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**The effect of implicit theories of beauty on the
purchasing intentions of ugly food**

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Abstract: This research aims to understand if implicit theories of beauty (incremental belief- beauty is something malleable - vs entity belief - beauty is something fixed) can alter the purchasing intentions of ugly food -that is food that has an unusual shape or colour and that frequently ends up going to waste. It was predicted that an entity theorist would purchase less ugly food than an incremental theorist, as the former aims at self-signalling himself, while the latter would be more focused on the process and the ways to self-improve. As a result, beauty incremental theorists were likely to have a lower bias towards performance according to the aesthetic (negative aesthetic effect) compared to entity theorists. An experiment in which implicit theories of beauty was manipulated was conducted to test this prediction. Data analyses included an ANOVA and ANCOVA. Nevertheless, no relationship was found between implicit theories of beauty and purchasing intentions of ugly food, as well as, no connection was found between implicit theories of beauty and the negative aesthetic effect. Finally, the limitations and possible justifications for the result of this study were underlined, as well as, what future research can be developed.

Keywords: Implicit Theory of Beauty, Ugly Food, Negative Aesthetic Effect, Aesthetic Premium, Food Waste Problem

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1. Introduction

According to the Food and Agriculture Organization, an estimated 1.3 billion tonnes of food is wasted globally each year, which represents one-third of the food produced for human consumption. Additionally, it is estimated that 25% of vegetables and fruit are discarded because they do not comply with retailers' standards for their appearance. However, this process of discarding food may even start before the retailer. Throughout production, farmers can discard up to 30% of produce as it is not considered "pretty enough" to sell to the retailer (Berkenkamp & Nennich, 2015). Then, once the production of unattractive produce reaches the retailers, they are faced with the decision of what to do with abnormally shaped food. Most simply throw it out (34%), others offer steep price discounting (34%) or try to blend unattractive produce with other produce (11%) (Grewal, Hmurovic, Lamberton & Reczek, 2018). Lastly, once it reaches the consumers, research has proven that when faced with abnormality shaped fresh produce, their purchase intentions decrease (Loebnitz & Grunert, 2014).

Not only is this costly for farmers, retailers and wholesalers – as this can harm their expected profits (Aubrey 2016) -, but it is also damaging for the environment, as most food waste ends up in landfills producing a large amount of methane, a powerful greenhouse effect. To address this issue, some retailers have promoted food that has an unusual shape or colour, also known as ugly food, by substantially reducing the selling price and/or positively framing its atypical appearance (Zamon, 2015). For instance, French retailer Intermarché and Whole Foods launched campaigns that celebrated these type of foods (Aubrey, 2016; Smithers, 2016).

In this paper, the focus will be consumer's purchasing intentions, in other words, what factors can influence their purchasing and if there are managerial implications that can be drawn to help retailers and wholesalers sell these products.

Indeed, consumers expect a correlation between aesthetics and performance. Hence, they assume that the more attractive design is functionally superior (Chaiken & Maheswaran, 1994), this leads to a negative aesthetic effect – a bias towards performance upon the aesthetic information (Hoegg, Alba & Dahl, 2010). Therefore, once consumers see unattractive produce, they believe it will taste worse or perform worse in terms of cooking. Additionally, consumers believe that the consumption of unattractive food can act as a self-diagnostic signal (Gao, 2009), which negatively affects how they perceive themselves and, therefore, affects their willingness to purchase them. Furthermore, research has also shown that there is an aesthetic premium - “what is beautiful is good” stereotype -, observed in person-to-person interactions and products (Bloch, 1995; Liu, 2017), which leads to an even higher aversion for unattractive produce. However, what impacts this aversion towards ugly food? Can the way consumers perceive ugly food be influenced by certain beliefs that are intrinsic to each person? That is, would a certain person be more willing to purchase ugly food than another?

Undeniably, it is deeply important to understand the consumers' motivations with regards to beauty and aesthetic. According to implicit theories (Dweck, 1999), a person that believes that beauty is changeable and malleable is characterized by having an incremental belief, whereas someone that believes that beauty is fixed and cannot be changed has an entity belief. Nevertheless, implicit theories have been analysed in many other domains. For instance, on the domain of personality and brand, studies show that entity theorists use brand experiences as a self-signal, whereas incremental theorists are

unlikely to use brands as signals of the self, as well as being unlikely to have their self-perceptions affected by a specific brand (Park & John, 2010). Moreover, research on the implicit theories of intelligence also led to similar conclusions, that when a trait is malleable it leads individuals to work harder at improving the trait, whereas the belief that a trait is fixed will be translated into signalling positive qualities to others or the self (Hong et al., 1999). A question arises once again: Can an entity theorist or incremental theorist be connected to the purchasing intentions of ugly food?

Having this in mind, this research aims to study whether the type of implicit theory a person has (incremental or entity), with regards to beauty, can affect the purchasing intentions of ugly food. Additionally, it also intends to study if an incremental or entity theorist will more likely believe that an unattractive product has a lower functionality, which would lead to a lower willingness to pay for ugly food, than another consumer with the opposite belief. This bias of functionality, according to visual traits, is determined as the negative aesthetic effect (Hoegg, Alba & Dahl, 2010).

This research will be important for two reasons: first, in order to reduce the food waste problem, a current topic in today's society, which causes powerful greenhouse effects and damages deeply our planet, as well as the social variable that millions of people are undernourished while good quality food is going to waste due to its aesthetics. Secondly, this research will be able to provide real conclusions that managers and retailers will be able to incorporate in their businesses, leading to a higher volume sold of ugly food. Moreover, this research will contribute to the implicit theories' literature in the scope of beauty, that has very little research done, as well as, adding a new insight of the research on ugly food by connecting it towards implicit theories.

2. Literature Review

2.1 Ugly Food

Ugly Food, in other words, food that has an unusual shape or colour, frequently ends up going to waste as most retailers do not accept selling these types of foods. Additionally, proprietors report observing clients expressly avoiding unattractive food (Grewal et al., 2018). Indeed, it has been proven that there is a negative correlation between the abnormal shape of fresh produce and purchase intentions (Loebnitz & Grunert, 2014). Studies have established the existence of the “what is beautiful is good” stereotype, meaning that attractive individuals are evaluated as more socially skilled, intelligent, and more capable (Dion, Berscheid, & Walster, 1972; Eagly, 1991). This phenomenon is observed not only in person-to-person interactions but also in the perception of consumer products (Bloch, 1995; Liu, 2017), hence, consumers are automatically averse to ugly food. Additionally, another important theory worth debating is categorization theory. According to this, products that resemble the custom or prototype in any category are attributed to more positive qualities than uncharacteristic goods (Bless & Schwarz, 2010). For instance, consumers are extremely used to fruit and vegetables, hence, they will prefer the norm of these type of products. Consequently, each deviation from the normal will be considered as suboptimal, with a negative impact on their product evaluations (Mandler, 1982).

Other studies have also shown that consumers devalue ugly food because of altered self-perception. By imagining the consumption of these products, it can act as a self-diagnostic signal which negatively affects how customers view themselves, which in turn will lower their willingness to pay for these products. In other words, consumers choose products that reflect who they are (Gao et al., 2009) and who they are not (Berger & Heath, 2007), that is, what they would like to become. On that note, it is very important to mention the

importance of the self in the purchasing decision. According to self-perception theory (Bem, 1972) and self-signalling theory (Bodner and Prelec, 2003), people make inferences about themselves based on observing their behaviours and concluding what attitudes must have caused it. When consumers choose more attractive products, it works as a means of self-affirmation (Townsend & Sood, 2012). Usually, negative self-perception influences negatively the willingness to pay for the products (Grewal et al., 2018), and attractive products reduce this negative self-perception. Therefore, it is expected that consumers do not opt for abnormal produce as it would negatively influence their self-perception.

2.2 Aesthetics with regards to produce

As further discussion in ugly food domain appears, it is deeply important to discuss aesthetic and beauty in this subject, as indeed, design and aesthetics are believed to be the extremely important attributes in the preference and choice of consumer goods (Zolli, 2004). In fact, design can also be one of the best ways to self-affirm, being stronger than taste, brand, comfort, and ease. People prefer the most aesthetically pleasing option when self-affirming rather than the more expensive option or the higher quality (Townsend & Sood, 2012). Furthermore, choosing a highly aesthetic object has the same effect as a self-affirmation manipulation, therefore, consumers generally respond in a more self-assured and confident manner after choosing a high aesthetic design.

Usually, consumers expect a correlation between aesthetics and performance. Hence, they assume that the more attractive design is functionally superior (Chaiken & Maheswaran, 1994). This is called a negative aesthetic effect, that is when there is a bias towards performance judgments, upon the presence of aesthetic information (Hoegg, Alba &

Dahl, 2010). Therefore, with regards to unattractive produce, it is expected that consumers that see these products expect a worse performance – in other words, a worse taste, or lower nutrients. Could it be that by altering the perception of beauty in ugly food, it altered how consumers perceived the product's functionality and in turn increased the purchasing intentions of ugly food?

2.3 Implicit Theories: entity or incremental perspectives in the Beauty Domain

However, why are most consumers averse to ugly food? Indeed, it is fundamental to understand consumers underlying motivations for how they act, a possible reasoning can be explained with implicit theories. Implicit theories are the beliefs that people have about the nature of human characteristics, which in turn shapes their motivations (Dweck, 1999; Dweck & Legget, 1998). Individuals that believe traits such as intelligence, beauty and personality are fixed and stable are characterized as having an entity belief, whereas, individuals that assume that these traits are malleable and changeable, are characterized as having an incremental belief.

As stated above, the beauty and aesthetic of ugly food can be an important factor in understanding consumer choices and purchasing intentions. Therefore, the implicit theories of beauty can help deepen the knowledge in this field. Nevertheless, in the beauty domain, not much research has been done regarding how implicit theories of beauty influences behaviour. One exception is Burkley et al (2014), who found that women with malleable beauty beliefs are more vulnerable to appearance concerns than with fixed beauty beliefs, since an idealized beauty standard can represent an unattainable goal. However, little is known on how implicit theories of beauty can affect consumer's choice

of products, hence, it will be drawn a connection between implicit theories in other domains towards products choices and beauty.

Entity theorists believe that consumers want to demonstrate their self-image and positive qualities through the products and brands that they own, in order to reflect who they are and to create a better impression (Park & John, 2010), whereas, people that have an incremental perspective seek products that help them pursue their goals to improve and learn new things (Murphy & Dweck, 2015). Research on implicit theories of intelligence has also shown that incremental theorists tend to increase the effort in challenging situations to overcome difficulties, which will lead to developing a certain skill or trait (Hong et al., 1999), whereas an entity theorist tends to attribute poor performance to lack of ability (Hong et al., 1999). Hence, the belief that a trait is malleable leads individuals to work harder at improving the trait, whereas the belief that a trait is fixed will be translated into signalling positive qualities to others or the self.

As it has been mentioned previously, the aesthetic premium – “what is beautiful is good” – can work as a self-signalling for consumers, they identify with the ugly food at a personal level, becoming automatically averse to unattractive food. Therefore, it would be expected that an entity theorist would not purchase ugly food since these consumers enjoy having products that translate who they are (or would like to become) and ugly food has a negative connotation to the self-image. However, how would an incremental theorist respond to ugly food?

Research on the domain of personality and brands demonstrates that consumers with an entity belief use brands as a self-signal, and for this reason, will perceive themselves more positively, whereas consumers with an incremental belief are unlikely to use brands as

signals of the self, and they are unlikely to have their self-perceptions affected by specific brand (Park & John, 2010). Hence, it can be expected that a consumer with an incremental perspective will not translate as much the beauty of ugly food into the perception of the self as a consumer with an entity perspective would. Additionally, past research has shown that while incremental theorists focus on process, entity theorists focus on the outcome (Levy, Stroessner & Dweck, 1998). Indeed, according to Dweck and Leggett (1988), entity theorists attribute outcomes more to ability and less to effort than do incremental theorists. An incremental theorist is concerned about competence acquisition - self-improving skills - hence, an individual would be more willing to attend to changes in performance. This means an incremental theorist would be more willing to purchase ugly food than an entity theorist, since the former would care about the process of the food and its quality for cooking and not necessarily the aesthetic at the time it is sold. Therefore, it would also be expected that an incremental theorist would not be as biased towards the negative aesthetic effect, described above as the bias towards performance judgments upon the presence of aesthetic information, as opposed to the entity theorist.

