# Do we underestimate the power of packaging?

Understanding the influence of chocolate packaging on consumer's quality perception and taste expectation.

# MASTER'S THESIS

Student Gilliany Oduber S1425382

University of Twente

Professor Anna Fenko

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#### ABSTRACT

The food industry is becoming more and more competitive. New products are entering supermarkets on a daily basis. With increasing variety and options for consumers, companies are eager to make their products stand out. Packaging is one of the most, if not the most essential factor for consumers when making a purchase. Previous studies show how colour, complexity design and country of origin of a package are all key factors in influencing consumers to purchase. This study answers the research question: *"To what extend does the colour, design complexity and country of origin of chocolate bars influence the quality perception of consumers', taste expectation and ultimately their purchasing decision?"* This study investigates to what extend the colour, complexity of the design and the country of origin affects the quality perception of consumers. A pre-test was conducted to be able to select the proper stimulus for this study. The colours tested were brown vs green, the complexity tested were complex design vs simple design and the country of origin tested was Belgium vs British chocolate.

The results of the study show that the colour of a package has a significance influence on the quality perception and the taste expectation. The complexity of the design has neither significance influence on quality perception nor the taste expectation. However, it does have a significant effect on the purchase intention. As for the country of origin, it can be concluded that the country of origin has a significant influence on the quality perception and the purchase intention but not the taste expectation of consumers. Thus ultimately, all three factors; colour, complexity and country of origin all have are statistically proven to have an influence on the purchasing intention.

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#### **1** INTRODUCTION

One could easily refuse to believe how much influence a package has on a consumers purchasing intention. They would claim, "It's the product that has to be good, it doesn't matter what package it is in". However, do they as consumers ever stop for a moment and thoroughly think about what influences them to make their purchases? Do they truly contemplate about making purchases when it comes to food products? And if it is habitual behaviour, why do they purchase that specific product in the first place? This study focuses on understanding how packaging influences consumers to make their choice in a range of similar food products. What lies behind a consumers choice for a certain food product or beverage?

Due to a variety of packages, the quality perception differs among consumers, despite the fact that the packages contain the exact same product. Colours, shapes, logos, complexity designs, labels and even the material are all elements that can affect the perception of the product. These elements help consumers categorize the products and make the differentiation on shelves. For this research, the three variables selected to measure are colour, package design and country of origin. These three variables have all been associated with quality perception in previous studies. Colours and complexity of the package design are all of importance for almost every food product. Additionally, because the chosen food product for this research is chocolate bars, it was crucial to measure the significance of country of origin displayed on packages. It has been up for discussion for years what country has the highest quality chocolates in the world, thus, for this food product measuring the country of origin was essential. These variables influence the consumers' expectations and consequently their satisfaction with the product (Chapman, Lovelace, Cardello & Lawless, 2010).

#### **1.1 RESEARCH QUESTION**

This study aims to measure how package elements influence the perception of products. With this study different package elements will be measured to test if consumers respond differently to the packaging of a product. The research will focus on chocolate bar packages. Chocolate bars are in a highly competitive market with millions of competitors with similar food products. The results of this research give a clear indication for what to focus on when entering this industry. Thus, the results of this study may provide useful information for both organizations and consumers; for companies producing and selling chocolate, the study will provide an in-depth understanding of different factors influencing consumers when making their purchases. This information is not only relevant for the chocolate industry but also for the food product industry. In addition, it gives consumers an overview on how packages can influence their purchasing decision.

# Central question:

"To what extend does the colour, design complexity and country of origin of chocolate bars influence the quality perception of consumers', taste expectation and ultimately their purchasing decision?"

The three core packaging elements (colours, design complexity and country of origin) were manipulated, and the quality perception, taste expectation and purchase intention were measured. By narrowing the research down to three independent factors, this research was given more focused and effective results.

## **2** THEORETICAL FRAMEWORK

#### 2.1 Influence of packaging on consumers

Packaging is a complex term. According to Webster Dictionary, a package is a commodity of a product uniformly wrapped or sealed. A package is used to present a product to the public. Packages are not only used to cover and to support products, but they are also used to inform consumers. Additionally, they serve to call attention to the qualities of the product and to provide a brand experience (Karjalainen, Heiniö & Rahe, 2010). However, packaging is more complex than the aforementioned. Extrinsic factors of a package include social, cultural, cognitive and attitudinal variables that affect the perception of a product for individual consumers (Cardello, 2002). He further states that extrinsic factors determine the success of a product within the market. According to Jinkarn & Suwannaporn (2015), packaging traits are: distinguishing features, structure, body style, and how easily a package can be opened. Vernuccio, Cozzolino & Michelini (2010) describe packaging as a strategic tool to complete the value of products. They further state that designs and originality of packages increase the value, notably when companies apply marketing. Grobelny & Michalski (2015) claim, that colours, font and spacing complete the presentation and impression of the package. The safety of the food product relies on the quality of the material used for packaging (Feichtinger, Zitz, Fric, Kneifel & Domig, 2015). High quality material for packages is required for hygienic purposes. Additionally, the packaging of food products contains information for consumers, these labels aim to capture attention and inform. In conclusion, packaging has many different attributes to a product and its value. When it comes to chocolate bars, the competition is fierce. Therefore, companies are forced to make the product more appealing to customers through packaging.

Chocolate is a worldwide snack that has been in existence since 1492 (Szogyi 1997). It is a homogeneous product sold all over the world in a billion euro industry (Badiner & Hill, 2013). The production of chocolate has travelled the world since it first was discovered in Mexico in 1492. The production of chocolate then reached France and Austria. Chocolate was first sold in Brussels, Belgium in an apothecary as a bitter chocolate bar in 1857. Ultimately, the art of chocolate has been mastered by Switzerland and Belgium (Szogyi, 1997). Currently, Belgium has a large variety of global chocolate brands. Brands such as Guylian, Leonids and Godiva are just a few of the largely successful brands of Belgium chocolate. According to a focus group research conducted by Monaco, Ollila and Tuorila (2004), people utilize chocolate bars as an incentive. The results further show that price increase did not affect the buying behaviour of consumers. In a world where food products are frequently purchased and where price is not necessarily a factor, the chocolate bar industry is highly competitive. In the chocolate industry, even though the bars are similar products, they do differ in taste and packaging. Schütte (2013) is of the opinion that consumers consider the taste of a food product as the most important factor. Each individual has his or her own perception of taste. Because of this, taste is difficult to measure (Spence, 2010). A study suggests that the packaging of food products creates expectations in consumers (Cardello, 1994; Deliza and MacFie, 1996). According to Schütte, consumers also expect the taste of a food product to match the packaging. According to Hekkert and Karana (2013), a package represents the expected taste of the food product and affects how the product is perceived. In addition, Cardello and Sawyer (1992) claim, that a product's information printed on packages increases expectations in consumers. The importance of the package sensory aspects in a food product should not be doubted (Tourila, 2014). According to Cardello and Maller

(1982) consumers purchasing behaviour correlates positively with hedonic evaluations of food products. Furthermore, Ares & Deliza (2010) are of the opinion that consumers create expectations when purchasing food products, and link colours to their taste expectations. Brand labels, price labels and colour are all different factors that affect what taste consumers are expecting (Hoegg & Alba, 2007; Piqueras-Fiszman & Spence (2015). In conclusion, packaging elements influence the quality evaluation and taste expectation of consumers.

