Influence of colour on the consumer behaviour of Generation Y students in the Vaal Triangle

R. Muller

INFLUENCE OF COLOUR ON THE CONSUMER BEHAVIOUR OF GENERATION Y STUDENTS IN THE VAAL TRIANGLE

Re-an Muller

Student nr. 20110642

BCom; BCom Hons

Dissertation submitted in fulfilment of the requirements for the degree of Masters of Commerce in Marketing Management at the Vaal Triangle Campus of the North West University.

Supervisor: Dr. W.P. Viljoen

Co-supervisor: Prof. A. L. Bevan-Dye

Vanderbijlpark

November 2011

DECLARATION

I, Re-an Muller declare that INFLUENCE OF COLOUR ON THE CONSUMER BEHAVIOUR OF GENERATION Y STUDENTS IN THE VAAL TRIANGLE is my own work, that all the sources used or quoted have been identified and acknowledged by means of complete references, and that this dissertation has not previously been submitted by me for a degree at any other university.

Signature: _____

November 2011

LANGUAGE EDITING

Prof. A.L. Bevan-Dye

English language editing

SATI membership number: 1001760

Tel: 072 424 0933

E-mail: ayeshabevandye@gmail.com

17 November 2011

To whom it may concern

This is to confirm that I, the undersigned, have language edited the completed research of Re-an Muller for the Master of Commerce thesis entitled: *Influence of colour on the consumer behaviour of Generation Y students in the Vaal Triangle*.

The responsibility of implementing the recommended language changes rests with the author of the thesis.

Yours truly,

Ayesha Lian Bevan-Dye

STATISTICAL ANALYSIS

PO Box 263409
Three Rivers
1900
Tel: 083-626-9191

17 November 2011

To whom it may concern

This is to confirm that I, the undersigned, have done the statistical analysis for the Master of Commerce thesis entitled: *Influence of colour on the consumer behaviour of Generation Y students in the Vaal Triangle* by Re-an Muller.

The interpretation of the statistical rests with the author of the thesis.

Yours truly,

Aldine Oosthuyzen (MSc)

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ABSTRACT

INFLUENCE OF COLOUR ON THE CONSUMER BEHAVIOUR OF GENERATION Y STUDENTS IN THE VAAL TRIANGLE

KEY WORDS: Colour, consumer behaviour, marketing mix, Generation Y, students, Vaal Triangle, South Africa

Colour influences the human mind and body through physical as well as psychological reactions to specific colours. These reactions are conditioned by previous experiences leading to certain preferences, associations and perceptions regarding certain colours. There are various aspects within a firm where colour may be utilised to the benefit of its marketing efforts. Marketers must realise that colour may be very influential and it is important to pay close attention to the associations and preferences of the firm's target market(s)

The influence of colour on human perceptions has been widely studied in many research fields. Most marketers recognise the importance of colour within the marketing environment (Section 1.1). Colour has different meanings for different people and these differences need to be acknowledged to ensure success in marketing efforts. If colour is used strategically within the marketing mix (product, place and promotion) of a firm, it may influence consumers positively (Section 1.2). This study endeavoured to determine the colour preferences, associations and perceptions of Generation Y students in South Africa. The findings of this study will be of value to those marketers who target this cohort and may utilised by them to use colour more effectively within their marketing mix.

The purpose of this study was to determine the influence of colour on the consumer behaviour of Generation Y students in the South African market. The research study investigated the following aspects:

- The colour preferences of Generation Y students.
- Emotions Generation Y students associate with different colours.
- How Generation Y students perceive various colours.

- Product colour and product packaging colour preferences of Generation Y students.
- Consumer behaviour patterns of Generation Y students regarding specified products.

For this study, the target population comprised of Generation Y students registered at South Africa's public higher education institutions (HEIs). The sampling frame consisted of a list of South Africa's 23 public HEIs, as stipulated by the Department of Higher Education and Training (2011). This study made use of a non-probability convenience sample of two HEI campuses located in the Vaal Triangle region of South Africa's Gauteng province that was drawn from the sampling frame. Thereafter, a convenience sample of 500 under-graduate students was drawn from these HEI campuses - 250 students per campus. A structure self-administered questionnaire was distributed to the respondents.