To sum up, it could be expected that a consumer with an entity perspective, that aims at self-signalling himself, would purchase a product that is more aesthetically pleasing, in order to feel more self-assured and confident, while a consumer with an incremental perspective would not be as much affected by the necessity to feel self-confident according to what they purchase, and would be more focused on the process and functionality of the product, therefore, purchasing more ugly food.

3. Hypothesis

Considering everything discussed above, the hypotheses are formalized as follows:

H1 – The type of implicit theory a person characterizes to will influence the purchasing intentions of the ugly food. Specifically, it is expected that an entity theorist is more averse to ugly food than an incremental theorist

H2 – It is expected that an entity theorist will be more influenced to the negative aesthetic effect – a bias towards performance according to the aesthetic - as opposed to an incremental theorist, therefore, purchasing less ugly food

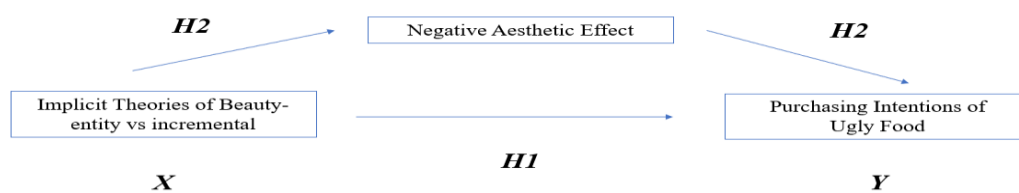


Figure 1. Conceptual framework

4. Methodology

4.1 Pre-test

4.1.1 Sample

Firstly, a pre-test was performed where the sample consisted of 60 participants ($N = 60$) from 25 nationalities¹, where the most representative nationality was Portuguese, illustrating 36.7% of the sample. The gender distribution indicates 36.67% male and 63.33% female², while age distribution indicates a major concentration in the 18-24-year-old group representing 63.33% of the cases³.

4.1.2 Design and Procedure

The aim and need of the pre-test was to verify if the stimuli of the implicit theories was effective, that is, according to the manipulation explained below, if participants with an entity condition believe more strongly that beauty was fixed rather than with an

¹ Appendix 1.1

² Appendix 1.2

³ Appendix 1.3

incremental condition. The questionnaire was written in both English and Portuguese, as a large Portuguese sample was already expected.

Implicit theories of beauty: Participants were asked to read an article for an English (or Portuguese) reading comprehension, which was based on real-life articles from Psychology Today⁴. Participants were randomly assigned to one of two articles. Individuals in the entity condition read an article that pointed out that a person's attractiveness was the results of their genes (e.g. "In a beautiful face, we are really seeing the artistry of good genes"; "The rules of beauty cannot be changed"). Individuals in the incremental condition read an article which stated that there are tools within our reach to improve beauty (e.g. "Getting enough beauty sleep is also something everyone can do to up their beauty quotient"; "Beauty can be malleable").

After reading the article, participants were asked to sum up the article in one sentence, in order to check for the comprehension of the text. Then, participants completed the implicit theory of beauty measurement. Here, it was adapted Dweck et al.'s (1995) implicit theory of intelligence and morality measures, with regards to beauty. It was followed Hong et al. (1999) approach, where it is only described items using an entity theory and it was not included any incremental theory items. As a matter of fact, incremental items appear to be more socially desirable than entity items, which could lead participants to be more likely to endorse incremental choices (Dweck et al., 1995), hence, the results would not be accurate. On a 7-point Likert scale, respondents indicated their level of agreement with the following statements (1=strongly disagree, 7=strongly agree): "Natural beauty does not change much over a lifetime—people who are born beautiful stay beautiful and people not born beautiful typically stay that way too."; "A person's level of natural beauty is

⁴ Reference made in the Bibliography

something very basic about them and it can't be changed much.”; “People who are born without natural beauty can't do much to change that.”; “People can enhance their appearance, but they cannot really change their basic beauty.”⁵.

4.1.3 Missing Data and Outliers

SPSS was the software used to analyse the data. According to Pallant (2011), an outlier can be found by seeing the values outside of a boxplot range. For the measurement of implicit theories, it was not found any outliers⁶. Additionally, there was no missing nor incorrect data, analysed by the attention check in the manipulation.

4.1.4 Reliability Analysis

A reliability analysis was conducted based on the Cronbach's alpha and the Cronbach's alpha if an item is removed, in order to interpret the data accurately and to verify its internal consistency of the psychological scales. According to DeVellis (2003), Cronbach's alpha is ideally bigger than 0.7, but values above 0.8 are even more desirable. In the current pre-test, the Cronbach alpha was precisely of 0.7.⁷ However, question number 4 leads to some uncertainty as for the first time it is mentioned “basic beauty”, instead of “natural beauty”, which could have caused individuals not to associate the two concepts. Therefore, given this reasoning, the Cronbach alpha was analysed with only 3 items. Now, the Cronbach alpha was of 0.64, a slightly lower result than previously, however, according to Griethuijsen et al. (2014), given the small number of items presented in this study, it is normal for the Cronbach's alphas to be lower. Hence, it is acceptable and justified to remove question number 4 from the test. Lastly, a t-test was performed⁸, with question number 4 removed, leading to a significant difference in the

⁵ Appendix 2

⁶ Appendix 3

⁷ Appendix 4.1; 4.2

⁸ Appendix 4.3

scores for incremental ($M_{\text{Incremental}} = 2.82$, $SD_{\text{Incremental}} = 0.94$) and entity ($M_{\text{Entity}} = 3.40$, $SD_{\text{Entity}} = 1.17$; $t(58) = 2.14$; $p = .04$)⁹. Therefore, after deleting the question number 4 of the implicit theory of beauty manipulation, the manipulation proved to be working.

4.2 Main Experiment

4.2.1 Sample

For the main experiment, the sample consisted of 215 participants ($N = 215$), from 32 different nationalities¹⁰. This sample was gathered through a snowballing method, where potential participants are found and then asked to share this study with other possible participants, as well as, specific websites designed to share thesis questionnaires.

The questionnaire was randomly assigned in order to have a balanced number of participants for each group. The most representative nationality was Portuguese, illustrating 66% of the sample. The gender distribution indicates 28.4% male, 70.2% female and 1.4% which preferred not to say¹¹, while age distribution indicates a major concentration in the 18-24-year-old group representing 64.7% of the cases¹².

4.2.2 Design and Procedure

This research employed a 2 (Entity vs. Incremental) X 2 (Unattractive vs. Attractive) between-subject design¹³.

Implicit theories of beauty manipulation: Previously, the pre-test was done to verify if the stimuli of the implicit theories were working correctly, that is, if participants with the entity condition were keener to believe that beauty was fixed rather than in the

⁹ Appendix 4.4

¹⁰ Appendix 5.1

¹¹ Appendix 5.2

¹² Appendix 5.3

¹³ Appendix 6

incremental condition, in which the measurement was proven to be effective with a $p < 0.05$. Therefore, the same manipulation was used as described above ($\alpha = 0.76$). Specifically, participants read an article either assigned to an entity condition or to an incremental condition, then, after reading the article, participants were asked to sum up the article in one sentence – as an attention check for the manipulation– and finally being followed by the implicit theory measurement.

Normal vs ugly product manipulation: Then, participants imagined themselves shopping at a grocery store, where every product sold is certified by national authorities of its quality and safety. In this manipulation, participants were only shown either a normal shaped and coloured fruit (normal food) or an abnormally shaped and coloured fruit (ugly food). Additionally, following Grewal et al. (2018) paper, in order to account for the price and taste preferences, two products were chosen (strawberry and carrot), where it was shown either one or the other. Then, each participant was asked to answer the following questions.

Purchasing decisions: Following the structure of studies made by Grewal et al. (2018) participants were asked if they would purchase the product, according to a 7-point Likert scale, given 3 items ($\alpha = 0.81$): “I would consider buying this product”; “I would like to try this product”; “I would not be inclined to buy this product” – where the last question was coded in reverse in order to obtain the participants purchasing intentions. Then, they read what the average price of 1 kilo of a package of strawberries (carrots) was and indicated their willingness to pay for the product demonstrated on the picture, using a sliding scale from 0€ to 10€.

Negative aesthetic effect: Following, participants were asked about the negative aesthetic effect. As mentioned previously, consumers assume that the more attractive design is functionally superior (Chaiken & Maheswaran, 1994), in other words, is a bias towards performance judgments upon the presence of aesthetic information (Hoegg, Alba & Dahl, 2010). It was adapted a measure from Hoegg et al. (2010) to suit the intentions of this study, that is, to understand the degree of functionality that the food exhibited had, with regards to its appearance, since it is expected that consumers that see unattractive produce expect a worse performance. Hence, participants were asked to give their opinion, on a 7-point Likert scale, about the followings sentences ($\alpha = 0.90$): “ I find this product far superior in terms of cooking purposes when compared to similar products”; “I find this product far superior to eat when compared to similar products”; “I find this product far more effortless to prepare when compared to similar products”; “I find this product to have far more nutritional value when compared to similar products”; and “I find this product to be far healthier when compared to similar products”.

Product attractiveness manipulation check: To verify if there has been a shift in people’s opinions towards the attractiveness of the products, according to a scale adapted from Blijlevens et al. (2017) - which was created as a measurement for aesthetic pleasure, analysing products according to its beauty and typicality - participants were asked to give their opinion, on a 7-point Likert scale, about the followings sentences ($\alpha = 0.90$): “I find this product beautiful”; “I find this product pleasing to see”; “I find this product nice to see”; “I like to look at this product”; “I find this product typical”; and “This product is representative of similar products”. Hence, these measures will help confirm if the normal (vs. ugly) produce was indeed perceived as more (or less) attractive by participants.

Socio-Demographics: Finally, participants were asked general questions about their demographics, such as their age, gender, country of birth and city, in order to obtain more data about the kind of participants that were answering this study.

4.2.3 Missing data and outliers

For the negative aesthetic effect¹⁴, purchasing intentions¹⁵, as well as, the product attractiveness manipulation check¹⁶, it was not found any outliers. Moreover, around 3% of the sample was deleted, since some participants did not meet the attention check item. More specifically, these participants stated that they had read only the first paragraph or, when asked to summarize the text, they answered nothing similar to the actual information presented, therefore, the manipulation could not be assumed to have worked, originating a final sample of 215.

4.2.4 Reliability Analysis

According to the same methods and justification provided above, to verify the reliability of the data of the final questionnaire it was used the Cronbach's alpha and the Cronbach's alpha if an item is removed. In the current study, all scales presented – implicit theory of beauty measurement¹⁷; purchasing intentions¹⁸; negative aesthetic effect¹⁹; product attractiveness manipulation check²⁰ – had a Cronbach alpha coefficient above 0.7, therefore, no item was deleted from the analysis as it represented a reliable data source.

5. Main Analysis

5.1 Manipulation Check

¹⁴ Appendix 7.2

¹⁵ Appendix 7.3

¹⁶ Appendix 7.4

¹⁷ Appendix 8.1

¹⁸ Appendix 8.2

¹⁹ Appendix 8.3

²⁰ Appendix 8.4

Before performing any tests with regards to the hypothesis, the manipulation of the implicit theory was once again verified to prove whether it had worked properly. As such, a One-Way ANOVA was performed to explore the impact of the texts provided at the beginning of the questionnaire, with regards to the implicit theory of beauty measurement adapted from Dweck et al.'s (1995). The goal was to verify if there was a statistically significant difference among the means of the two groups. All assumptions of ANOVA were checked first²¹. However, the normality test was shown to be significant (entity theory $p = 0.04$, incremental theory $p < 0.001$), nevertheless, as the sample presented a number larger than 30 the violation of this assumption should not cause any problems (Pallant, 2011).

There was a statistically significant difference at $p < 0.01$ level in the implicit theory of beauty manipulation for the two groups²² ($M_{\text{Entity}} = 3.125$, $SD_{\text{Entity}} = 1.32$; $M_{\text{Incremental}} = 2.448$, $SD_{\text{Incremental}} = 1.26$; $F(1,214) = 14.65$, $p < 0.001$), meaning that participants in the entity condition were more likely to believe beauty as something intrinsic and fixed compared to participants in the incremental condition.

5.2 Main Effect of Implicit Theories on Purchasing Intentions of Ugly Food

5.2.1 Two - Way ANCOVA: Variables

The study that followed involved a Two-Way ANCOVA. This was performed to control for potential variables which could influence the dependent variable, and therefore, allowing for a more accurate conclusion to be drawn. The independent categorical variables were the type of implicit theory (entity or incremental) and the ugly/normal food condition (normal or ugly), then, for the dependent variable, it was considered the

²¹ Appendix 9.1

²² Appendix 9.2

willingness to pay and the purchasing intentions of the participants, and lastly, the type of fruit or vegetable showed (fruit vs vegetable) was used as a covariate²³ to control for possible interferences. The Two-Way ANCOVA will also be helpful to test the main effect for each independent variable and to explore the possibility of an interaction effect.