This research will focus on the influence of packaging on the consumers' quality evaluation, taste expectation and purchasing intention of chocolate bars. The attributes that are measured in this research are colours, complexity of the package designs and country of origin. There are different researches that show the importance of these specific attributes, these attributes are all associated with the quality of the product. A research conducted by Liao, Corsi, Chrysochou, & Lockshin (2015) proves how colours influence people either consciously or unconsciously. The choices a consumer makes when selecting a chocolate bar is often done within a limited time. Thus, the time a consumer uses to make a choice is brief (Orquin & Loose 2013). As stated by Orquin & Loose, the attention process that happens when making a choice in food products occurs completely depending on the heuristics. A heuristic, also termed as 'cognitive shortcut' implies that consumers simplify the process of decision-making. Consumers base their decision on single features of a food product (i.e. colour or packaging), instead of focusing on all the important attributes. Thus, consumers often neglect to make the effort when making the decision to purchase a food product (Keenan, Brunstrom, & Ferriday, 2015). Package attributes such as shape, colours and package material are all important packaging elements that influence consumers (Becker, van Rompay, Schifferstein, & Galetzka, 2011).

Consequently, the importance of packaging cannot be underestimated. Therefore, knowing which attributes attract consumers to food products is of importance for many, if not all, chocolate manufactures in the industry. The value of this thesis report subsists in the packaging research results.

## 2.2 Influence of colour on consumers

Colours have the power to captivate attention of consumers. The product that initially grabs the attention of consumers is often the product that consumers purchase. One of the very first studies to report that visual attributes had an effect on sensory perception of food products was completed by Moir (1936).

Visual contribution of a product has influences on the taste expectation of consumers (Spence, 2010). And according to Velasco, C., Michel, C. Woods, A. T., Spence, C. (2016), consumers prefer a balanced presentation. Meanwhile, Zellner, D. A., Lankford, M., Ambrose, L., & Locher, P. (2010) argue that consumers appreciate appropriate colour on their food products as well as products that "look good". Regardless of the motivation for purchasing a product, it has been confirmed that new consumers are more attracted to visual appearances of a product rather than other attributes (Schütte, 2013). The results show that the most important product attributes are the size, shape, colour and brand (Schütte, 2013). He further claims that the colour must be dominant to effectively affect the emotions of a consumer. People tend to have emotional responses toward products, based on the colours of the packaging (Liao, Corsi, Chrysochou, & Lockshin 2015). Thus, colours influence how people feel about specific products. According to Wei, Ou, Luo, & Hutchings (2014), food products appear fresher when they are packaged in lighter colours. In addition, they discovered that packages with harmony colours are of great importance on the

perception of consumers. Harmony colours consist of different combination of colours that are matched based on different patterns on the colour wheel. According to their findings, there is a strong correlation between harmony colours and the quality of package designs (Wei, Ou, Luo, & Hutchings, 2014). In addition, a research conducted by Deliza, MacFie, & Hedderley (2003) concluded that consumers create an expectation based on the colour of the package and anticipate a particular taste. As a result of the aforementioned, consumers create expectations on what a chocolate bar will taste like. Therefore, it is important that chocolate bar companies meet the expectations of consumers. If the expected taste fails to please the consumers, it may lead to disappointed and unsatisfied customers. Ares & Deliza (2010) further revealed that colours have a direct effect on the appreciation of a product, and on their willingness to purchase a product.

- H1a: Packages with colours associated with high quality positively influences the consumers' quality perception of a chocolate bar.
- H1b: Packages with colours associated with high quality positively influences the consumers' taste expectation of a chocolate bar.
- H1c: Packages with colours associated with high quality positively influences the consumers' purchase intention of a chocolate bar.

#### 2.3 Influence of design complexity on consumers

Berlyne (1970) developed a theory where he argues that consumers are more satisfied with a moderate design complexity. His theory suggests that a design too complex is confusing meanwhile a design too simple is boring. Therefore, a good balance of factors is necessary for the package to be desirable for consumers. According to Blijlevens, Creusen and Schoormans (2009), consumers identify a product appearance by three attributes; modernity, simplicity and playfulness. Consumers particularly pay a lot of attention to the visual appearance and design (Turner, Skubisz, Pandya, Silverman, Austin, 2014). For this exact reason, companies tend to invest large sums of capital in package designs (Murray & Delahunty, 2000). The design includes the brand name, the company logo, information of the product, calorie information and other visual features. According to Rebollar, Lidón, Martín & Puebla (2015), an individual's desire to make impulsive purchases are affected by package design elements. A research was conducted using the eve-tracking technique. The research identified two basic viewing patterns. The first viewing pattern concluded that individuals view the most important aspect on the chocolate bar first, and then moves to the less important elements in a design. Based on the second viewing pattern, individuals tend to prioritize the upper left part of the package design (Rebollar, Lidón, Martín & Puebla, 2015). Heiniö (2015) declares that food product companies need to keep working on innovating the designs of packages. According to his research, chocolate bar designs need to evoke positive feelings toward the product. He further states that packages need to be new, expressive, informational and practical. Furthermore, the package design is about the distinct aesthetic and figurative qualities (Karjalainen, Heiniö, & Rahe 2010). Reimann, Zaichknowky, Neuhaus, Bender and Weber (2010) conducted a research using well-known brands as well as unknown brands to measure the influence of packaging. Their results concluded that frequently purchased food products are undoubtedly influenced by aesthetics in a package design.

H2a: Packages with complexity design associated with high quality positively influences the consumers' quality evaluation of a chocolate bar.

- H2b Packages with complexity design associated with high quality positively influences the consumers' taste expectation of a chocolate bar.
- H2c: Packages with complexity design associated with high quality positively influences the consumers' purchase intention of a chocolate bar.

# 2.4 Influence on country of origin on consumers

It has been up for debate for years which country has the highest quality chocolates in the world. Since the selected food product for this research is chocolate bars, it was essential to measure the significance of country of origin displayed on packages. When it comes to food products, consumers tend to link safety and quality to the country of origin (Kim, 2012). Food safety is one of the main concerns of consumers. With respect to chocolate bars, country of origin enhances or decreases taste expectations (Szogyi, 1997). Consumers want to be able to trust that the food they are consuming is safe, healthy and of high calibre. Delagneau (1987) says that the perception of the country of origin influences how consumers view the products. This can also be applied to chocolate bar products. The importance of country of origin is more popular in chocolate than for other products. Many countries such as Belgium, Switzerland, Poland, United Kingdom and even Netherlands have worldwide chocolate brands. Belgian locals claim that their products contain 100% cocoa butter unlike many other chocolate companies in the world. Therefore, Belgian locals claim to have the highest quality chocolate in the world. A study conducted by Viaene & Januszewska (2008), compared chocolate bars between the countries Belgium, Poland and the United Kingdom. The results showed that consumers prefer Belgian chocolates, not only for their taste but also for the attributes their packages contain.

