.437	1.126	.054	3

*Item-Total Statistics*

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I do not like to follow the norms.	7.75	7.823	.503	.265	.684
I find it exciting to do something shocking.	7.39	7.328	.528	.296	.656
I like to think of myself as a bit of a rebel.	7.31	7.383	.605	.367	.563

**Appendix 4.4.: Control Variables**

### Appendix 4.4.1.: Need for uniqueness

#### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.798	.798	3

#### Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	4.437	4.087	5.079	.992	1.243	.311	3

#### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Being distinctive is important to me.	8.23	7.779	.606	.375	.763
I intentionally do things to make myself different from those around me.	9.17	6.188	.694	.482	.668
I have a need for uniqueness.	9.22	6.974	.634	.412	.732

### Appendix 4.4.2.: Originality

#### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.823	.825	3

#### Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5.030	4.935	5.121	.185	1.038	.009	3

#### Item-Total Statistics



	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Being new and inventive is important to me.	10.06	4.899	.661	.439	.776
I like to think ahead of others and come up with groundbreaking ideas.	9.97	5.462	.700	.491	.740
I have a need for originality.	10.15	5.074	.680	.469	.753

## Appendix 5: Main Analysis

### Appendix 5.1: Moderation Analysis output

OUTCOME VARIABLE:

DV

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2950	.0870	.7500	3.9089	3.0000	123.0000	.0105

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.1687	.3108	10.1968	.0000	2.5536	3.7839
VAR00001	-.3468	.4843	-.7160	.4754	-1.3055	.6119
Rebel	.1820	.0819	2.2224	.0281	.0199	.3442
Int_1	.0158	.1211	.1301	.8967	-.2239	.2555

Product terms key:

Int\_1 : VAR00001 x Rebel

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0001	.0169	1.0000	123.0000	.8967

\*\*\*\*\* ANALYSIS NOTES AND ERRORS \*\*\*\*\*

Level of confidence for all confidence intervals in output:

95.0000

### Appendix 5.2: Moderation Analysis with covariates output

OUTCOME VARIABLE:  
DV

Model Summary

R	R-sq	MSE	F	df1	df2	p
.3079	.0948	.7372	2.5142	5.0000	120.0000	.0334

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.0132	.4703	6.4062	.0000	2.0819	3.9444
VAR00001	-.3026	.4843	-.6249	.5332	-1.2614	.6562
Rebel	.1808	.0831	2.1749	.0316	.0162	.3453
Int_1	.0087	.1210	.0722	.9425	-.2308	.2482
Uniq	-.0639	.0684	-.9345	.3519	-.1994	.0715
Orig	.0839	.0798	1.0505	.2956	-.0742	.2420

Product terms key:

Int\_1 : VAR00001 x Rebel

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0000	.0052	1.0000	120.0000	.9425

\*\*\*\*\* ANALYSIS NOTES AND ERRORS \*\*\*\*\*

Level of confidence for all confidence intervals in output:  
95.0000

## Appendix 6: Additional Analysis

### Appendix 6.1: One-way ANOVA statistical output

#### Descriptives

Perception of coolness

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
					Lower Bound	Upper Bound			
Beautiful	82	3.8844	.90891	.10037	3.6847	4.0841	1.27	6.17	
Ugly	75	3.6014	1.09754	.12673	3.3489	3.8539	1.20	7.00	
Total	157	3.7492	1.01018	.08062	3.5900	3.9085	1.20	7.00	
Model									
Fixed Effects			1.00340	.08008	3.5910	3.9074			
Random Effects				.14155	1.9507	5.5478			.02719

#### Tests of Normality

IV	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk			
	Statistic	df	Sig.	Statistic	df	Sig.	
Perception of coolness	Beautiful	.089	82	.159	.976	82	.130
	Ugly	.055	75	.200*	.986	75	.555

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

#### Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Perception of coolness	Based on Mean	3.097	1	155	.080
	Based on Median	3.209	1	155	.075
	Based on Median and with adjusted df	3.209	1	153.512	.075
	Based on trimmed mean	3.251	1	155	.073

#### ANOVA

Perception of coolness

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.137	1	3.137	3.116	.079
Within Groups	156.055	155	1.007		
Total	159.192	156			

#### Appendix 6.2: One-way ANCOVA statistical output

##### Tests of Between-Subjects Effects

Dependent Variable: Perception of coolness

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3.010 <sup>a</sup>	3	1.003	1.292	.280
Intercept	49.411	1	49.411	63.644	<.001
Uniqueness	.097	1	.097	.126	.724
Originality	1.860	1	1.860	2.395	.124
Condition	1.071	1	1.071	1.379	.243
Error	94.716	122	.776		
Total	1826.670	126			
Corrected Total	97.726	125			

a. R Squared = .031 (Adjusted R Squared = .007)

#### Estimated Marginal Means

**Condition**

Dependent Variable: Perception of coolness

Condition	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Beautiful	3.792 <sup>a</sup>	.109	3.577	4.007
Ugly	3.607 <sup>a</sup>	.114	3.382	3.833

a. Covariates appearing in the model are evaluated at the following values: Uniqueness = 4.4286, Originality = 5.0410.

**Levene's Test of Equality of Error Variances<sup>a</sup>**

Dependent Variable: DVMeanCool

F	df1	df2	Sig.
.787	1	124	.377

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Uniqueness + Originality + VAR00001

**Appendix 6.3: Moderation Analysis with *need for uniqueness* as moderator**

```

OUTCOME VARIABLE:
DV

Model Summary
      R      R-sq      MSE      F      df1      df2      p
    .1311    .0172    .8074    .7167    3.0000   123.0000   .5438

Model
      coeff      se      t      p      LLCI      ULCI
constant  3.8774    .3773   10.2755  .0000    3.1305    4.6243
VAR00001  -.5526    .6022   -.9177   .3606   -1.7445    .6393
Uniq     -.0132    .0801   -.1642   .8698   -.1717    .1454
Int_1     .0784    .1320    .5942   .5535   -.1829    .3397

Product terms key:
Int_1      :      VAR00001 x      Uniq

Test(s) of highest order unconditional interaction(s):
      R2-chng      F      df1      df2      p
X*W     .0028     .3530     1.0000   123.0000   .5535

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:
95.0000

```

**Appendix 6.4: Moderation Analysis with *originality* as moderator**

OUTCOME VARIABLE:

DV

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2751	.0757	.7404	3.3299	3.0000	122.0000	.0219

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.9676	.4811	8.2461	.0000	3.0151	4.9201
VAR00001	-1.9710	.7434	-2.6514	.0091	-3.4426	-.4994
Orig	-.0347	.0928	-.3738	.7092	-.2185	.1491
Int_1	.3553	.1444	2.4609	.0153	.0695	.6411

Product terms key:

Int\_1 : VAR00001 x Orig

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0459	6.0559	1.0000	122.0000	.0153

-----

Focal predict: VAR00001 (X)

Mod var: Orig (W)

Conditional effects of the focal predictor at values of the moderator(s):

Orig	Effect	se	t	p	LLCI	ULCI
4.0000	-.5497	.2145	-2.5628	.0116	-.9743	-.1251
5.0000	-.1944	.1536	-1.2656	.2081	-.4985	.1097
6.0000	.1609	.2071	.7772	.4385	-.2490	.5708