5.2.2 Two - Way ANCOVA: Result and Analysis

Preliminary checks were conducted to ensure there was no violation of the assumptions. Normality was assumed throughout, due to the large sample size used. With regards to the homogeneity of variances, the dependent variable willingness to pay had a significant level ($p > 0.05$ ²⁴), yet the dependent variable purchasing intentions did not²⁵. The analysis of variance can be reasonably robust to violations of this assumption, provided that the size of the groups is reasonably similar (Stevens, 1996, p. 249) - Ugly/Normal = 1.009 and Entity/Incremental = 0.762 - therefore, the data should still be considered.

Regarding the willingness to pay²⁶, after controlling for the type of fruit or vegetable variable, there was not a significant interaction effect between ugly/normal food and the type of implicit theory ($F(1,210) = 0.83, p = 0.36$), that is, the effect of the implicit theories of beauty variable did not dependent on the level of the normal vs ugly food variable, being safe to analyse the main effects of the independent variables separately. Regarding the main effect, there was a significant main effect for ugly/normal food ($M_{Ugly} = 1.96$ vs $M_{Normal} = 2.63, F(1,210) = 14.178, p < 0.001$), yet there was no significant main effect for the type of implicit theory ($M_{Entity} = 2.18$ vs $M_{Incremental} = 2.38, F(1,210) = 0.04, p = 0.84$).

23 Including other covariates, such as language and age, which could have affected the results, were proven to have similar patterns, therefore, the analysis will remain with the fruit vs vegetable as a covariate – Appendix 12

24 Appendix 10.1

25 Appendix 10.2

26 Appendix 10.3

With concerns to the purchasing intentions of the participants²⁷, once again after controlling for the type of fruit or vegetable variable, it provided very similar results. There was not a significant interaction effect between ugly/normal food and the type of implicit theory ($F(1,210) = 0.64, p = 0.43$), therefore, it is safe to move into the main effects of the independent variables. Regarding the main effect, there was a significant main effect for ugly/normal food ($M_{\text{Ugly}} = 4.32$ vs $M_{\text{Normal}} = 5.70, F(1,210) = 49.02, p < 0.001$), yet there was no significant main effect for the type of implicit theory ($M_{\text{Entity}} = 4.96$ vs $M_{\text{Incremental}} = 5.05, F(1,210) = 0.04, p = 0.84$).

Hence, given the results of these two ANCOVAs, when considering the type of implicit theory of beauty (entity vs incremental), participants did not differ in the willingness to pay, nor their purchasing intentions. However, participants responded differently in these same variables when it was shown a normal or ugly food, that is, participants when shown ugly food seemed less willing to purchase the product, in both the incremental and entity condition.

The former effect shows that the defined H1 cannot be supported – there is no relationship between implicit theories and the purchasing intentions/willingness to pay when it was shown a normal or ugly food. It can also be concluded that priming people's beliefs about beauty (fixed or malleable) did not influence their purchasing intentions of uglier food.

Nevertheless, an additional study was made to verify if by priming people's beliefs about beauty it changed the way they saw the product's attractiveness.²⁸ Hence, it was compared the product attractiveness manipulation check with the independent variables. While controlling for the type of fruit or vegetable variable, there was no interaction effect

²⁷ Appendix 10.4
²⁸ Appendix 11.2

($F(1,210) = 0.07, p = 0.79$) and the main effects were consistent with past research and the previous tests performed, that is, there was a significant main effect for ugly/normal food ($M_{\text{Ugly}} = 3.64$ vs $M_{\text{Normal}} = 5.06, F(1,210) = 77.81, p < 0.001$), but no significant main effect for the type of implicit theory ($M_{\text{Incremental}} = 4.34$ vs $M_{\text{Entity}} = 4.35, F(1,210) = 0.76, p = 0.38$). This means that the manipulation of the implicit theory of beauty did not affect how participants perceived the beauty of the product and confirmed, once again, an aesthetic premium.

5.3 Negative Aesthetic Effect

5.3.1 Two – Way ANCOVA: Variables

Even though the main hypothesis (H1) has been proven not to be supported, it is fundamental to understand whether the negative aesthetic effect (mediator) played a role in the results. Hence, for that reason, the following analyses consisted of two independent categorical variables, the type of implicit theory (entity or incremental) and the ugly/normal food condition (normal or abnormal), and one dependent variable, the negative aesthetic effect measure. Just as previously, it was performed a Two-Way ANCOVA, in order to control for potential variables which might influence our dependent variable.

5.3.2 Two – Way ANCOVA: Results and Analysis

Once again, all assumptions were verified, in order to perform this test. Firstly, there was no correlation between the independent variables ($F(1,210) = 0.02, p = 0.89$)²⁹ – the type of implicit theory and whether the food is normal or ugly can be observed individually, while adjusting for the type of fruit or vegetable variable.

²⁹ Appendix 11.1

Secondly, as opposed to the H2, there was no significant effect of implicit theories of beauty on negative aesthetic effect ($M_{\text{Incremental}} = 3.47$ vs $M_{\text{Entity}} = 3.37$, $F(1,210) = 0.04$, $p = 0.85$). This means that whether a participant was shown an incremental manipulation or an entity manipulation, it did not affect the negative aesthetic effect measure – they assumed similar results to the product’s functionality.

Nonetheless, when an individual was shown an ugly product, compared to a normal product, he or she significantly scored lower in terms of its functionality ($M_{\text{Ugly}} = 3.03$ vs $M_{\text{Normal}} = 3.83$, $F(1,210) = 16.11$, $p < 0.001$) - if it tasted better, was better to cook, etc. This finding is once again consistent with past research, as people judge more favourably what is considered aesthetically more pleasing, a phenomenon known as aesthetic premium.

6. General Discussion

6.1 Summary of Findings

According to previous research, it could be expected that an entity theorist, that aims at self-signalling himself, would purchase a product that is more aesthetically pleasing. On the other hand, a consumer with an incremental belief would not be as much affected by the necessity to feel self-confident according to what they purchase and would be more focuses on the process and the ways to self-improve. Therefore, it would also be expected that an incremental theorist would have a lower bias towards performance according to the aesthetic. Nevertheless, the results from this study show that consumers’ belief in the fixedness or malleability of beauty did not influence the purchasing intentions of fruit and vegetables with abnormal shape and size (ugly food). Additionally, it was not found a relationship between the type of implicit theory and the negative aesthetic effect either,

that is, participants assumed similar results to the product's functionality, given different beliefs (beauty can be fixed vs malleable). However, this study remains consistent with previous research in the sense that people judge more favourably what is considered aesthetically more pleasing - this was observed with the negative aesthetic effect measure, where uglier food was always found worse, as well as, in the product attractiveness manipulation check, where uglier food was found less attractive than normal food.

6.2 Managerial Implications

Reducing food waste is a pressing matter, especially today where many people are still living in poverty. Approximately, one-third of the food produced for human consumption is wasted and reversing this trend has become a necessity. This study aimed to find a possible explanation for why consumers do not opt for uglier food and, at the same time, find a solution to this problem. However, there was no effect on the belief in the fixedness or malleability of beauty and purchasing intentions of ugly food. Indeed, according to previous research, it was expected that a consumer with an entity perspective would purchase a product that is more aesthetically pleasing, in order to feel more self-assured and confident, rather than an individual with an incremental perspective, that would be more focused on the process and the ways to self-improve. However, the results show that implicit theories of beauty did not affect the purchasing intentions of ugly food and, therefore, this means that managers should not target people according to these kinds of beliefs.

Nevertheless, in this study, it was once again proven that a consumer will make judgements based on the appearance of the product. In previous papers, there have been found certain methods to change consumer perceptions and purchasing intentions. For

instance, applying anthropomorphism – “attributing humanlike properties, characteristics, or mental states to nonhuman agents and objects” (Epley, Waytz, & Cacioppo 2007, p. 865) - to an abnormally shaped product is an effective way to stimulate the choice for this type of products, as well as actually change the consumers’ behaviour (Cooremans, K., & Geuens, M., 2019), hence, making cardboards with carrots having jeans dressed on as legs, for instance, would be an interesting way to get consumers to purchase those products. Here, the marketing communication would be focused on the particularities of the product and enhancing its positive traits rather than the negative ones. Additionally, it has also been proven that it should be considered the influence of unattractive produce on consumer self-perceptions, therefore, retailers should incorporate elements that can offset the negative inferences consumers make about themselves when purchasing this type of product (Grewal et al., 2018), as an example, in-store advertising with self-esteem enhancing messages could be a stimulating way to increase the choice of unattractive products.

Given the literature review and current marketing campaigns, it could also be proposed to humanize ugly food, in order to improve the perception of these types of foods. For instance, in Dove’s campaign “You are beautiful the way you are”, where it was shown real life women of all ages, skin colours and hair types, the goal was to increase women’s self-esteem and self-confidence by stating that there is not just one type of beauty. If a retailer would create a short video or photo, meant to go viral, where every type of fruit and vegetable is celebrated for its quality and not aesthetic, it would create awareness and empathy from the consumer side towards these products. Nevertheless, future research should prove whether or not these different methods are effective in reducing food waste.

6.3 Limitations and Possible Explanation for Findings - Future Research

Directions

The results from this study did not show an effect on implicit theories of beauty and the purchasing intentions of ugly food, therefore, it is extremely important to explore the limitations of the study, as well as, possible explanations for why the results were not as expected.

A limitation that this study might have is a possible confounding, by not presenting a carrot and strawberry at the same time. To account for participants' taste and preferences, both products were added to the survey, however, the consumer would only see one of these – therefore, their taste and preferences could still affect the scores given. Although the type of fruit or vegetable was always used as a covariate, in order to account for this possible confounding, it would be beneficial for future research to be shown various products at the same time to the participant. On this note, participants may also have been confused when answering the negative aesthetic effect measurement - “This product is far superior in this feature compared to similar products” – as participants were not directly comparing the fruit or vegetable to anything shown on the survey.

Another possible limitation is the unbalanced sample across the age groups, indeed, this study has over 63% of participants between the 18-24 age gap, which can lead to a potential bias due to the snowballing process. Furthermore, it might be possible that each generation considers the concept of beauty as something different and, therefore, might be harder to manipulate and try to persuade what beauty truly is. When analysing the age group between 18-24 years old, they are deeply influenced by social media and the internet - through the usage of influencer and celebrities, it has been creating a single

aesthetic value (Mills, Shannon & Hogue, 2017). On the other end of the spectrum, currently there are more and more movements about accepting different types of beauty and yourself, as is, which are also changing people's perceptions about beauty. Therefore, given the large number of participants between 18-24 years old that are constantly influenced due to different stimuli on the internet, it may lead to the question that the results are not representative of the entire population. For future research it would be advised to have a more broad and equally distributed sample across all ages.

An alternative explanation that may arise is that implicit theories of beauty do not hold on food, but rather only on the perception of people themselves, as it was proven by Burkley et al. (2014), that states that people with a malleable concept of beauty were more vulnerable to appearance concerns than people with a fixed concept of beauty. Since no study was made connecting product choice and implicit theory of beauty, it may be that by manipulating the participant about beauty being fixed or malleable does not affect how they choose products and their purchasing intentions. In order to deepen this knowledge, it would be curious for future research to understand just until where can the manipulation of implicit theory of beauty affect other objects – that is, might not work in fruit and vegetables, but does it work in other things apart from people?

Lastly, further research should be made in order to understand why the participant is always affected by the aesthetic premium – why does the aesthetic of the product has such a high impact on the purchasing intentions and then hopefully suggest some real managerial implications that could prevent the food waste problem. However, this study can be considered a good first step to understand how implicit theories, in the beauty domain, may or may not be connected to different aspects of what has already been explored.