According to Frain (2013), Swiss chocolate is a delight. The official Swiss website claims that Switzerland is one of the leading contenders in the chocolate industry. The quality of Swiss chocolate is remarkably high (Farrer, 1908), this is still believed to be the case today. According to Monotti (2008), the market of chocolate production is growing in countries such as Italy, the UK, France and Germany. Chan (2010) names Switzerland, Belgium, Germany, Great Britain and the Netherlands as homes to great chocolates. In conclusion, there are different perceptions on which country has the best chocolate products. Regardless of which country produces the best chocolate, it is of importance for the package to contain the country of origin information. According to Tierney (2013), there are a few reasons such information should be display. Primarily, it gives consumers an idea of where their ingredients are coming from, the consumers is aware of the country of origin and can look up health risks and warnings if they desire to do so. Furthermore, according to Adazon (2009), these labels containing country of origin make the product interesting, original and captivating. When it comes to chocolate products, the country of origin could captivate the consumers if the country of origin has a reputation for good chocolates. Furthermore, according to Agrawal & Kamakura (1999) the country of origin has a competitive advantage because it enhances the overall perception of the product quality simply because the origin is displayed. They further state that consumers feel more at ease purchasing a product where the origin is known.

- H3a: Packages with country of origin associated with high quality positively influences the consumers' quality evaluation of a chocolate bar.
- H3b: Packages with country of origin associated with high quality positively influences the consumers' taste expectation of a chocolate bar.

 H3c: Packages with country of origin associated with high quality positively influences the consumers' purchase intention of a chocolate bar.

#### 2.5 Research design



Figure 1 – Research model

This design shows the different attributes that I will use to ultimately conclude the quality evaluation of the products. The attributes are colours, complexity of the package designs and country of origin of the products. The research model is based on experiment using 2x2x2 experimental designs to measure the variables. A 2x2x2 between-subject design of package (simple vs. complex), colours (highest quality perception vs. lowest quality perception) and country of origin (highest quality perception vs. lowest quality perception). The colours will illustrate the quality of the product, according to the participants. The complexity of the package design differs between a simple design and a more complex design. The second experiment tests the quality (high vs. low) based on the country of origin. The most popular as well as the least popular country will be tested. All the variables in the designs are chosen as a result of the preliminary research. It will determine the colours, package designs and country of origin that are used in the main study. This makes the research narrow and effective.

#### **3 PRE-STUDY**

A preliminary research was conducted prior to the main study to be able to select proper stimulus materials. The results of the research were later used for the main study. The preliminary research was necessary to explore the three different variables: the colours, the complexity of the design and the country of origin.

# 3.1 Preliminary design

# 3.1.1 Research method

The aforementioned research design measures 3 different variables: colours, complexity and origin of the product. To be able to measure the adequate colours for the main study materials, 8 colours were tested. The different colours were tested on the same complexity design. To measure the complexity of the design, 5 different samples of the design were tested. Each measurement of the design excluded an attribute of the original prototype. Thus, the measured samples contained simple to complex designs. The same colour and complex design were used as stimulus material when measuring the country of origin. Thus, the only difference between the different designs was the country of origin. Hereby, participants could solely judge the package by its country of origin. The selected origins for the pre-test were Netherlands, Belgium, Germany, British and Switzerland. Due to the fact that the majority of the participants are European citizens, only European countries were selected for the measurements. All the used materials had the same concept, labels and logos. The only difference between the materials was the measured variables. The participants made use of an online software tool Qualtrics provided by the University of Twente using a URL link. The Qualtrics survey software tool was used to produce, distribute, collect and import questionnaire data.

# 3.1.2 Research package prototype

The package prototype design was created for this research. The package prototype contained a fake brand name "Chantee", accompanied by the slogan "Be enchanted". The use of existing brands for this research is not advisable. Participants might already favour a specific brand, and their bias opinions would harm the purpose of the research. This prototype was used as an example to avoid such bias behaviour.

# 3.1.3 Participants

This experiment was based on a distribution of an online questionnaire. The preliminary research was conducted among 23 individuals ranging from the age of 19 to 54 (M= 26.61, SD=6.79). There was almost an equal amount of male and female participants, and a solid variation between their education levels. See table 1 and table 2.

Demographics	Ν
Male	12
Female	11
Total	23

Table 1 – Gender participants

Level of education	Ν
Secondary education	4
Associates degree	8
Bachelor's degree	6
Master's degree	4
Other	1

Table 2 – Level of education participants

# 3.1.4 Stimulus Colours

This section gives an overview of the different colours used. The following colours were used: white, yellow, orange, red, green, blue, brown and black. All the package samples have the same complexity design, only varying in colours.

*Material 1 – Colour white* 



Material 3 – Colour orange



Material 5 – Colour Green



Material 7 – Colour brown







Material 4 – Colour red



Material 6 – Colour blue



Material 8 – Colour black



# 3.1.5 Stimulus complexity of designs

The same concept of the package design was used in the preliminary research to measure the complexity design. There were 5 different stimulus materials. The samples ranged from simple designs to more detailed complex designs. The 5 materials follow in this section; each image has additions (+) and subtractions (-) to the complexity of the design.

Material 9 – Design 1
CHANTEE



Material 11 – Design 3





Material 12 – Design 4



Material 13 – Design 5



# 3.1.6 Stimulus Country of origin

The exact same complexity of the package design was used to measure the influence of the country of origin on the quality evaluation. Five (5) different country of origin were used for the measurements: Dutch (Netherlands), Belgian (Belgium), German (Germany), British (Great Britain) and Swiss (Switzerland) chocolate.



# 3.1.7 Measurement method

During the questionnaire, images of the different stimulus materials were all shown on the screen with a rating bar below. Participants were asked to rate the quality evaluation on each stimulus. The star bar was used for the measurements. The scale ranged from 1 star to 7 stars, with 1 star being the lowest quality evaluation and 7 being the highest quality evaluation.

#### 3.2 Results Pre-study

## 3.2.1 Results colours

The results of the pre-study on colours of the design were measured using the repeated ANOVA measurements with an alpha level of 0.05. There is a statistical significance for the pre-study of the colour: F(1,22) = 273,109, p < .001.



Chart 1 – Pre-study results colours

The results show that the brown coloured package had the highest quality evaluation (M=5.17, SD=1.64). And the participants rated the green colour as the package with the lowest quality (M=3.21, SD=1.38). Therefore, the colours brown and green were chosen to measure in the main study.

# 3.2.2 Results complexity package design

The complexity of the package design was measured using 5 different designs. These designs varied from very simple design to complex design. There is a statistical significance for the pre-study complexity design: F(1,22) = 108,688, p < .001.