The questionnaire requested respondents to rank colours according to preferences, on a four- and seven-point Likert scales were used respectively to determine colour associations and perceptions. The questionnaire also contained questions using a four-point Likert scale designed to determine product colour and product-package colour preferences as well as questions designed to determine consumer behaviour patterns of Generation Y students regarding certain products. In addition, the respondents were asked to provide certain demographic data.

The findings indicate that Generation Y students have distinctive colour preferences, associations and perceptions. The respondents also indicated a number of notable product and product package preferences as well as particular consumer behaviour traits. When comparing male and female respondents as well as black and white respondents respectively, the results depicted various statistical significant differences ($p < 0.05$). Cohen's D statistic was computed to determine the level of practical significance of these differences.

From this, it is evident that colour do influence Generation Y students' consumer behaviour and perceptions to some extent. Colour is present in every aspect of marketing. If used strategically, colour may be used by marketers to influence their target market's perceptions and preferences. The findings emanating from this study should be used as a guideline to incorporate colour into the design of the marketing mix (colour) in such a way as to appeal to Generation Y students.

UITTREKSEL

DIE INVLOED VAN KLEUR OP VERBRUIKERSGEDRAG VAN GENERASIE Y-STUDENTE IN DIE VAALDRIEHOEK

SLEUTELWOORDE: Kleur, verbruikersgedrag, bemarkingsmengsel, Generasie Y, studente, Vaaldriehoek, Suid-Afrika

Kleur beïnvloed die menslike gedagtes en liggaam deur fisieke sowel as sielkundige reaksies op spesifieke kleure. Hierdie reaksies is deur vorige ondervindings gekondisioneer en lei tot sekere voorkeure, assosiasies en persepsies oor sekere kleure. Daar is verskeie aspekte binne ’n onderneming waar kleure aangewend kan word om die bemarkingspogings te bevoordeel. Bemarkers moet besef dat kleur baie invloedryk kan wees, en dit is belangrik om baie aandag aan die assosiasies en voorkeure van die onderneming se teikenmark(te) te skenk.

Die invloed van kleur op menslike persepsies is al wyd bestudeer in baie navorsingsvelde. Die meeste bemarkers besef die belang van kleur binne die bemarkingsomgewing. Verskillende mense heg verskillende betekenisse aan kleur, en hierdie verskille moet erken word om sodoende die sukses van die bemarkingspogings te verseker. Indien kleur strategies binne die bemarkingsmengsel (produk, plek en promosie) van ’n onderneming aangewend word, kan dit verbruikers op ’n positiewe wyse beïnvloed. Hierdie studie was daarmee beywer om die voorkeure, assosiasies en persepsies oor kleur by Generasie Y-studente in Suid-Afrika te bepaal. Die bevindinge van hierdie studie sal waardevol wees vir bemarkers wat hierdie kohort teiken, en dit kan bydra tot hulle vermoë om kleur meer effektief binne hulle bemarkingsmengsel aan te wend.

Die doelstelling van hierdie studie was om die invloed van kleur op die verbruikersgedrag van Generasie Y-studente in die Suid-Afrikaanse mark te bepaal. Die navorsingstudie het die volgende aspekte ondersoek:

- Generasie Y-studente se kleur-voorkeure.

- Die emosies wat Generasie Y-studente met verskillende kleure assosieer.
- Hoe Generasie Y-studente verskeie kleure waarneem.
- Generasie Y-studente se voorkeure ten opsigte van produkkleur en die kleur van ’n produk se verpakking.
- Generasie Y-studente se gedragspatrone as verbruikers ten opsigte van spesifieke produkte.