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8. Appendices:

Appendix 1: Sample Pre-Test

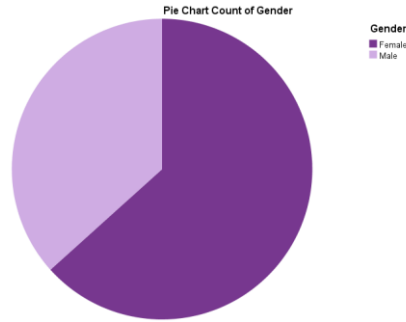
Appendix 1.1: Nationality Distribution

		Country			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Austria	1	1,7	1,7	1,7
	Belgium	1	1,7	1,7	3,3
	Brasil	3	5,0	5,0	8,3
	Canada	1	1,7	1,7	10,0
	China	1	1,7	1,7	11,7
	Denmark	1	1,7	1,7	13,3
	Germany	2	3,3	3,3	16,7
	India	1	1,7	1,7	18,3
	Ireland	1	1,7	1,7	20,0
	Israel	1	1,7	1,7	21,7
	Italy	1	1,7	1,7	23,3
	Lithuania	1	1,7	1,7	25,0
	Luxembourg	1	1,7	1,7	26,7
	Malta	1	1,7	1,7	28,3
	Netherlands	1	1,7	1,7	30,0
	Poland	2	3,3	3,3	33,3
	Portugal	22	36,7	36,7	70,0
	Romania	2	3,3	3,3	73,3
	Russia	1	1,7	1,7	75,0
	Spain	1	1,7	1,7	76,7
	Switzerland	1	1,7	1,7	78,3
	Syria	1	1,7	1,7	80,0
	Taiwan	2	3,3	3,3	83,3
	United Kingdom	5	8,3	8,3	91,7
	USA	4	6,7	6,7	98,3
	Vietnam	1	1,7	1,7	100,0
	Total		60	100,0	100,0

Appendix 1.2: Gender Distribution

Gender

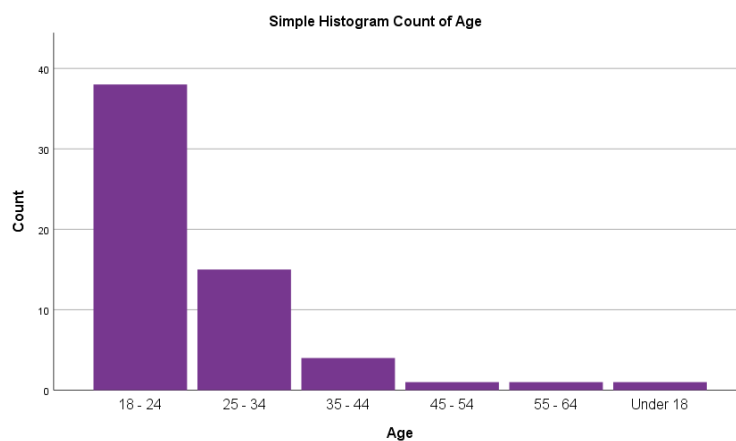
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	38	63,3	63,3	63,3
	Male	22	36,7	36,7	100,0
	Total	60	100,0	100,0	



Appendix 1.3: Age Distribution

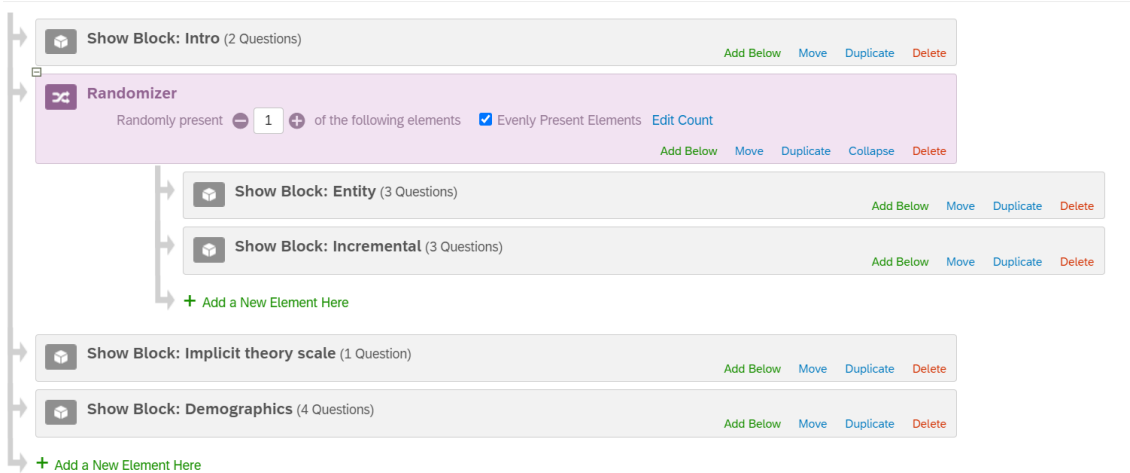
Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 - 24	38	63,3	63,3	63,3
	25 - 34	15	25,0	25,0	88,3
	35 - 44	4	6,7	6,7	95,0
	45 - 54	1	1,7	1,7	96,7
	55 - 64	1	1,7	1,7	98,3
	Under 18	1	1,7	1,7	100,0
	Total	60	100,0	100,0	



Appendix 2: Questionnaire Pre-test

Survey Flow:



Survey:

Intro Block Options ▾

Q65 Please choose above the language you would like to answer: English or Portuguese.

⚙️

Page Break

Q80 Dear participant,

My name is Sara Silva and I'm a MSc's in Management student at Nova School of Business and Economics. This following questionnaire aims to collect data for the purpose of my master's thesis.

All the data will be collected anonymously and remain like that. It will not take more than 5 minutes to complete. Your help is extremely important in order to finish my thesis!

Thank you very much in advance for your time and help! I really appreciate it!

Entity Block Options

Q7 Block Options
 This question lets you record and manage how long a participant spends on this page. This question will not be displayed to the participant.

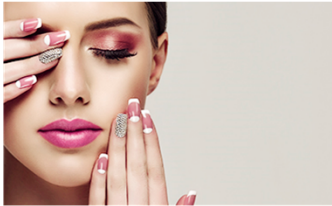
Q79
 Please read carefully this article. This represents an English Reading Comprehension Task.
 You will not be asked to read anything else:
 Select a graphic to use for this question

Psychology Today

The Truth About Beauty

Research proves that the underlying genetic architecture of individuals is behind what is considered a beautiful face or not.

Posted Jan 26, 2015, by Melissa Burkley Ph.D - The Social Thinker



In Greek mythology, Helen of Troy was so beautiful that her face “launched a thousand ships,” compelling King Menelaus to wage war to reclaim her from Prince Paris. Human preoccupations with beauty are enduring. Each day, our brains identify and catalogue innumerable datapoints that bear on our impressions of beauty—those related to youth, health, symmetry, masculinity/femininity, and personality, for example.

Given the importance of attractiveness across interpersonal contexts, in a paper published in the Journal of Plos Genetics, Hu and colleagues have investigated the underlying genetics of facial attractiveness. In their work, with a sample of 4,383 individuals, Hu and colleagues identify several correlations between attractiveness ratings and genes influencing other traits—more specifically, in women, the genetic variations associated with beauty were related to genes that regulate body mass and lipids, whereas, in males, the “beauty” genetic variants were connected to genes that affect cholesterol levels.

Additionally, other research has shown that our faces are sculpted by our hormones and, in this context, an attractive man, in the eyes of female experimental participants, is generally one with relatively prominent cheekbones and eyebrow ridges and a relatively long lower face. This is reflected by the ratio of testosterone to estrogen, acting on the individual during development. Furthermore, symmetrical faces garner significantly higher ratings of attractiveness, dominance, sexiness, and health, and are perceived to be more desirable as potential mates. Therefore, in a beautiful face, we are really seeing the artistry of good genes.

The results of these studies point to the same conclusion: underlying genetic architecture mediates attractiveness – that is, genes play a role in determining the beauty of a person’s face. **The rules of beauty cannot be changed**, no matter how much we may wish that they could be. They are as immutable and as fixed as the stars in the heavens.

■ Q2 Please, briefly summarize the theme of the article in one sentence



▼ Incremental

Block Options ▼

■ Q18 This question lets you record and manage how long a participant spends on this page. This question will not be displayed to the participant.



■ Q78 Please read carefully this article. This represents an English Reading Comprehension Task. You will not be asked to read anything else:

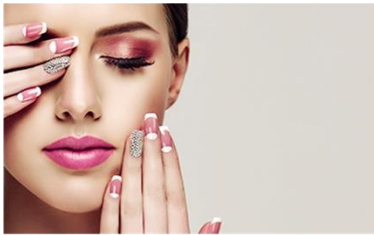


[Select a graphic to use for this question](#)

The Truth About Beauty

Research proves that just because someone is born unattractive does not mean they cannot do something to change and improve.

Posted Jan 26, 2015, by Melissa Burkley Ph.D - The Social Thinker



In Greek mythology, Helen of Troy was so beautiful that her face “launched a thousand ships,” compelling King Menelaus to wage war to reclaim her from Prince Paris. Human preoccupations with beauty are enduring and now support a multibillion-dollar industry. Each day, our brains identify and catalogue innumerable datapoints that bear on our impressions of beauty—those related to youth, health, symmetry, masculinity/femininity, and personality, for example.

According to multiple studies, there are many factors contributing to attractiveness that are under our control. Indeed, cosmetics are freely chosen and morally neutral agents of beauty enhancement, according to past research, when women wear makeup, it has a strong effect, as they are judged more favourably. the impact occurs if women smile more.

Getting enough beauty sleep is also something everyone can do to up their beauty quotient. A group of Swedish and Dutch researchers conducted an experiment in which observers rated the attractiveness of participants who were photographed both after a period of sleep deprivation and after a good night’s sleep. Not surprisingly, individuals who were sleep deprived were rated significantly less attractive than those who were rested.

The message communicated by this is simple: **Beauty can be malleable.** Just because someone is born unattractive does not mean they cannot grow up to be beautiful. Moreover, this message is also in many marketing campaigns like Maybelline’s famous, “Maybe she’s born with it, maybe it’s Maybelline,” which encourages women to reject the idea of inherent beauty and instead focus on what women can do to improve their beauty.

Page Break

Q19

Please, briefly summarize the theme of the article in one sentence



Please state your personal opinion in the following sentences

Q36



Natural beauty does not change much over a lifetime—people who are born beautiful stay beautiful and people not born beautiful typically stay that way too.

A person's level of natural beauty is something very basic about them and it can't be changed much.

People who are born without natural beauty can't do much to change that.

People can enhance their appearance, but they cannot really change their basic beauty.

1 Strongly disagree	2	3	4	5	6	7 Strongly agree
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------

1 Strongly disagree	2	3	4	5	6	7 Strongly agree
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Demographics Block Options ▾

Age
Q57

- Under 18
- 18 - 24
- 25 - 34
- 35 - 44
- 45 - 54
- 55 - 64
- 65 - 74
- 75 - 84
- 85 or older

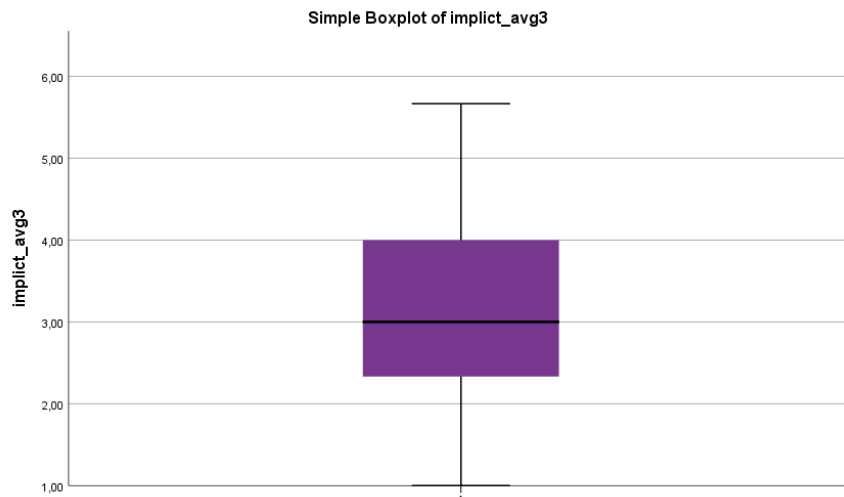
Country of birth
Q63

City you are currently living in
Q64

Gender
Q62

- Male
- Female
- Prefer not to say

Appendix 3: Outliers Pre-test



Appendix 4: Reliability Analysis Outputs Pre-test

Appendix 4.1: Implicit Theory Measurement Scale

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,700	,702	4

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
Please state your personal opinion in the following sentences - Natural beauty does not change much over a lifetime—people who are born beautiful stay beautiful and people not born beautiful typically stay that way too.	10,97	11,219	,493	,262	,631
Please state your personal opinion in the following sentences - A person's level of natural beauty is something very basic about them and it can't be changed much.	10,17	11,734	,502	,276	,627
Please state your personal opinion in the following sentences - People who are born without natural beauty can't do much to change that.	10,88	11,969	,465	,253	,648
Please state your personal opinion in the following sentences - People can enhance their appearance, but they cannot really change their basic beauty.	9,28	10,579	,485	,267	,639