Chart 2 – Pre-study results mean package design

The highest rated package design was the most complex design (M=3.26, SD=1.54). The package with the simplest design had the lowest quality evaluation (M=2.30, 1.25). Thus, the most complex design (design 5) and the simplest design (design 1) were selected for the main study.

# 3.2.3 Results country of origin design

To measure the quality evaluation of the country of origin, 5 countries were tested. There is a statistical significance for the pre-study country of origin: F(1,22) = 227,525, p<.001.



Chart 3 – Results country of origin

According to the results, the participants perceived Belgian chocolate as the chocolate with the highest quality (M=4.73, SD=1.62). United Kingdom chocolate was perceived as the lowest quality chocolate (M=3.43, SD=1.40). Thus, country Belgium and United Kingdom were selected to conduct the main study.

# 3.2.4 Main Study Stimuli

The preliminary research provided the necessary stimuli suitable for this research. The independent variables in this research are colours, design complexity and country of origin. The aforementioned variables will test the dependent variables of the main study.



Figure 2 - Groups independent variables

#### 4 MAIN STUDY RESULTS

# 4.1 Study design

The results of the preliminary research provided the necessary stimulus materials suitable for the main study. The table below shows the 8 different stimuli used in this study. This 2x2x2 design shows the relation between the complexity of the design (simple x complex) x colours of the package (green x brown) x country of origin (Belgium x UK).

Chantee Chocolate Bar	Belgium Brown	British Brown	Belgium Green	British Green
Simple Design	Stimulus 1	Stimulus 3	Stimulus 5	Stimulus 7
Complex Design	Stimulus 2	Stimulus 4	Stimulus 6	Stimulus 8

Table 3 - Stimuli overview

The different stimuli materials were adjusted to show a more realistic image for the participants in the main study. 3D images were used on the chocolate bar packages, with a fake brand name, 'Chantee'. The 3D images contained the different stimuli materials positioned in the same manner. The Qualtrics' 'randomization' tool was used for this research. Each participant had to observe 1 of the 8 stimuli materials and were required to fill out standard questions incorporated in the survey regarding their opinion on the colour, design and country of origin. A minimum of 25 participants was required to observe each stimulus, and complete the questionnaire. The minimum required amount of participants was necessary to avoid unequal results on each stimulus.

# 4.2 Participants

A total amount of 310 participants filled out the questionnaire. Each individual observed and measured only one of the 8 stimuli materials. A minimum of 25 participants was required to observe and fill out the questionnaire on each stimulus to obtain the necessary results. The amount of participants exceeded the required amount. The participants varied between the ages of 15 years old to 68 years old (M=34.78, SD=12.74). The amount of female participation was a high, 81.6%. Only 18.4% of the male gender participated in this research. The education level of the participants varied. A percentage of 35.8% of the participants possess a Bachelor's Degree, while 26.8% finished Secondary School. About 20.3% of the participants have completed their Associate's Degree, and 11.6% have obtained their Master's degree. The participants originate from the Netherlands, Aruba, Curaçao and others. Thus, the majority of the participants originate from the Dutch Kingdom. The Dutch kingdom consists of four countries: Netherlands, Aruba, Curaçao and St. Maarten.

	Frequency	Percentage
Male	57	18.4%
Female	253	81.6%
Primary school	3	1.0%
Secondary school	83	26.8%
Associates degree	63	20.3%
Bachelor's degree	111	35.8%
Master's degree	36	11.6%
Other	14	4.5%
The Netherlands	90	29.0%
Aruba	205	66.1%
Curacao	5	1.6%
Other	10	3.2 %
Total	310	100%

Table 4 – Descriptive main study

Table 5 illustrates the amount of participants per unit. The table also shows the average age of the participants. The amount of participants remains relatively similar, with the amount varying from 37 to 40 participants per unit. In addition, the average age of the participants of the complete research is 34.78. The average age within the different units vary between 32 years old to 36 years old.

Stimuli Materials	Amount of	Mean age
	participants	
Stimulus 1 – Simple Brown Belgian	N=40	M=34.58
Stimulus 2 – Complex Brown Belgian	N=39	M=35.23
Stimulus 3 – Simple Brown British	N=37	M=35.08
Stimulus 4 – Complex Brown British	N=38	M=33.34
Stimulus 5 – Simple Green Belgian	N=37	M=32.51
Stimulus 6 – Complex Green Belgian	N=40	M=36.45
Stimulus 7 – Simple Brown British	N=40	M=36.72
Stimulus 8 – Complex Brown British	N=39	M=34.13

Table 5 – Average age of participants per stimuli

#### 4.2.1 Valid participants

Only participants who qualified for the survey were allowed to observe and give their opinions about the stimulus package. The requirements for qualification were prior experience with chocolate in general, prior experience with the taste of chocolate, and prior experience with the appearance of chocolate. Participants were asked at the beginning of the survey about their prior experience with chocolate. Participants who have never tasted chocolate in their lifetime were disqualified, and redirected to the credits at the end of the survey. Only participants, who have tasted chocolate at least once in their lifetime, were allowed to continue with the survey. All of the participants (N=310) claimed to have tasted chocolate, and 0% denied having tasted chocolate (N=0). Participants who acknowledged having tasted chocolate were directed to one of the 8 stimuli. The participants had to observe and give their opinion of the stimulus.

		Frequency	Percentage
	Yes	310	100
Valid	No	0	0
	Total	310	100.0

Table 6 – Screening question result

# 4.2.2 Chocolate eating pattern

Participants were asked to rate the accuracy of the following statement: "I am a chocolate bar eater". The majority of the participants chose the answer, "Yes, absolutely", with a percentage of 35.8%. A percentage of 34.2% chose for the answer, "Sometimes". This indicated that 34.2% of the participants only purchase chocolate on occasions.

Chocolate eater	Frequency	Percentage
Yes, absolutely	111	35.8%
Yes, sort of	32	10.3%
Sometimes	106	34.2%
No, not really	52	16.8%
No, not at all	9	2.9%

Table 7 – Descriptive eating behaviour



Chart 4 - Descriptive eating behaviour

# 4.2.3 Frequency of purchase

Participants were also asked about their purchasing frequency regarding chocolate bars. According to the results, a high percentage of the participants (54.8%) claimed to have purchased chocolate and/or a chocolate bar in the last week. An amount of 24.2% of the participants claimed to have purchased chocolate in the last month. The remaining participants reported to have purchased chocolate and/or a chocolate bar over 3 months ago.

Period of time	Frequency	Percentage
Last week	170	54.8%
Last month	75	24.2%
3 to 6 months ago	41	13.2%
6 to 12 months ago	11	3.5%
Over a year ago	13	4.2%

Table 8 - Descriptive purchasing frequency



Chart 5 – Descriptive purchasing frequency

# 4.3 Stimulus materials

Stimulus material 1



Stimuli material 3



Stimulus material 2



Stimulus material 4



Stimulus material 5



Stimulus material 6



Stimulus material 7



Stimulus material 8



# 4.4 Research Procedure

The URL-link containing the survey was shared on the Internet over the span of three weeks. The survey was shared on different social media pages and through e-mail. Participants believed they were filling out a survey about a new product. Participants answered standard questions after observing the stimulus, with no prior knowledge of what was being measured.