Hierdie studie het die Generasie Y-studente ingesluit wat by Suid-Afrikaanse publieke hoër onderwysinstellings (HOI’s) geregistreer is. Die steekproefraamwerk het uit ’n lys van Suid-Afrika se 23 publieke HOI’s bestaan, soos gestipuleer deur die Departement van Hoër Onderwys en Opleiding (2011). Hierdie studie het gebruik gemaak van ’n nie-waarskynlike gerieflikheidsteekproef op twee HOI-kampusse in die Vaaldriehoek-streek van Suid-Afrika se Gauteng-provinsie, wat uit die steekproefraamwerk getrek is. Daarna is ’n gerieflikheidsteekproef van 500 voorgraadse studente uit hierdie HOI-kampusse getrek – 250 studente per kampus. ’n Gestruktureerde, self-geadministreerde vraelys is aan die deelnemers versprei.

In die vraelys is die deelnemers versoek om kleure op ’n ranglys te plaas na gelang van hulle smaak. Likert-skale is gebruik om assosiasies en persepsies oor kleur te meet. Die vraelys het ook vrae ingesluit wat ’n vierpunt Likert-skaal gebruik om die voorkeure ten opsigte van ’n produk se kleur en die kleur van ’n produk se verpakking te bepaal, sowel as vrae wat ontwerp is om Generasie Y-studente se gedragspatrone as verbruikers van sekere produkte te bepaal. Die deelnemers is ook gevra om sekere demografiese data te voorsien.

Die bevindinge dui aan dat Generasie Y-studente kenmerkende voorkeure, assosiasies en persepsies oor kleur het. Die deelnemers het ook ’n aantal merkwaardige voorkeure ten opsigte van ’n produk en die verpakking daarvan aangedui, sowel as spesifieke gedragspatrone onder verbruikers. Wanneer die manlike en vroulike deelnemers, sowel as die swart en wit deelnemers vergelyk word, weerspieël die resultate betekenisvolle statistiese verskille ($p <$

0.05). Cohen se D-statistiek is bereken om die vlak van praktiese belangrikheid van hierdie verskille te bepaal.

Hieruit blyk dit dat kleur wel ’n invloed op Generasie Y-studente se verbruikersgedrag en persepsies het. Kleur is in elke aspek van bemarking teenwoordig. Indien dit strategies aangewend word, kan kleur deur bemarkers gebruik word om hulle teikenmark se persepsies en voorkeure te beïnvloed. Die bevindinge wat uit hierdie studie voortvloei moet as ’n riglyn gebruik word om kleur deel te maak van die ontwerp van die bemarkingsmengsel sodat dit aanklank sal vind by Generasie Y-studente.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Most marketers today understand the importance of colour in advertisements (Sable & Akcay, 2010:952). Aslam (2006:15) argues that colour is a primary component of corporate and marketing communications. According to Funk and Ndubisi (2006:49), colour may be used as a marketing weapon if managed strategically. Madden, Hewitt and Roth (2000:93) state that from a marketing viewpoint, it is essential to understand the colour preferences of targeted consumers. Colour may be used as a marketing tool to increase the visibility of the brand or firm that will lead to an increase in sales.

The influence that colour has on individuals has been studied in many research fields in the past. For example, Withrow (2004:36) mentions a study in the psychological field that was conducted in prisons where different wings of the prison were painted different colours. It was noted that violent behaviour increased amongst those prisoners living on the red and yellow wings and decreased amongst those living on the blue and green wings. Kamaruzzaman and Zawawi (2010:286) did research in an office working environment in order to determine the link between the colour of an office and the productivity of the employees. They came to the conclusion that colour does influence productivity and that most employees prefer an office to be painted in shades of blue. Nickels (2007:86) conducted research from a social perspective on the impression people get of an officer's character judged according to the uniform colour. The findings showed that black uniforms elicited a more positive impression than lighter uniforms. The reason for this is that the colour black has a stronger and more masculine association.

Sable and Akcay (2010:952-953) indicate that a number of studies analysed colour preferences across cultures and came to the conclusion that there are cultural differences in colour meanings and associations. For example, the colour white symbolises mourning or death in East Asia but happiness and

purity in countries like the United States of America (USA) and Australia. Research possibilities in a multicultural country like South Africa are endless concerning the effect that colour may have on the marketing efforts of the firm. These cultural differences must be respected and understood in order to market a product successfully in any country.