Appendix 4.2: T-test of Implicit Theory Measurement

Group Statistics

	IP	N	Mean	Std. Deviation	Std. Error Mean
implicit_avg	1,00	32	3,2109	,94423	,16692
	2,00	28	3,7054	1,16280	,21975

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Implicit_avg	Equal variances assumed	1,203	,277	-1,817	58	,074	-,49442	,27214	-1,03916	,05033
	Equal variances not assumed			-1,792	52,052	,079	-,49442	,27595	-1,04815	,05931

Appendix 4.3: T-test of Implicit Theory Measurement (3 variables)

Group Statistics

	IP	N	Mean	Std. Deviation	Std. Error Mean
implicit_avg3	1,00	32	2,8229	,94275	,16666
	2,00	28	3,4048	1,16660	,22047

Independent Samples Test

		Levene's Test for Equality of Variances					t-test for Equality of Means		95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
implicit_avg3	Equal variances assumed	2,258	,138	2,136	58	,037	,58185	,27246	,03645	1,12724
	Equal variances not assumed			2,105	51,910	,040	,58185	,27637	,02725	1,13644

Appendix 4.4: Implicit Theory Measurement Scale (3 variables)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,639	,641	3

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	,373	,306	,408	,102	1,333	,003	3

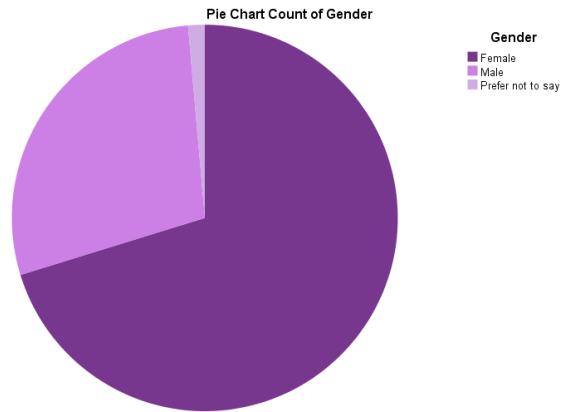
Appendix 5: Sample Final Questionnaire

Appendix 5.1: Nationality Distribution

		Country of birth			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Australia	6	2,8	2,8	2,8
	Austria	2	,9	,9	3,7
	Brasil	5	2,3	2,3	6,0
	Bulgaria	1	,5	,5	6,5
	Canada	1	,5	,5	7,0
	China	4	1,9	1,9	8,8
	Colombia	1	,5	,5	9,3
	Cyprus	1	,5	,5	9,8
	Czech republic	1	,5	,5	10,2
	Czech Republic	1	,5	,5	10,7
	Denmark	1	,5	,5	11,2
	Deutschland	1	,5	,5	11,6
	France	3	1,4	1,4	13,0
	Germany	3	1,4	1,4	14,4
	Greece	3	1,4	1,4	15,8
	India	5	2,3	2,3	18,1
	Ireland	1	,5	,5	18,6
	Italy	1	,5	,5	19,1
	Japan	2	,9	,9	20,0
	Moçambique	1	,5	,5	20,5
	Norway	1	,5	,5	20,9
	Poland	2	,9	,9	21,9
	Portugal	142	66,0	66,0	87,9
	Romania	3	1,4	1,4	89,3
	Singapore	1	,5	,5	89,8
	Slovakia	1	,5	,5	90,2
	South africa	1	,5	,5	90,7
	Thailand	1	,5	,5	91,2
	The Netherlands	1	,5	,5	91,6
	United Kingdom	10	4,7	4,7	96,3
United States	2	,9	,9	97,2	
USA	4	1,9	1,9	99,1	
Vietnam	2	,9	,9	100,0	
Total		215	100,0	100,0	

Appendix 5.2: Gender Distribution

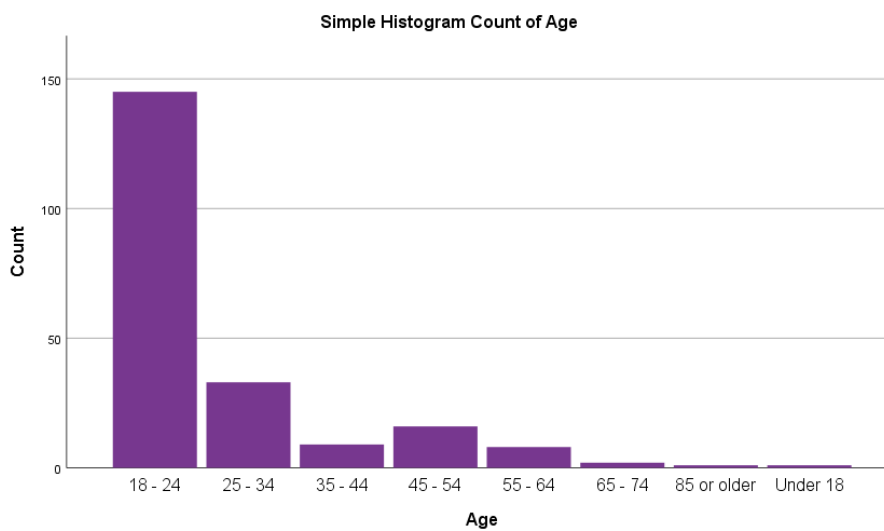
		Gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	151	70,2	70,2	70,2
	Male	61	28,4	28,4	98,6
	Prefer not to say	3	1,4	1,4	100,0
	Total	215	100,0	100,0	



Appendix 5.3: Age Distribution

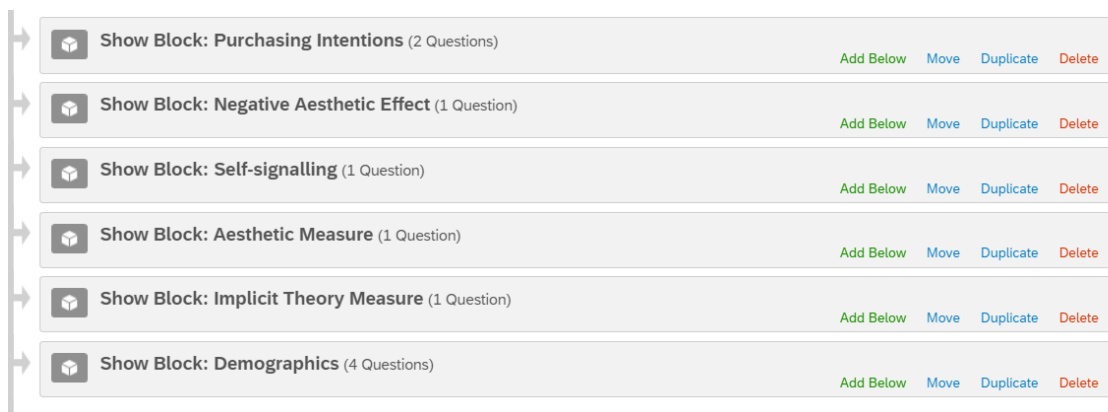
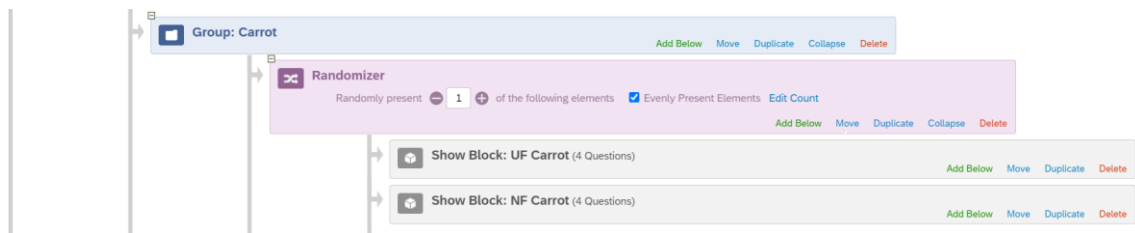
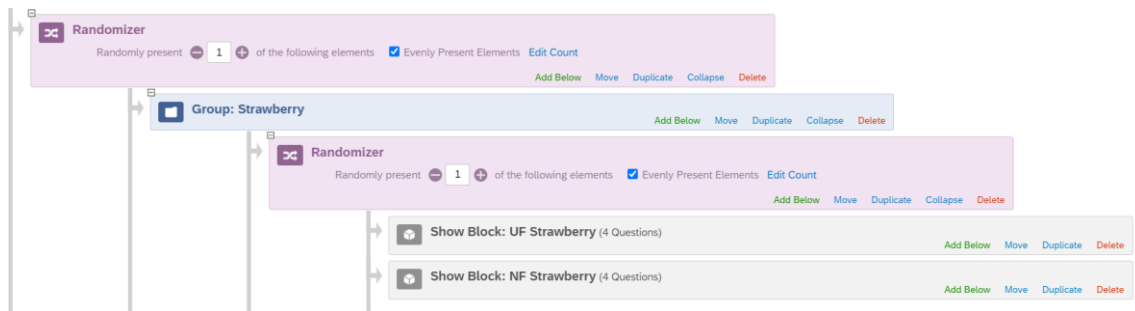
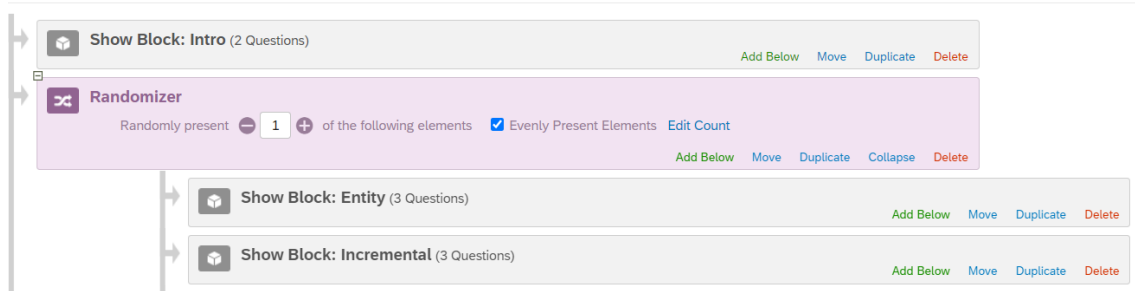
Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 - 24	145	67,4	67,4	67,4
	25 - 34	33	15,3	15,3	82,8
	35 - 44	9	4,2	4,2	87,0
	45 - 54	16	7,4	7,4	94,4
	55 - 64	8	3,7	3,7	98,1
	65 - 74	2	,9	,9	99,1
	85 or older	1	,5	,5	99,5
	Under 18	1	,5	,5	100,0
	Total	215	100,0	100,0	



Appendix 6: Final Questionnaire

Survey Flow:



Survey:



Q65

Please choose above the language you would like to answer: English or Portuguese.



----- Page Break -----



Q80

Dear participant,



My name is Sara Silva and I'm a MSc's in Management student at Nova School of Business and Economics. This following questionnaire aims to collect data for the purpose of my master's thesis. You will be asked to complete two separate and unrelated tasks - the first task will be a reading comprehension task, and the second task will be a product preference choice.

All the data will be collected anonymously and will remain like that. It will not take more than 7 minutes to complete. Your help is extremely important in order to finish my thesis!

Thank you very much in advance for your time and help! I really appreciate it!

Entity Block Options

Q7 This question lets you record and manage how long a participant spends on this page. This question will not be displayed to the participant.

Q79 Please read carefully this article. This represents an English Reading Comprehension Task. You will not be asked to read anything else:

Select a graphic to use for this question

Psychology Today

The Truth About Beauty

Research proves that the underlying genetic architecture of individuals is behind what is considered a beautiful face or not.

Posted Jan 26, 2015, by Melissa Burkley Ph.D - The Social Thinker



In Greek mythology, Helen of Troy was so beautiful that her face “launched a thousand ships,” compelling King Menelaus to wage war to reclaim her from Prince Paris. Human preoccupations with beauty are enduring. Each day, our brains identify and catalogue innumerable datapoints that bear on our impressions of beauty—those related to youth, health, symmetry, masculinity/femininity, and personality, for example.