# 4.5 Research independent measures

*Taste expectation* (N=3)  $\alpha$ =0.752

"Not flavoursome to very flavoursome"

"Not fresh to very fresh"

"Not tasty to tasty"

Perceived quality (N=3) a=0.807

"Not expensive to very expensive"

"Not appealing to very appealing"

"Not exciting to very exciting"

*Purchase intention* (N=3) α=0.912

"I would look for this brand in a store"

"I would recommend this brand to others"

"If I see it, I will purchase this brand"

After collecting the data, the program SPSS Statistics was used for the statistical process. The reliability analysis was performed to test the reliability of the constructs. If the Chronbach alpha measures above 0.7, it's an indication of adequate reliability. Therefore, the Chronbach alpha of the different stimulus materials within the 3 variables (expected taste, perceived quality, and purchase intention) were measured.

# 4.6 Main study results

For this research, the independent variables are: complexity of the design, the colours of the package, and the country of origin. The following dependent variables were measured: the perceived quality of the package, the expected taste of the product and ultimately, the purchasing intention. A factorial between groups analysis of variance (MANOVA) was used to investigate the effects of colour, complexity and country of origin on perceived quality, taste expectation and purchasing intention. The Levene's test was used to evaluate the assumptions of normality and homogeneity of variance respectively. The results were not violated.

# 4.6.1 Colour effects

The preliminary research revealed the adequate colours for the main study, resulted in brown and green. This section exposes the results of the main study regarding the effect of colours on perceived quality, taste expectations and purchase intention.



	Perceived Quality	Expected Tastiness	Purchasing intention
Colour	<i>p</i> < .001	<i>p</i> <.001	<i>p</i> <.001



Chart 6 – Descriptive colour effects on dependent variables

The results conclude that colour has a significant main effect on perceived quality, F (1,310) =20.628, p<.001,  $\eta^2$ =.063. Colour also has a significant main effect on expected tastiness, F(1,310) = 18.613, <.001,  $\eta^2$ =.058. Lastly, colour has a statistical significance with the purchasing behaviour of consumers F(1,310) = 37.446, p<.001,  $\eta^2$ =.110. It can be concluded that colour had an effect the perceived quality, expected tastiness and purchase intention.

# **4.6.2** Complexity design effects

The preliminary research revealed the adequate complexity for the main study resulted in the simple design and the complex design. This section reveals the results of the main study regarding the effect of design complexity on perceived quality, taste expectations and purchase intention.



	Perceived Quality	Expected Tastiness	Purchase intention
Complexity	<i>p</i> =.072	<i>p</i> =.500	<i>p</i> <.001



Chart 7 – Descriptive complexity effects on dependent variables

The results further conclude that complexity is not statistical significance on perceived quality, F(1,310) = 3.266, p=.072,  $\eta^2=.011$ . Complexity it not statistical significance on expected tastiness, F(1,310)=.456, p=.500,  $\eta^2=.001$ . Lastly, complexity of the design is statistically significant with the purchasing behaviour of consumers F(1,310) = 18.655, p<.001,  $\eta^2=.056$ . Thus, complexity did not have a significant effect on perceived quality and expected tastiness. However, complexity does have an effect on the purchasing intention of consumers.

# **4.6.3** Country of origin effects

The pre-study revealed Belgium and UK as adequate country of origin for the main study. The results showed Belgium was perceived as the highest quality package whereas the United Kingdom scored the lowest quality perception. This section contains the results of the main study regarding the effect of country of origin on perceived quality, taste expectations and purchase intention.





Chart 8 - Descriptive origin effects on dependent variables

As for country of origin the results conclude that it has a significant main effect on perceived quality, F(1,310) = 4.797, p = .029,  $\eta^2 = .016$ . Country of origin it not statistically significant on expected tastiness, F(1,310) = 1.052, p = .306,  $\eta^2 = .003$ . Finally, country has a statistically significance with the purchasing behaviour of consumers F(1,310) = 5.324, p = .022,  $\eta^2 = .017$ . Country of origin has a significant effect on perceived quality as well as purchasing intention. Country of origin does not have a statiscally proven effect on taste expectation

# 4.6.4 Interactions effects

This section provides an analysis of the interaction effects between the independent variables colours, complexity and country of origin. In addition, only significant results due to the added independent variable are presented in this section. The factorial between groups analysis of variance (MANOVA) was used to investigate the effects of colour, complexity and country of origin on perceived quality, expected tastiness and purchasing intention. According to the results, there are no significant interactions between variables.

	Perceived Quality	Expected Tastiness	Purchase intention
Colour*Complexity	.913	.339	.099
Colour*Country	.515	.888	.476
Complexity*Country	y .861	.856	.348
Colour*Complexity *Country	.408	.684	.261

Table 10 – Factorial analysis independent variables and gender

#### 4.6.5 Mediation check

Baron and Kenny (1986) designed a model that identifies and clarify the mechanism between the independent and dependent variables by adding a mediator variable.



Figure 3 – Mediation model

Prior to conducting the mediation check it is necessary to conduct a correlation analysis for perceived quality, expected taste and purchase intention to see if the variables correlate. The correlation analysis resulted to be a statistically significant p=.000. Furthermore, a regression analysis was conducted using a four-step process with the different variables. Each analysis had to be conducted four times in order to see the statistical significance each step. The mediation check provided relevant information that it can be concluded that perceived quality p=.000 and taste expectation p=.001 are both mediators for the dependent variable purchase intention.

# 4.6.6 Research questions results

•	H1a: Packages with colours associated with high quality positively	Hypotheses
	influences the consumers' quality perception of a chocolate bar.	Confirmed
•	H1b: Packages with colours associated with high quality positively	Hypotheses
	influences the consumers' taste expectation of a chocolate bar.	Confirmed
•	H1c: Packages with colours associated with high quality positively	Hypotheses
	influences the consumers' purchase intention of a chocolate bar.	Confirmed
•	H2a: Packages with complexity design associated with high quality	Hypotheses
	positively influences the consumers' quality evaluation of a	Rejected
	chocolate bar.	
•	H2b: Packages with complexity design associated with high quality	Hypotheses
	positively influences the consumers' taste expectation of a	Rejected
	chocolate bar.	
•	H2c: Packages with complexity design associated with high quality	Hypotheses
	positively influences the consumers' purchase	Confirmed
	intention of a chocolate bar.	
•	H3a: Packages with country of origin associated with high quality	Hypotheses
	positively influences the consumers' quality evaluation	Confirmed
	of a chocolate bar.	
•	H3b: Packages with country of origin associated with high quality	Hypotheses
	positively influences the consumers' taste expectation	Rejected
	of a chocolate bar.	-
•	H3c: Packages with country of origin associated with high quality	Hypotheses
	positively influences the consumers' purchase intention	Confirmed
	of a chocolate bar.	