Schiffman and Kanuk (2007:439) identify the Generation Y market as comprising individuals who was born between 1977 and 1994. This study is focusing on the student segment of the Generation Y market (Age: 18 - 24). The number of students is constantly growing and their buying power is increasing. It is therefore important to investigate the consumer behaviour of the Generation Y student cohort.

1.2 PROBLEM STATEMENT

Colour has different meanings to people in the marketplace. In the marketing of a product or service the marketer must select the appropriate colours to maximise attention, provide a more realistic and appealing portrayal of the product or service, and arouse appropriate feelings (Wells, Burnett & Moriarty, 2000:333). Not all people respond the same to different colours or make the same psychological associations with colours. Marketing managers should be aware of the perceived importance of colours and their interpretation in particular countries and different cultures.

Marketers should understand that colours do not have universal meaning and associations. The colour blue, for example, is the most popular corporate colour in the USA but is perceived as being cold and evil in East Asia. Blue represents warmth in the Netherlands but coldness in Sweden. In Iran, blue is associated with death and in India it is connected with purity (Sable & Akcay, 2010:953). These examples demonstrate the controversial view and associations of the colour blue in different cultures. It is clear that colour has different meanings in different cultures and this needs to be investigated in order for marketers to understand their target markets.

Colour may be used as a marketing tool to influence an individual's attitude towards a brand (Lichtle, 2007:37). Colour plays an important role when it

comes to products, services, packaging, logos and displays. Colour is also helpful in creating a differentiated position the highly competitive market place and it may aid in highlighting a product's attributes if used strategically (Aslam, 2006:22-23).

The marketing mix consists of various elements that may be influenced by colour. This research study focuses on the following elements in the marketing mix:

- Product: the colour of the product.
- Promotion: the logo, packaging, posters and other media used for promotions.
- Place: the lightning and colour used in the distribution outlets where the product is being sold.

A more pleasing and stylish product image may be obtained by using different colour combinations and visual effects (Ma, Chen, & Wu, 2007:505). Packaging and store wall colours can drastically affect a firm's sales (Singh, 2006:786). Consumers develop a preference for particular colours for certain products because they learn, through association, that certain colours are appropriate for certain product categories (Grossman & Wisenblit, 1999:79).

The fast food giant McDonalds utilises colour very effectively, using bright red and yellow in their logo to attract attention and then employing different colours where necessary for different consumer needs, such as for their healthier menu options and for their children's menus (Rowley, 2004:232). If other firms strive to utilise colour this effectively in their marketing efforts, it may lead to a higher visibility of their brand and/or product, thereby making them more successful and more profitable.

Little to no research has been published on this topic in South Africa. The reason for this might be, as noted by Bellizzi, Crawley and Hasty (1983:26), that the larger firms who actually do colour research never publish their findings due to competitive concerns. These firms do not want their

competitors and other firms to use these findings. This amplifies the fact that colour research is vital and plays a major role in the marketing mix of any firm.

1.3 RESEARCH OBJECTIVES OF THE STUDY

The following objectives were formulated for the study:

1.3.1 Primary research objective

The primary research objective is to determine the influence of colour on the consumer behaviour of Generation Y students.

1.3.2 Theoretical objectives

In order to achieve the primary objective, the following theoretical objectives were formulated for the study:

- Define colour, its origin and its influence on the decision making of consumers
- Review the literature on the colour preferences and associations that exist.
- Examine the literature for factors that might influence colour preferences and associations.
- Investigate elements within the marketing mix that may be influenced by colour.
- Conduct a review of the literature on Generation Y as a market segment and its' importance to firms.

1.3.3 Empirical objectives

In accordance with the primary objective of the study, the following empirical objectives were formulated:

- Determine the colour preferences of Generation Y students.
- Determine what emotions Generation Y students associate with different colours.
- Determine how Generation Y students perceive various colours.