Given the importance of attractiveness across interpersonal contexts, in a paper published in the Journal of Plos Genetics, Hu and colleagues have investigated the underlying genetics of facial attractiveness. In their work, with a sample of 4,383 individuals, Hu and colleagues identify several correlations between attractiveness ratings and genes influencing other traits—more specifically, in women, the genetic variations associated with beauty were related to genes that regulate body mass and lipids, whereas, in males, the “beauty” genetic variants were connected to genes that affect cholesterol levels.

Additionally, other research has shown that our faces are sculpted by our hormones and, in this context, an attractive man, in the eyes of female experimental participants, is generally one with relatively prominent cheekbones and eyebrow ridges and a relatively long lower face. This is reflected by the ratio of testosterone to estrogen, acting on the individual during development. Furthermore, symmetrical faces garner significantly higher ratings of attractiveness, dominance, sexiness, and health, and are perceived to be more desirable as potential mates. Therefore, in a beautiful face, we are really seeing the artistry of good genes.

The results of these studies point to the same conclusion: underlying genetic architecture mediates attractiveness – that is, genes play a role in determining the beauty of a person’s face. **The rules of beauty cannot be changed**, no matter how much we may wish that they could be. They are as immutable and as fixed as the stars in the heavens.

■ Q2 Please, briefly summarize the theme of the article in one sentence



▼ Incremental

Block Options ▼

■ Q18 This question lets you record and manage how long a participant spends on this page. This question will not be displayed to the participant.



■ Q78 Please read carefully this article. This represents an English Reading Comprehension Task. You will not be asked to read anything else:

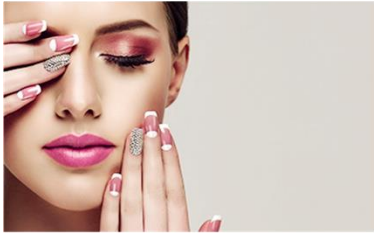


[Select a graphic to use for this question](#)

The Truth About Beauty

Research proves that just because someone is born unattractive does not mean they cannot do something to change and improve.

Posted Jan 26, 2015, by Melissa Burkley Ph.D - The Social Thinker



In Greek mythology, Helen of Troy was so beautiful that her face “launched a thousand ships,” compelling King Menelaus to wage war to reclaim her from Prince Paris. Human preoccupations with beauty are enduring and now support a multibillion-dollar industry. Each day, our brains identify and catalogue innumerable datapoints that bear on our impressions of beauty—those related to youth, health, symmetry, masculinity/femininity, and personality, for example.

According to multiple studies, there are many factors contributing to attractiveness that are under our control. Indeed, cosmetics are freely chosen and morally neutral agents of beauty enhancement, according to past research, when women wear makeup, it has a strong effect, as they are judged more favourably. the impact occurs if women smile more.

Getting enough beauty sleep is also something everyone can do to up their beauty quotient. A group of Swedish and Dutch researchers conducted an experiment in which observers rated the attractiveness of participants who were photographed both after a period of sleep deprivation and after a good night’s sleep. Not surprisingly, individuals who were sleep deprived were rated significantly less attractive than those who were rested.

The message communicated by this is simple: **Beauty can be malleable**. Just because someone is born unattractive does not mean they cannot grow up to be beautiful. Moreover, this message is also in many marketing campaigns like Maybelline’s famous, “Maybe she’s born with it, maybe it’s Maybelline,” which encourages women to reject the idea of inherent beauty and instead focus on what women can do to improve their beauty.

Page Break

Q19

Please, briefly summarize the theme of the article in one sentence

▼ UF Strawberry



Q122

Now, imagine you need to buy some products to your home.



You usually go, on a weekly bases, to the Grocery Store next to your house to purchase some fresh fruits and vegetables. You always go there **because you know where all the products come from and that its quality and safety are assured.**

You are looking to buy some **strawberries.**



Q31

Imagine when you reach the supermarket you came across these type of strawberries:



Q123

Please answer the following questions based on the picture shown above



▼ NF Strawberry



Q15

Now, imagine you need to buy some products to your home.



You usually go, on a weekly bases, to the Grocery Store next to your house to purchase some fresh fruits and vegetables. You always go there **because you know where all the products come from and that its quality and safety are assured.**

You are looking to buy some **strawberries.**

Q92

Imagine when you reach the supermarket you came across these type of strawberries:



Q124

Please answer the following questions based on the picture shown above



▼ UF Carrot

Q121

Now, imagine you need to buy some products to your home.



You usually go, on a weekly bases, to the Grocery Store next to your house to purchase some fresh fruits and vegetables. You always go there **because you know where all the products come from and that its quality and safety are assured.**

You are looking to buy some **carrots.**

Q46

Imagine when you reach the supermarket you came across these type of carrots:



Q125

Please answer the following questions based on the picture shown above



Now, imagine you need to buy some products to your home.

Q150



You usually go, on a weekly bases, to the Grocery Store next to your house to purchase some fresh fruits and vegetables. You always go there **because you know where all the products come from and that its quality and safety are assured.**

You are looking to buy some **carrots.**



Imagine when you reach the supermarket you came across these type of carrots:

Q107



Please answer the following questions based on the picture shown above

Q126



▼ Purchasing Intentions

□ Q33 Please state your personal opinion in the following sentences

	1 - Strongly disagree	2	3	4	5	6	7 - Strongly agree
I would consider buying this product	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to try this product	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would not be inclined to buy this product	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

□ Q32 How much would you be willing to pay for 1 kilo of these ?
(on average: 1 kilo of carrots = 0,7€ ; 1 kilo of strawberry = 4€)

	0	1	2	3	4	5	6	7	8	9	10
Willingness to Pay (€)											

▼ Negative Aesthetic Effect

□ Q34 Please state your personal opinion in the following sentences

Note: At any time you can go back to check the picture again

	1 - Strongly disagree	2	3	4	5	6	7 - Strongly agree
I find this product far superior in terms of cooking purposes when compared to similar products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find this product far superior to eat when compared to similar products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find this product far more effortless to prepare when compared to similar products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find this product to have far more nutritional value when compared to similar products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find this product to be far healthier when compared to similar products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1 - Strongly						7 - Strongly

▼ Aesthetic Measure



Q66

Please state your personal opinion in the following sentences

Note: At any time you can go back to check the picture again



	1 - Strongly disagree	2	3	4	5	6	7 - Strongly agree
I find this product beautiful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find this product pleasing to see	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find this product nice to see	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like to look at this product	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find this product typical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This product is representative of similar products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1 - Strongly disagree	2	3	4	5	6	7 - Strongly agree

▼ Implicit Theory Measure



Q35



Please state your personal opinion in the following sentences




	1 - Strongly disagree	2	3	4	5	6	7 - Strongly agree
Natural beauty does not change much over a lifetime —people who are born beautiful stay beautiful and people not born beautiful typically stay that way too.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A person's level of natural beauty is something very basic about them and it can't be changed much.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People who are born without natural beauty can't do much to change that.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1 - Strongly disagree	2	3	4	5	6	7 - Strongly agree

Demographics Block Options ▾


Age
Q57



- Under 18
-  18 - 24
-  25 - 34
- 35 - 44
- 45 - 54
- 55 - 64
- 65 - 74
- 75 - 84
- 85 or older

Country of birth
Q63





City you are currently living in
Q64



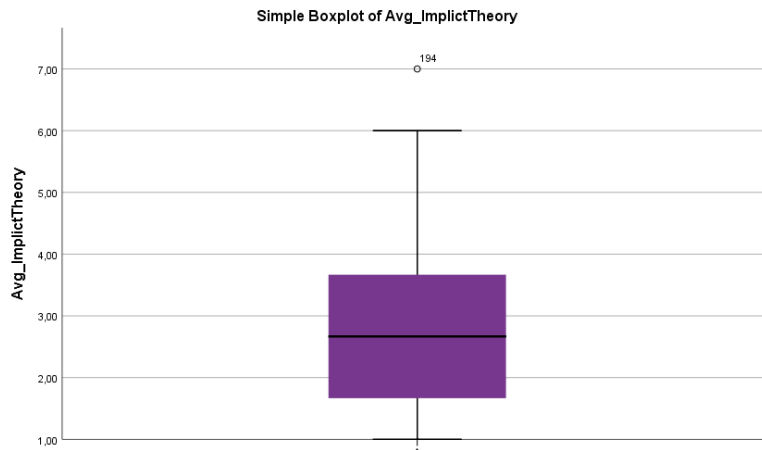
 

Gender
Q62

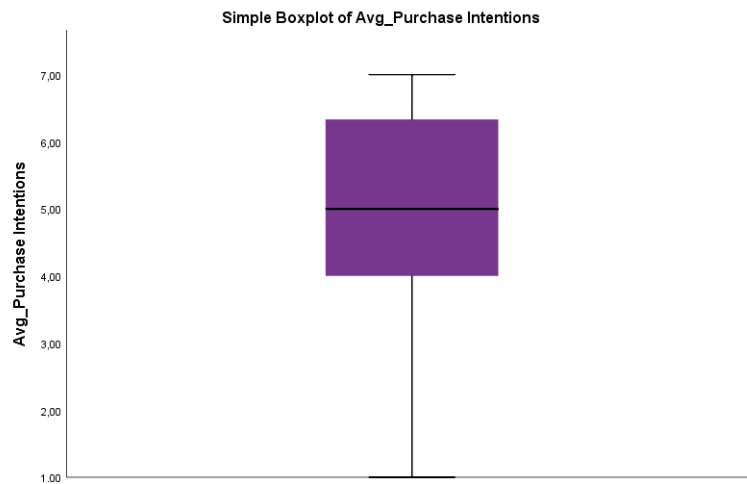
-  Male
- Female
-  Prefer not to say

Appendix 7: Outliers Final Questionnaire

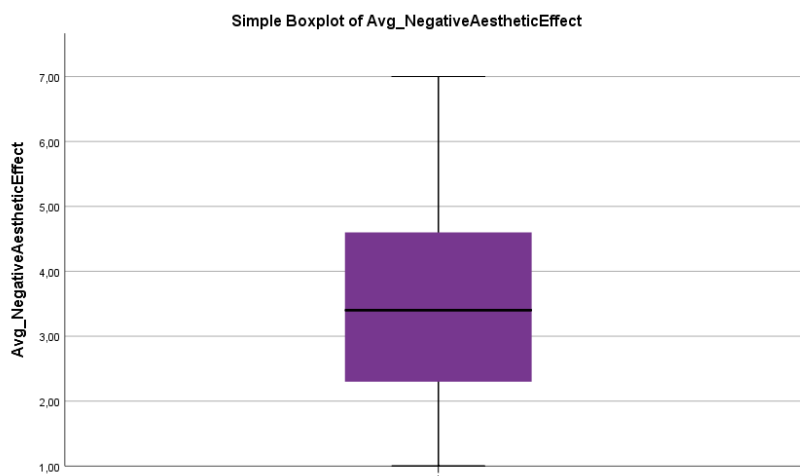
Appendix 7.1: Outliers Implicit Theory Measurement Final Questionnaire



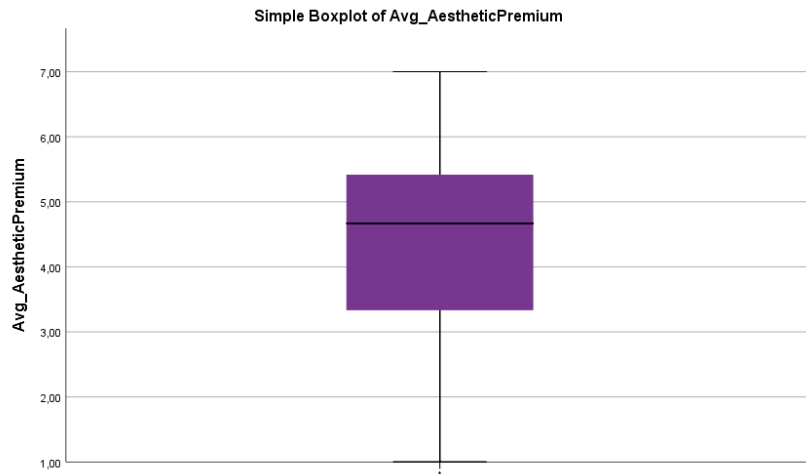
Appendix 7.2: Outliers Purchasing Intentions Final Questionnaire



Appendix 7.3: Outliers Negative Aesthetic Effect Final Questionnaire



Appendix 7.4: Outliers Aesthetic Measure Final Questionnaire



Appendix 8: Reliability Analysis Outputs Final Questionnaire

Appendix 8.1: Implicit Theory Measurement Scale

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,755	,757	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
Implicit Theory Measurement 1	5,72	8,062	,579	,336	,678
Implicit Theory Measurement 2	4,97	7,224	,598	,357	,661
Implicit Theory Measurement 3	5,75	8,402	,582	,338	,678