Table 11 – Research questions results

#### 5. DISCUSSION

The goal of this research was to gain a deeper understanding of the extent of how a package influences the perception of consumers. This subject has been up for discussion for decades. To make the research more specific and relevant, three different package elements were selected: colour, complexity design and country of origin of the product. These independent variables were used to measure the perceived quality of the product, the taste expectations and ultimately, the purchasing intention. Nine hypotheses were formulated to create a proper guidance and structure for the measurements of this research.

Schütte (2013) argues that colour is the most important attribute in a package. The results of this research support the aforementioned statement. The effect of colour on consumers is undeniable. Colour is indisputably an important attribute in packaging and influences the evaluation consumers have on the product. This independent variable was statistically significant, with all the dependent variables in every test conducted. The results indicate that consumers perceive chocolate packages that are brown to have higher quality and better taste. The results of this research also prove that consumers are more likely to purchase a chocolate bar wrapped in a brown package than a chocolate bar wrapped in a green package. It can be argued that because the colour brown relates to the colour of chocolate, consumers have a higher quality evaluation of brown packaging. However, this cannot be concluded based on the results of this research. It is important for companies to use suitable colours on the packaging of their products. Companies should research and confirm that their consumers find the colours of their packages satisfactory. Companies might be suffering from low sales of their high quality food products, due to their poor choice in colouring of their packages.

Even though, different studies prove that the complexity of the design of a package has an influence on how the product is perceived, the results of this research do not lead to the same conclusion. As can be seen in chart 7 on page 37, there is a difference between the average means of simple and complex designs. However, the difference is not significant enough to conclude that the complexity of the design influences the quality evaluation and taste expectation of the food product. Contrary to the aforementioned theory, in this study it was confirmed that consumers are more likely to purchase a complex design rather than a more simple design. The results show that the complexity of the package does not have an influence on the quality evaluation and the expected tastiness. This raises questions on what intrigued the consumers to be willing to make the purchase regardless of the quality and taste expectation.

The country of origin of chocolate has always been an important aspect. Different countries promote their local chocolate as the best chocolate in the world. It is still up for discussion which country produces the best chocolate. Based on the results of this research, it can be concluded that country of origin influences the quality evaluation of chocolate bars. The research concluded that consumers have a higher quality evaluation of chocolate originating from Belgium, than chocolate originating from the United Kingdom. Belgian chocolate had a higher mean in taste expectation, but it cannot be concluded that country of origin has an influence on the taste expectations of chocolate bars. The difference in means was not statistically significant to reach that conclusion. Additionally, the country of origin does have an influence on the purchasing decision of consumers. Consumers are more likely to purchase Belgian chocolate bars than they are to purchase British chocolate bars.

After reviewing the different independent variables and the dependent variables, it can be concluded that all the independent variables had an influence on the purchasing intention of the consumers. Purchasing intention is ultimately the most important dependent variable. Regardless of how the product is perceived, the purchasing intention of consumers is imperative for companies. It is important that the product be perceived as a high quality product, and that consumers have high taste expectations, but the most important aspect is the purchasing intention. It is a high purchasing intention that increases profits. In conclusion, the purchasing intention of consumers can be influenced by providing the adequate colour on the package, by having a more complex design, and having the relevant country of origin.

# 5.1 Limitations and further research

The decision to purchase food products is not only dependent on the packaging but on many other factors. Keller, Markert and Bucher (2015) are of the opinion that people make their specific choices within the similar product group depending on the physical environment of the purchasing setting. According to Spanos and Hankey (2009), these choices vary between western and northern European countries. Thus, consumers differ in their habitual behaviour and their moral views (Azzi, Battini, Persona and Sgarbossa 2012). Aside from geographical influences, individual and cultural characteristics also play a role in the choice of the products people purchase (Mela (1999)). Additionally, Shekhar and Raveendran (2013) concluded that chocolate bar sales depend mainly on the packaging and branding. All these authors may be correct, however, regardless if they are correct or not, one thing is certain; the importance of packaging cannot be underestimated. As mentioned in this paragraph, there are many other variables to be researched in addition to what this study was based on. The importance of these variables should not be undervalued. Further research on these variables could lead to greater results.

It is also important to acknowledge that consumers perceive factors differently. According to the results of this research, 36% of the participants claimed to eat chocolate frequently. However, 54.8% of the participants claimed to have purchased chocolate in the past week. This shows that participants might not consider themselves frequent chocolate eater, but do frequently purchase chocolate. This is an example of how consumers might perceive factors different from each other. These individuals may have differed in opinion during the survey, because they perceived the situation differently. Besides the aforementioned example, there may be different factors that influence the outcome of the results. Further studies can be conducted to measure other elements of packaging, as well as the complexity and country of origin. For example, there are many studies that discuss the layout of the influence of packaging on the evaluation of products. Other studies claim that the most important aspect of a package is the material of the package.

This research would have been more extensive if it was not conducted in an online survey. To measure the reaction of consumers and observe their behaviour when they are presented with the different colours and complexity designs it would have given the research a more in-depth insight. An online quantitative research is more restricted because the research is limited to the specific questions. In a qualitative research, the researchers have more freedom to take different directions depending on the reactions of potential consumers. Aspects such as taste, the look and feel of the material of the package, the layout, or simply how it is presented, these are aspects that are still up for discussion. A taste test using the same exact chocolate bar in different packaging would be interesting to measure how much the package influences how consumers perceive the tangible taste instead of the taste expectation. Would a consumer rate "Belgian" chocolate higher than "United Kingdom" chocolate in a taste test with the exact same chocolate? There are many studies that concluded how the presentation of package influenced the consumers.

Lastly, according to the results, the complexity of the packages did not influence the quality perception nor the taste expectation of the consumers. If the consumer did not perceive the products of high quality or with good taste, why were the consumers willing to still make the purchase? What other variables affected the consumers to make the purchase? Because of the large scope of packaging there are many other directions to further research this interesting subject.

# 5.2 Implications

As mentioned in the literature review, a package consists of different elements and factors. The package is not only the container of the product, but it is what represents the product. The package is what first appeals to the consumers to grab their attention. The AIDA model is an ideal model to apply when developing a package. The package should firstly grab the *attention* of the consumer, increase the consumers' *interest* and *desire* and ultimately their *action* hence purchase. Colours, complexity and country of origin have all been confirmed to have an influence on the purchase intention. This report has useful information for companies in the chocolate industry. Companies should conduct a thorough research before entering the market. Products differ and consumers view products differently. For example, consumers may be intrigued by certain factors when choosing their chocolate bars and be intrigued by completely other factors when choosing their conflakes. Companies should be aware of the importance of packaging and its influence on the perception of consumers. When it comes to food products competition is fierce, what differs a product when positioned in between all its competitors, is its package.