- Investigate product colour and product-packaging colour preferences amongst Generation Y students.
- Determine the consumer behavioural patterns of Generation Y students regarding certain products.

1.4 HYPOTHESIS

Hair, Wolfinbarger, Ortinau and Bush (2008:56) state that a hypothesis is a testable statement about relationships between variables. Hypotheses enable researchers to examine relationships between variables. Berndt and Petzer (2011:30-31) distinguish between two types of hypotheses, namely null hypotheses (H_0) and alternate hypotheses (H_1). A null hypothesis states that there is no difference or association between the variables whereas an alternate hypothesis indicates a difference or association between the variables.

In this study, hypotheses were formulated to determine South African Generation Y students' colour preferences, emotion-colour associations and product-colour associations and preferences. In addition, a hypothesis was formulated to establish if there is any significant difference between male and female colour associations and preferences. Hypotheses were also formulated to determine the relationship between race and colour associations and preferences.

1.5 RESEARCH DESIGN

The study will comprise a literature review and an empirical study.

1.5.1 Literature review

Secondary research will included both the local and international literature, which will serve to underpin the empirical research. Secondary sources will include the Internet, textbooks, academic journals and online academic databases.

1.5.2 Empirical study

The empirical portion of this study comprises the following methodology dimension:

1.5.2.1 Target population

Generation Y members registered as students at South Africa's public higher education institutions (HEIs). The target population is defined as follows:

- Element: Registered undergraduate students between 18 and 24 years old
- Sampling Unit: South African public higher education institutions
- Extent: South Africa
- Time: 2011

1.5.2.2 Sampling frame

The sampling frame consisted of a list of South Africa's 23 public HEIs as stipulated by the Department of Higher Education and Training (2011). This includes universities, comprehensive universities and universities of technology.

1.5.2.3 Sampling method

A non-probability convenience sample of two HEI campuses located in the Vaal Triangle region of South Africa's Gauteng province was drawn from the sampling frame. Thereafter, a convenience sample of 500 undergraduate students was drawn from these HEI campuses, 250 students per campus. Jacobs, Keown, Worthley and Ghymn (1990:22) did a similar study on colour perception across different cultures and used a convenience sample of 500 undergraduate students.

1.5.2.4 Questionnaire design

All questions were collated into a book format with a cover page explaining the purpose, objectives and application of this research. The questions were formulated according to a model established during the literature study. The

questionnaire comprised seven sections. The first section, Section A, requested demographical information from the respondents. The second section, Section B, requested respondents to rank colours according to preference. Sections C and D contained questions anchored using a four- and seven-point Likert scales respectively that were designed to determine colour associations. Sections E and F contained questions with a four-point Likert scale designed to determine product colour and product package colour preferences. Section G contained questions designed to determine consumer behavioural patterns of Generation Y students regarding certain products.

Content and face validity of the questionnaire were established by asking a number of experienced academics and researchers to review the questionnaire. A validity check was conducted to test the validity of the questionnaire using thirty students from the sample population to check if all instructions and the language used in the questionnaire was easily understandable.

1.5.2.5 Data processing and analysis

The Statistical Package for Social Sciences (SPSS), Version 18.0 for Windows was used for the data processing and analysis. The main elements of the statistical analyses included basic descriptive statistics (frequencies, means and standard deviations). Cronbach's alpha coefficient will be used to check reliability. Two group sample t-tests together with Cohen's D were used to investigate the statistical- and practical significance of the differences between gender as well as race in regard to colour associations and preferences.

1.6 IMPORTANCE OF THE RESEARCH STUDY

This research study investigated the influence that the use of colour in marketing has on Generation Y students, as this is the focus of the study. Consumers make certain association between products and colour. Each person also has certain emotions linked to specific colours that are influenced by psychological aspects, learned associations and culture. It is therefore clear that colour is an important factor when it comes to the design of a

marketing mix (product, place, promotion). Marketers may use this knowledge to link their product to a colour or to use a colour to increase awareness.