Appendix 8.2: Purchasing Intentions Scale

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,812	,820	3

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	,602	,480	,836	,357	1,743	,033	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
Purchase Intentions 1	9,94	11,010	,763	,710	,647
Purchase Intentions 2	10,03	10,592	,747	,706	,655
Purchase Intentions 3	10,08	11,871	,507	,257	,910

Appendix 8.3: Negative Aesthetic Effect Scale

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,900	,902	5

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
Negative Aesthetic Effect 1	13,80	36,251	,793	,641	,870
Negative Aesthetic Effect 2	13,62	35,901	,776	,643	,873
Negative Aesthetic Effect 3	13,89	37,498	,622	,391	,908
Negative Aesthetic Effect 4	13,66	36,339	,754	,601	,878
Negative Aesthetic Effect 5	13,57	34,658	,829	,710	,861

Appendix 8.4: Aesthetic Scale

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,904	,902	5

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 find this product beautiful	17,35	34,099	,866	,821	,859
I find this product pleasing to see	17,16	33,501	,872	,841	,857
I find this product nice to see	17,18	34,165	,860	,782	,861
I like to look at this product	17,48	35,625	,806	,668	,873
This product is representative of similar products	17,41	42,944	,423	,187	,948

Appendix 9: One-Way ANOVA – Implicit Theory Measurement

Appendix 9.1: One-Way ANOVA – Implicit Theory Measurement – Assumptions Check

Descriptives

Avg_Implicit Theory

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Entity	93	3,1254	1,32417	,13731	2,8527	3,3982	1,00	7,00
Incremental	122	2,4481	1,25586	,11370	2,2230	2,6732	1,00	6,00
Total	215	2,7411	1,32617	,09044	2,5628	2,9194	1,00	7,00

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Avg_Implicit Theory	Based on Mean	,383	1	213	,537
	Based on Median	,397	1	213	,529
	Based on Median and with adjusted df	,397	1	212,832	,529
	Based on trimmed mean	,481	1	213	,489

Tests of Normality

		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
N_ImplicitTheory		Statistic	df	Sig.	Statistic	df	Sig.
Avg_Implicit Theory	Entity	,097	93	,031	,971	93	,036
	Incremental	,131	122	,000	,909	122	,000

a. Lilliefors Significance Correction

Appendix 9.2: One-Way ANOVA – Implicit Theory Measurement – Result

ANOVA

Avg_ImplicitTheory

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	24,213	1	24,213	14,645	,000
Within Groups	352,152	213	1,653		
Total	376,365	214			

Appendix 10: Two-Way ANCOVA – Willingness to Pay & Purchasing Intentions

Appendix 10.1: Two-Way ANCOVA – Willingness to Pay – Assumption Check

Levene's Test of Equality of Error Variances^{a,b}

		Levene Statistic	df1	df2	Sig.
Willingness to Pay (€)	Based on Mean	,370	3	211	,775
	Based on Median	,438	3	211	,726
	Based on Median and with adjusted df	,438	3	120,370	,726
	Based on trimmed mean	,324	3	211	,808

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

a. Dependent variable: Willigness to Pay (€)

b. Design: Intercept + N_ImplicitTheory + N_UglyNormal + N_UglyNormal * N_ImplicitTheory

Levene's Test of Equality of Error Variances^a

Dependent Variable: Willigness to Pay (€)				
F	df1	df2	Sig.	
1,418	3	211	,238	

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

a. Design: Intercept + N_ImplicitTheory + N_UglyNormal + TypeOfFruitVegetable + N_ImplicitTheory * N_UglyNormal

Appendix 10.2: Two-Way ANCOVA – Purchasing Intentions – Assumption Check

Levene's Test of Equality of Error Variances^{a,b}

		Levene Statistic	df1	df2	Sig.
Avg_Purchase Intentions	Based on Mean	11,650	3	211	,000
	Based on Median	11,531	3	211	,000
	Based on Median and with adjusted df	11,531	3	160,477	,000
	Based on trimmed mean	11,589	3	211	,000

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

a. Dependent variable: Avg_Purchase Intentions

b. Design: Intercept + N_ImplicitTheory + N_UglyNormal + N_UglyNormal * N_ImplicitTheory

Levene's Test of Equality of Error Variances^a

Dependent Variable: Avg_Purchase Intentions				
F	df1	df2	Sig.	
6,757	3	211	,000	

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

a. Design: Intercept + N_ImplicitTheory + N_UglyNormal + TypeOfFruitVegetable + N_ImplicitTheory * N_UglyNormal

Appendix 10.3: Two-Way ANCOVA – Willingness to Pay – Result

Tests of Between-Subjects Effects

Dependent Variable: Willigness to Pay (€)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	317,484 ^a	4	79,371	52,984	,000
Intercept	144,724	1	144,724	96,611	,000
N_ImplicitTheory	,063	1	,063	,042	,838
N_UglyNormal	21,239	1	21,239	14,178	,000
N_UglyNormal * N_ImplicitTheory	1,248	1	1,248	,833	,362
TypeOfFruitVegetable	291,704	1	291,704	194,727	,000
Error	314,583	210	1,498		
Total	1760,831	215			
Corrected Total	632,067	214			

a. R Squared = ,502 (Adjusted R Squared = ,493)

Descriptive Statistics

Dependent Variable: Willigness to Pay (€)

N_ImplicitTheory	N_Ugly or Normal	Mean	Std. Deviation	N
Entity	Ugly Fruit/ Vegetable	1,8316	1,91915	50
	Normal Fruit/ Vegetable	2,5744	1,64128	43
	Total	2,1751	1,82486	93
Incremental	Ugly Fruit/ Vegetable	2,0672	1,46423	58
	Normal Fruit/ Vegetable	2,6633	1,73876	64
	Total	2,3799	1,63506	122
Total	Ugly Fruit/ Vegetable	1,9581	1,68604	108
	Normal Fruit/ Vegetable	2,6276	1,69297	107
	Total	2,2913	1,71860	215

Appendix 10.4: Two-Way ANCOVA – Purchasing Intentions – Result

Tests of Between-Subjects Effects

Dependent Variable: Avg_Purchase Intentions

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	132,588 ^a	4	33,147	16,847	,000
Intercept	2355,559	1	2355,559	1197,244	,000
N_ImplicitTheory	,081	1	,081	,041	,840
N_UglyNormal	96,447	1	96,447	49,020	,000
N_UglyNormal * N_ImplicitTheory	1,249	1	1,249	,635	,427
TypeOfFruitVegetable	30,346	1	30,346	15,424	,000
Error	413,172	210	1,967		
Total	5940,778	215			
Corrected Total	545,759	214			

a. R Squared = ,243 (Adjusted R Squared = ,229)

Descriptive Statistics

Dependent Variable: Avg_Purchase Intentions

N_ImplicitTheory	N_Ugly or Normal	Mean	Std. Deviation	N
Entity	Ugly Fruit/ Vegetable	4,3667	1,89910	50
	Normal Fruit/ Vegetable	5,6512	1,24924	43
	Total	4,9606	1,74584	93
Incremental	Ugly Fruit/ Vegetable	4,2874	1,62395	58
	Normal Fruit/ Vegetable	5,7344	,89911	64
	Total	5,0464	1,47978	122
Total	Ugly Fruit/ Vegetable	4,3241	1,74873	108
	Normal Fruit/ Vegetable	5,7009	1,04904	107
	Total	5,0093	1,59696	215

Appendix 11: Two-Way ANCOVA – Negative Aesthetic Effect

Appendix 11.1: Two-Way ANCOVA – Negative Aesthetic Effect - Results

Tests of Between-Subjects Effects

Dependent Variable: Avg_Negative Aesthetic Effect

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	38,716 ^a	4	9,679	4,697	,001
Intercept	1179,908	1	1179,908	572,549	,000
N_ImplicitTheory	,076	1	,076	,037	,848
N_UglyNormal	33,198	1	33,198	16,109	,000
N_UglyNormal * N_ImplicitTheory	,043	1	,043	,021	,886
TypeOfFruitVegetable	4,442	1	4,442	2,156	,144
Error	432,768	210	2,061		
Total	2996,480	215			
Corrected Total	471,484	214			

a. R Squared = ,082 (Adjusted R Squared = ,065)

Descriptive Statistics

Dependent Variable: Avg_Negative Aesthetic Effect

N_ImplicitTheory	N_Ugly or Normal	Mean	Std. Deviation	N
Entity	Ugly Fruit/ Vegetable	2,9720	1,52637	50
	Normal Fruit/ Vegetable	3,8279	1,49449	43
	Total	3,3677	1,56352	93
Incremental	Ugly Fruit/ Vegetable	3,0828	1,33825	58
	Normal Fruit/ Vegetable	3,8250	1,42071	64
	Total	3,4721	1,42587	122
Total	Ugly Fruit/ Vegetable	3,0315	1,42269	108
	Normal Fruit/ Vegetable	3,8262	1,44381	107
	Total	3,4270	1,48432	215

Descriptives

Avg_Negative Aesthetic Effect

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Ugly Fruit/ Vegetable	108	3,0315	1,42269	,13690	2,7601	3,3029	1,00	5,60
Normal Fruit/ Vegetable	107	3,8262	1,44381	,13958	3,5494	4,1029	1,00	7,00
Total	215	3,4270	1,48432	,10123	3,2274	3,6265	1,00	7,00

Levene's Test of Equality of Error Variances^a

Dependent Variable: Avg_Negative Aesthetic Eff

F	df1	df2	Sig.
,505	3	211	,679

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

a. Design: Intercept + N_ImplicitTheory + N_UglyNormal + TypeOfFruitVegetable + N_ImplicitTheory * N_UglyNormal

Appendix 11.2: Two-Way ANCOVA – Negative Aesthetic Effect - Product attractiveness manipulation

Tests of Between-Subjects Effects

Dependent Variable: Avg_Aesthetic

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	139,680 ^a	4	34,920	25,354	,000
Intercept	1739,729	1	1739,729	1263,120	,000
N_ImplicitTheory	1,051	1	1,051	,763	,383
N_UglyNormal	107,170	1	107,170	77,810	,000
TypeOfFruitVegetable	30,509	1	30,509	22,151	,000
N_ImplicitTheory * N_UglyNormal	,097	1	,097	,070	,791
Error	289,239	210	1,377		
Total	4486,389	215			
Corrected Total	428,919	214			

a. R Squared = ,326 (Adjusted R Squared = ,313)

Descriptive Statistics

Dependent Variable: Avg_Aesthetic

N_ImplicitTheory	N_Ugly or Normal	Mean	Std. Deviation	N
Entity	Ugly Fruit/ Vegetable	3,6300	1,43146	50
	Normal Fruit/ Vegetable	5,1860	1,13693	43
	Total	4,3495	1,51324	93
Incremental	Ugly Fruit/ Vegetable	3,6466	1,42283	58
	Normal Fruit/ Vegetable	4,9687	,88783	64
	Total	4,3402	1,34301	122
Total	Ugly Fruit/ Vegetable	3,6389	1,42017	108
	Normal Fruit/ Vegetable	5,0561	,99605	107
	Total	4,3442	1,41573	215

Appendix 12: Extra Tests with covariate Language & Age

Appendix 12.1: Two-Way ANCOVA – Willingness to Pay – Result

Tests of Between-Subjects Effects

Dependent Variable: Willigness to Pay (€)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	331,547 ^a	6	55,258	38,334	,000
Intercept	38,433	1	38,433	26,663	,000
Language	13,951	1	13,951	9,679	,002
N_UglyNormal	19,963	1	19,963	13,849	,000
N_ImplicitTheory * N_UglyNormal	,880	1	,880	,610	,436
N_ImplicitTheory	,051	1	,051	,036	,850
TypeOfFruitVegetable	280,088	1	280,088	194,306	,000
age_	2,111	1	2,111	1,464	,228
Error	295,503	205	1,441		
Total	1737,792	212			
Corrected Total	627,050	211			

a. R Squared = ,529 (Adjusted R Squared = ,515)

Descriptive Statistics

Dependent Variable: Willigness to Pay (€)