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# **APPENDICES**

# Appendix 1 – Pre-test survey

#### **Demographics**

o Age

Ages 10 - 80

#### Gender

- o Male
- o Female

#### Country of Residence

- o Netherlands
- o Other

#### Education

- Primary school
- o Secondary school
- o Bachelors degree
- o Masters degree
- Other

#### **Purchasing behaviour**

1) I have purchased a chocolate bar in last:

- $\circ$  1 to 3 months
- $\circ$  4 to 6 months
- $\circ$  7 to 9 months
- $\circ$  10 to 12 months
- o Other

#### 2) I always purchase the same chocolate bar brand.

- 3) I always purchase the same chocolate taste.
- 4) I like trying different chocolate bar brands.
- 5) I do not spend a lot of time thinking about which bar to choose.
- 6) It doesn't matter if I've purchased on the brand before, I would purchase any brand.
  - o Agree
  - o Somewhat agree
  - Nor agree nor disagree
  - o Somewhat disagree
  - o Disagree

7) I usually just purchase the chocolate bar ta stands out the most.

8) Prices are very important when it comes to choosing the chocolate bar.

9) It is important to me that the chocolate bar looks fancy.

- 10) It is important to me the country of origin of my chocolate bar.
- 11) When it comes to chocolate bars I never pay much attention to what I purchase.
- 12) It doesn't matter what the package looks like, I just care for the taste.
  - o Agree
  - $\circ$  Somewhat agree
  - $\circ$  Nor agree nor disagree
  - o Somewhat disagree
  - o Disagree

# Packaging

- 13) When purchasing a product the colours are very important to me to make my choice.
- 14) I would not purchase a product that has unattractive colours.
- 15) I really look for quality in a package before I purchase.
- 16) Country of origin of the product helps me make my purchasing decision.
- 17) I usually look like modern and expensive looking designs in food packaging.

18) I would pay more money for a nicer package.

- o Agree
- $\circ$  Somewhat agree
- Nor agree nor disagree
- Somewhat disagree
- o Disagree

#### Colours



19) Which one is the most appealing to you?

- 20) Which one would you pay more for?
- 21) Which example has the highest quality in your perception?
- 22) Which example appears to be a fancy product to you?
- 23) If you had to buy one today, which one would you purchase?
- 24) Which example looks like it has the least amount of calories?
  - Example 1
  - o Example 2
  - o Example 3
  - $\circ$  Example 4
  - o Example 5

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CHANTER

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# Design



- 25) Which one is the most appealing to you?
- 26) Which one would you pay more for?
- 27) Which example has the highest quality in your perception?
- 28) Which example appears to be a fancy product to you?
- 29) If you had to buy one today, which one would you purchase?
- 30) Which example looks like it has the least amount of calories?
  - Example 1
  - Example 2
  - Example 3
  - Example 4

# Country of origin

Example 1



Example 2



31) Select the sample you are most likely to purchase.

CHANTEE

- 32) Select the sample you belief should have the higher price.
- 33) Select the sample that has the best quality product.
  - Example 1
  - Example 2
  - Example 3

# Appendix 2 – Main study survey

# Age

 $\circ$  (Choose age bar 10 – 80)

# Gender

- o Female
- o Male

# **Country of residence**

- $\circ$  Netherlands
- o Aruba
- o Curacao
- o Bonaire
- If not, fill in your country:

# What is your highest education?

- Primary school
- Secondary school
- o Bachelor's degree
- Master's degree
- Other

# Have you ever eaten a chocolate bar?

- o Yes
- o No

### 1) I am definitely a chocolate eater:

- Yes, absolutely.
- Yes, sort of.
- Sometimes, it depends.
- No, not really.
- o No, not at all.

#### 2) I have purchased a chocolate bar in last:

- During the last week
- During the last month
- $\circ$  3 to 6 months
- $\circ$  6 to 12 months
- Over a year ago

#### 3) I always purchase the same brand when it comes to chocolate bars.

- o Disagree
- o Somewhat disagree
- Nor agree nor disagree
- Somewhat agree
- o Agree

# 4) I like trying out different chocolate bar brands.

o Disagree

- Somewhat disagree
- Nor agree nor disagree
- Somewhat agree
- o Agree

5) I do not spend a lot of time when making my purchase choice on chocolate bars.

- o Disagree
- Somewhat disagree
- Nor agree nor disagree
- Somewhat agree
- o Agree

The new chocolate bar "Chantee. Be enchanted" will be introduced in stores soon. Please help us by answering the following questions so we can be able to introduce the best possible product to the market.



#### 6) In your opinion, the Chantee chocolate is:

Inexpensive	1	2	3	4	5	Expensive
Boring	1	2	3	4	5	Exciting
Unappealing	1	2	3	4	5	Appealing
Not flavoursome	1	2	3	4	5	Flavoursome
Not fresh	1	2	3	4	5	Freshness
Not tasty	1	2	3	4	5	Tasty

#### 7) How much would you pay for this chocolate bar?

- €0.50 -€1 euro
- €1.00 €1.50 euro
- €1.50 2.00
- o €2.00 €2.50
- €2.50 €3.00

# 8) It is important to me that the Chantee chocolate bar stands out in a store.

- o Disagree
- o Somewhat disagree
- Nor agree nor disagree
- o Somewhat agree
- o Agree

# 9) It is important to me that the Chantee chocolate bar has the right ingredients.

- o Disagree
- Somewhat disagree
- Nor agree nor disagree
- o Somewhat agree
- o Agree

# 10) A smooth texture is important for me for Chantee to have.

- o Disagree
- Somewhat disagree
- Nor agree nor disagree
- o Somewhat agree
- o Agree

# 11) When I first have a bite of Chantee, it is important to me that it melts in my mouth.

- o Disagree
- Somewhat disagree
- $\circ \quad \text{Nor agree nor disagree}$
- o Somewhat agree
- o Agree

# 12) I will buy the new "Chantee" chocolate bar if I see it in a store.

- o Disagree
- Somewhat disagree
- o Nor agree nor disagree
- o Somewhat agree
- o Agree

#### 13) I will look for the Chantee chocolate bar in a store.

- o Disagree
- Somewhat disagree
- $\circ$  Nor agree nor disagree
- Somewhat agree
- o Agree

## 14) I will recommend the Chantee product to others.

- o Disagree
- Somewhat disagree
- Nor agree nor disagree
- o Somewhat agree
- o Agree

Colours	N	Mean	SD	Minimum	Maximum
Green	23	3.21	1.38	1	6
Yellow	23	3.73	1.51	1	6
Orange	23	3.82	1.43	1	6
Red	23	3.82	1.52	1	7
Black	23	4.17	1.99	1	7
White	23	4.34	1.43	1	7
Blue	23	4.73	1.60	1	7
Brown	23	5.17	1.64	1	7

Appendix 3 – Pre-study colour results descriptive statistics

Table 13 – Results descriptive purchasing intention

Complexity	Ν	Mean	SD	Minimum	Maximum
Design 1	23	2.30	1.25	1	5
Design 2	23	2.39	1.37	1	5
Design 4	23	2.60	1.43	1	6
Design 3	23	2.91	1.34	1	6
Design 5	23	3.26	1.54	1	7

Table 14 – Results descriptive pre-study complexity design

Origin	Ν	Mean	SD	Minimum	Maximum
British	23	3.43	1.40	1	5
German	23	3.78	1.38	1	6
Dutch	23	4.26	1.83	1	7
Swiss	23	4.65	1.64	1	7
Belgian	23	4.73	1.62	1	7

Table 15 – Results descriptive pre-study country of origin

# Appendix 4 - Descriptive results between variables

The factorial between groups analysis of variance (MANOVA) was used to investigate the effects of colour, complexity and country of origin on perceived quality, expected tastiness and purchasing intention. The descriptive tables present the eight stimuli materials per perceived quality, taste expectation and purchasing intention. The table provides an overview of the colours, (brown and green), the complexity (simple and complex) and the country (Belgium and UK).

# Descriptive perceived quality

Colour	Complexity	Country	Mean	SD	Ν
Brown	Simple	Belgium	3.58	.896	40
		UK	3.30	1.167	37
	Complex	Belgium	3.74	1.150	39
		UK	3.62	1.110	38
Green	Simple	Belgium	2.99	1.339	37
		UK	2.76	1.049	40
	Complex	Belgium	3.33	1.091	40
		UK	2.85	1.089	39

Table 16 - Results descriptive perceived quality

#### *Descriptive expected tastiness*

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Colour	Complexity	Country	Mean	SD	Ν
Brown	Simple	Belgium	3.61	.933	40
		UK	3.44	.850	37
	Complex	Belgium	3.73	.961	39
		UK	3.69	1.108	38
Green	Simple	Belgium	3.20	1.218	37
		UK	3.09	1.070	40
	Complex	Belgium	3.19	.954	40
		UK	3.03	.819	39

Table 17 – Results descriptive expected tastiness

Descriptive	purchasing	intention
Descriptive	purchasing	intention

Colour	Complexity	Country	Mean	SD	Ν
Brown	Simple	Belgium	3.49	.618	40
		UK	2.96	.769	37
	Complex	Belgium	3.90	1.024	39
		UK	3.80	.858	38
Green	Simple	Belgium	2.84	1.185	37
		UK	2.69	1.180	40
	Complex	Belgium	3.13	.680	40
		UK	2.95	.853	39

Table 18 – Results descriptive purchasing intention

#### Appendix 5 – Additional results with demographic variables

The research data provides other significant information that can result into relevant outcomes. This section provides an analysis with other independent variables such as gender, nationality and frequency of purchase. The results of the independent variables colours, complexity and country of origin are disclosed together with the added independent variable. In addition, only significant results due to the added independent variable are presented in this section. A factorial between groups analysis of variance (MANOVA) was used to investigate the effects of the independent variables.

Gender

Gentael			
	Perceived Quality	Expected Tastiness	Purchase intention
Colour	.000	.001	.000
Complexity	.029	.037	.000
Country	.069	.318	.303
Gender	.321	.556	.819

Table 13 – Factorial analysis independent variables and gender

By adding the independent variable gender, both colour and complexity remain statistically significant with all three dependent variables. The independent variables country and gender are not statistically significant with any dependent variables.

	Perceived Quality	<b>Expected</b> Tastiness	Purchase intention
Complexity x Gender	.119	.012	.052

Furthermore, the added independent variables gender did provide a statistical significance for the interaction of complexity x gender with the expected tastiness, F (1,309) = 6.323, p=.012.

Nationality			
	Perceived Quality	Expected Tastiness	Purchase intention
Colour	.029	.021	.015
Complexity	.030	.037	.000
Country	.227	.707	.010
Nationality	.470	.374	.629

Table 14 - Factorial analysis independent variables and nationality

By adding the independent variable nationality, both colour and complexity remain statistically significant with all three dependent variables. The independent variables country was only statistically significant with purchase intention. However, it was not statistically significant with perceived quality and expected tastiness. The added independent variable nationality is not statistically significant with the dependent variables.

	Perceived Quality	Expected Tastiness	Purchase intention
Colour x Nationality	.006	.001	.044
Complexity x Nationality	.006	.057	.196

Table 15 - Factorial analysis independent variables interaction with nationality

The added independent variable nationality had two different interactions that are statistically significant. The colour x nationality interaction was statistically significant with dependent variables; perceived quality F(2,309)=5.194, p=.006, expected tastiness F(2,309)=6.909 p=.001 and purchase intention F(2,309)=3.161, p=.044. Moreover, the complexity x nationality interaction is also statistically significant with perceived quality F(2,309)=5.128 p=.006.

1 2 5 1	<b>D</b> 10 11		D 1
	Perceived Quality	Expected Tastiness	Purchase intention
Colour	.094	.219	.109
Complexity	.751	.571	.002
Country	.526	.173	.517
Frequency of purchase	.815	.987	.019

Frequency of purchase

Table 16 - Factorial analysis independent variables and frequency of purchase

By adding the independent variable the purchasing frequency of the participant, it resulted to be statistically insignificant with the majority of the dependent variables. However, adding the independent variable frequency of purchase is statistically significant of complexity F(1,309)=9.637, p=.002 and frequency of purchase of purchase intention F(4,309)=3.008, p=.019.

	Perceived Quality	Expected Tastiness	Purchase intention
Colour x Complexity	.348	.660	.006

In addition, the interaction of colour x complexity was also statistically significant with purchase intention F(1,309)=7.764 p=.006 due to the added independent variable purchase frequency.

To be able to measure and analyse if other independent variables moderate the results, a combination of tests were conducted. By adding more than one independent variables in the factorial analysis (MANOVA), such as gender and nationality, the eating pattern of consumers as well as their purchasing frequency in one test and so on. However, because these independent variables only hindered the statistical significance, these are not reported as the main study results.

#### Appendix 6 – Additional results price comparison

To measure the dependent variable: price expectation, a factorial between groups analysis of variance (MANOVA) was used to investigate the effects of colour, complexity and country of origin on price comparison. The Levene's test was used to evaluate the assumptions of normality and homogeneity of variance respectively. The results were not violated.

Statistical analysis willingness to pay

	Colour	Complexity	Country
Willingness to pay	<i>p</i> =<.001	<i>p</i> =.021	<i>p</i> =.270

Colour has statistically significant effect on willingness to pay, F(1,310) = 24.555, p = <.001,  $\eta^2 = .074$ . Additionally, the results conclude that complexity of the design does not have a statistically significant on consumers F(1,310) = 5.385, p = .021,  $\eta^2 = .017$ . Finally, country is not statistically significance on consumers' willingness to pay F(1,310) = 1.223, p = .270,  $\eta^2 = .004$ . Meaning consumers are not willing to pay more for a more complex package nor willing to pay more depending the country of origin. However, it is statistically proven that consumers are willing to pay more

Stimuli Material	Mean price willing to pay	
Complex Brown Belgian	€ 3.62	
Simple Green British	€ 2.38	

depending the colour of the package.

Table 9 - Price consumers are willing to pay

There is a difference in the means results of the prices consumers' are willing to pay for a Belgian complex design product in comparison to a simple British product, however, it this is not statistically significant.<sup>7</sup>