N_ImplicitTheory	N_Ugly or Normal	Mean	Std. Deviation	N
Entity	Ugly Fruit/ Vegetable	1,8316	1,91915	50
	Normal Fruit/ Vegetable	2,5760	1,66114	42
	Total	2,1714	1,83452	92
Incremental	Ugly Fruit/ Vegetable	2,0333	1,45409	57
	Normal Fruit/ Vegetable	2,6919	1,73746	63
	Total	2,3791	1,63612	120
Total	Ugly Fruit/ Vegetable	1,9391	1,68221	107
	Normal Fruit/ Vegetable	2,6455	1,70022	105
	Total	2,2890	1,72389	212

Appendix 12.2: Two-Way ANCOVA – Purchasing Intentions – Result

Tests of Between-Subjects Effects

Dependent Variable: Avg_Purchase Intentions

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	138,251 ^a	6	23,042	11,823	,000
Intercept	409,633	1	409,633	210,195	,000
Language	,073	1	,073	,037	,847
N_UglyNormal	96,557	1	96,557	49,547	,000
N_ImplicitTheory * N_UglyNormal	1,468	1	1,468	,753	,386
N_ImplicitTheory	,058	1	,058	,030	,863
TypeOfFruitVegetable	24,893	1	24,893	12,773	,000
age_	6,640	1	6,640	3,407	,066
Error	399,508	205	1,949		
Total	5817,778	212			
Corrected Total	537,759	211			

a. R Squared = ,257 (Adjusted R Squared = ,235)

Descriptive Statistics

Dependent Variable: Avg_Purchase Intentions

N_ImplicitTheory	N_Ugly or Normal	Mean	Std. Deviation	N
Entity	Ugly Fruit/ Vegetable	4,3667	1,89910	50
	Normal Fruit/ Vegetable	5,6190	1,24629	42
	Total	4,9384	1,74219	92
Incremental	Ugly Fruit/ Vegetable	4,2398	1,59706	57
	Normal Fruit/ Vegetable	5,7460	,90144	63
	Total	5,0306	1,48128	120
Total	Ugly Fruit/ Vegetable	4,2991	1,73745	107
	Normal Fruit/ Vegetable	5,6952	1,04913	105
	Total	4,9906	1,59644	212

Appendix 12.3: Two-Way ANCOVA – Negative Aesthetic Effect – Result

Tests of Between-Subjects Effects

Dependent Variable: Avg_Negative Aesthetic Effect

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	73,617 ^a	6	12,270	6,542	,000
Intercept	223,425	1	223,425	119,123	,000
Language	21,419	1	21,419	11,420	,001
N_UglyNormal	27,727	1	27,727	14,783	,000
N_ImplicitTheory * N_UglyNormal	,595	1	,595	,317	,574
N_ImplicitTheory	,022	1	,022	,011	,915
TypeOfFruitVegetable	4,187	1	4,187	2,232	,137
age_	13,479	1	13,479	7,186	,008
Error	384,494	205	1,876		
Total	2930,640	212			
Corrected Total	458,112	211			

a. R Squared = ,161 (Adjusted R Squared = ,136)

Descriptive Statistics

Dependent Variable: Avg_Negative Aesthetic Effect

N_ImplicitTheory	N_Ugly or Normal	Mean	Std. Deviation	N
Entity	Ugly Fruit/ Vegetable	2,9720	1,52637	50
	Normal Fruit/ Vegetable	3,8524	1,50385	42
	Total	3,3739	1,57095	92
Incremental	Ugly Fruit/ Vegetable	3,0842	1,35010	57
	Normal Fruit/ Vegetable	3,7746	1,37324	63
	Total	3,4467	1,40006	120
Total	Ugly Fruit/ Vegetable	3,0318	1,42938	107
	Normal Fruit/ Vegetable	3,8057	1,42031	105
	Total	3,4151	1,47348	212

Appendix 12.4: Two-Way ANCOVA – Aesthetic Measure – Result

Tests of Between-Subjects Effects

Dependent Variable: Avg_Aesthetic

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	157,238 ^a	6	26,206	19,887	,000
Intercept	295,762	1	295,762	224,446	,000
Language	4,240	1	4,240	3,218	,074
N_UglyNormal	102,841	1	102,841	78,043	,000
N_ImplicitTheory * N_UglyNormal	,437	1	,437	,331	,566
N_ImplicitTheory	,995	1	,995	,755	,386
TypeOfFruitVegetable	27,776	1	27,776	21,079	,000
age_	13,096	1	13,096	9,938	,002
Error	270,138	205	1,318		
Total	4422,722	212			
Corrected Total	427,376	211			

a. R Squared = ,368 (Adjusted R Squared = ,349)

Descriptive Statistics

Dependent Variable: Avg_Aesthetic

N_ImplicitTheory	N_Ugly or Normal	Mean	Std. Deviation	N
Entity	Ugly Fruit/ Vegetable	3,6300	1,43146	50
	Normal Fruit/ Vegetable	5,1984	1,14778	42
	Total	4,3460	1,52116	92
Incremental	Ugly Fruit/ Vegetable	3,6462	1,43547	57
	Normal Fruit/ Vegetable	4,9630	,89375	63
	Total	4,3375	1,34977	120
Total	Ugly Fruit/ Vegetable	3,6386	1,42685	107
	Normal Fruit/ Vegetable	5,0571	1,00448	105
	Total	4,3412	1,42319	212

Appendix 13: Extra Tests for only Strawberry or Carrot

Appendix 13.1: Two-Way ANCOVA – Willingness to Pay & Purchasing Intentions

– Carrot’s Result

Tests of Between-Subjects Effects

Dependent Variable: Avg_Purchase Intentions

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	126,848 ^a	3	42,283	21,010	,000
Intercept	2331,228	1	2331,228	1158,369	,000
N_ImplicitTheory	2,875E-5	1	2,875E-5	,000	,997
N_UglyNormal	122,664	1	122,664	60,951	,000
N_ImplicitTheory * N_UglyNormal	,013	1	,013	,006	,936
Error	215,338	107	2,013		
Total	2740,889	111			
Corrected Total	342,186	110			

a. R Squared = ,371 (Adjusted R Squared = ,353)

Descriptive Statistics

Dependent Variable: Avg_Purchase Intentions

N_ImplicitTheory	N_Ugly or Normal	Mean	Std. Deviation	N
0	0	3,600000000	1,908641370	30
	1	5,714285714	1,248491153	21
	Total	4,470588235	1,959791906	51
1	0	3,576923077	1,368073072	26
	1	5,735294118	,9805496011	34
	Total	4,800000000	1,579291600	60
Total	0	3,589285714	1,664836658	56
	1	5,727272727	1,079343859	55
	Total	4,648648649	1,763741339	111

Tests of Between-Subjects Effects

Dependent Variable: Willigness to Pay (€)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	18,601 ^a	3	6,200	5,204	,002
Intercept	144,238	1	144,238	121,061	,000
N_ImplicitTheory	,789	1	,789	,662	,418
N_UglyNormal	16,141	1	16,141	13,547	,000
N_ImplicitTheory * N_UglyNormal	7,489E-5	1	7,489E-5	,000	,994
Error	127,485	107	1,191		
Total	295,866	111			
Corrected Total	146,087	110			

a. R Squared = ,127 (Adjusted R Squared = ,103)

Descriptive Statistics

Dependent Variable: Willigness to Pay (€)

N_ImplicitTheory	N_Ugly or Normal	Mean	Std. Deviation	N
0	0	,6843333333	,4119565037	30
	1	1,460952381	1,061950586	21
	Total	1,004117647	,8357850835	51
1	0	,8573076923	,6459136642	26
	1	1,630588235	1,647578464	34
	Total	1,295500000	1,358083676	60
Total	0	,7646428571	,5354419221	56
	1	1,565818182	1,443422747	55
	Total	1,161621622	1,152414493	111

Appendix 13.2: Two-Way ANCOVA – Negative Aesthetic Effect – Carrot’s Result

Tests of Between-Subjects Effects

Dependent Variable: Avg_Negative Aesthetic Effect

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	36,814 ^a	3	12,271	5,752	,001
Intercept	1158,209	1	1158,209	542,918	,000
N_ImplicitTheory	3,033	1	3,033	1,422	,236
N_UglyNormal	29,873	1	29,873	14,003	,000
N_ImplicitTheory * N_UglyNormal	,311	1	,311	,146	,703
Error	228,264	107	2,133		
Total	1461,360	111			
Corrected Total	265,077	110			

a. R Squared = ,139 (Adjusted R Squared = ,115)

Descriptive Statistics

Dependent Variable: Avg_Negative Aesthetic Effect

N_ImplicitTheory	N_Ugly or Normal	Mean	Std. Deviation	N
0	0	2,533333333	1,352732441	30
	1	3,695238095	1,725826234	21
	Total	3,011764706	1,608184947	51
1	0	2,976923077	1,152842641	26
	1	3,923529412	1,580191554	34
	Total	3,513333333	1,477683330	60
Total	0	2,739285714	1,272317652	56
	1	3,836363636	1,625304944	55
	Total	3,282882883	1,552351523	111

Appendix 13.3: Two-Way ANCOVA – Willingness to Pay & Purchasing Intentions

– Strawberry’s Result

Tests of Between-Subjects Effects

Dependent Variable: Avg_Purchase Intentions

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	13,577 ^a	3	4,526	2,826	,042
Intercept	2943,856	1	2943,856	1838,209	,000
N_UglyNormal	5,556	1	5,556	3,470	,065
N_ImplicitTheory	1,623	1	1,623	1,013	,317
N_UglyNormal * N_ImplicitTheory	3,944	1	3,944	2,463	,120
Error	160,148	100	1,601		
Total	3199,889	104			
Corrected Total	173,725	103			

a. R Squared = ,078 (Adjusted R Squared = ,050)

Descriptive Statistics

Dependent Variable: Avg_Purchase Intentions

N_Ugly or Normal	N_ImplicitTheory	Mean	Std. Deviation	N
0	0	5,516666667	1,191956473	20
	1	4,864583333	1,603891716	32
	Total	5,115384615	1,481747504	52
1	0	5,590909091	1,276286852	22
	1	5,733333333	,8136762043	30
	Total	5,673076923	1,025790273	52
Total	0	5,555555556	1,222345399	42
	1	5,284946237	1,346718029	62
	Total	5,394230769	1,298712684	104

Tests of Between-Subjects Effects

Dependent Variable: Willigness to Pay (€)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	10,280 ^a	3	3,427	1,874	,139
Intercept	1237,648	1	1237,648	676,848	,000
N_UglyNormal	4,709	1	4,709	2,575	,112
N_ImplicitTheory	,584	1	,584	,320	,573
N_UglyNormal * N_ImplicitTheory	3,049	1	3,049	1,668	,200
Error	182,855	100	1,829		
Total	1464,965	104			
Corrected Total	193,134	103			

a. R Squared = ,053 (Adjusted R Squared = ,025)

Descriptive Statistics

Dependent Variable: Willigness to Pay (€)

N_Ugly or Normal	N_ImplicitTheory	Mean	Std. Deviation	N
0	0	3,552500000	2,010964354	20
	1	3,050312500	1,174839685	32
	Total	3,243461538	1,551262465	52
1	0	3,637272727	1,374877248	22
	1	3,833666667	,9008673343	30
	Total	3,750576923	1,117778633	52
Total	0	3,596904762	1,686437272	42
	1	3,429354839	1,114910672	62
	Total	3,497019231	1,369339632	104

Appendix 13.4: Two-Way ANCOVA – Negative Aesthetic Effect – Strawberry’s

Result

Tests of Between-Subjects Effects

Dependent Variable: Avg_Negative Aesthetic Effect

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9,082 ^a	3	3,027	1,572	,201
Intercept	1307,711	1	1307,711	679,119	,000
N_UglyNormal	4,720	1	4,720	2,451	,121
N_ImplicitTheory	3,083	1	3,083	1,601	,209
N_UglyNormal * N_ImplicitTheory	,303	1	,303	,157	,693
Error	192,560	100	1,926		
Total	1535,120	104			
Corrected Total	201,642	103			

a. R Squared = ,045 (Adjusted R Squared = ,016)

Descriptive Statistics

Dependent Variable: Avg_Negative Aesthetic Effect

N_Ugly or Normal	N_ImplicitTheory	Mean	Std. Deviation	N
0	0	3,630000000	1,567129458	20
	1	3,168750000	1,484639089	32
	Total	3,346153846	1,518572800	52
1	0	3,954545455	1,263301522	22
	1	3,713333333	1,232528473	30
	Total	3,815384615	1,239130722	52
Total	0	3,800000000	1,407991131	42
	1	3,432258065	1,384785501	62
	Total	3,580769231	1,399172913	104