If colour is used effectively in the various parts of the marketing mix, this may result in an increase in market share. Generation Y students are the new and up-coming consumer force within in the market place. It is therefore important to understand what colour Generation Y students prefer with regard to choosing certain products and to understand the emotional link they have with specific colours. The market place is very competitive today and if marketers understand the importance of colour and implement it correctly, they can rise above the competition.

1.7 LIMITATIONS OF THE STUDY

The following limitations for the study are noted:

- The study only focuses on those students who are able to differentiate between different colours. Colour blind people are not included in this study.
- The research design is cross-sectional in nature and, as such, only provides a snapshot in time regarding Generation Y students' perceptions of colour in marketing.
- The study only focuses on one of the three aspects of colour namely "hue[1]". The other two factors: "chroma[2]" and "value[3]" are not considered.

1.8 CHAPTER CLASSIFICATION

Chapter 2 provides an analysis the literature concerning the colour preferences of individuals and the associations linked to different colours. Factors that influence these associations and preferences such as psychological aspects, learned associations and culture will be discussed.

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1 *"Hue" is the quality of a colour that distinguishes it from other colours.*

2 "*Chroma" also known as saturation of a colour determines the vividness of a colour.*

3 *"Value" determines how light or dark a colour is.*
(Lichtle, 2007:38-39).

Certain aspects of the marketing mix namely: product, place and promotion will be discussed. A comprehensive review of the literature and important issues regarding the influence of colour on the marketing mix will be analysed. For example, packaging, logo colour, product colour, lightning and colour of advertisements. The influence the use of colour in marketing have on consumer behaviour will also be discussed.

Chapter 3 presents the research methodology employed in this study. It will define the population, sample frame and discuss the sampling procedure, problems experienced, as well as the response rate to the questionnaire. Data analysis and statistical procedures used in the study will also be discussed.

Chapter 4 discusses the analysis and interpretation of the study's research findings.

Chapter 5 provides a summary of the findings of the entire study, the conclusions drawn from the study and makes recommendations based on the findings of the study. Recommendations for further research are also given in this chapter.

1.9 ETHICS STATEMENT

The research project complied with ethical standards of academic research which, among other things, protect the identities and interest of the respondents and guarantee the confidentiality of the information provided by respondents. All responses were analysed in an aggregate format. The necessary approval was obtained from the directors and deans to conduct the survey at the different schools. Participation in the survey was voluntary. The survey took place in a group invigilated by the researcher.

1.10 GENERAL

- Annexures are placed at the back of the thesis.
- Tables and figures are placed on the relevant pages in the thesis.
- Where no source reference appears for figures and tables, it refers to own research.

- Referencing is based on the Scientific Skills Series, Quoting Sources, Potchefstroom University for Higher Christian Education.

1.11 SYNOPSIS

Colour influences the mind and body of human beings through physical as well as psychological aspects. As such, colour plays a vital role in consumers' perceptions of products. Consumers also have specific colour preferences when it comes to certain products. Marketers should be attentive to consumers' colour associations, perceptions and preferences.

Similar studies to the one undertaken here have been conducted to investigate colour associations, perceptions and preferences from a marketing perspective across various countries but there has been a lack of research on this particular topic in South Africa. South Africa is a nation with a number of cultures and backgrounds that most certainly will influence the population's colour perception. The Generation Y cohort represents the buying power of tomorrow and this study focuses on this specific cohort.

This chapter provided an overview of this study's problem statement, objectives, research design and research methodology, and provided a chapter classification. In the following chapter, Chapter 2, a review of the literature pertaining colour and Generation Y is undertaken.

CHAPTER 2

GENERATION Y AND THE COLOUR CONCEPT

2.1 INTRODUCTION

As stated in Chapter 1, the primary objective of this study was to determine the influence of colour on the consumer behaviour of Generation Y students. The purpose of this chapter is to establish the theoretical framework of the study as per the literature in order to achieve the study's primary objective. Section 2.2 defines colour, its origin and its influence on people. Section 2.3 gives a brief overview of colour preferences. Differences between male and female colour preferences are also discussed. Section 2.4 investigates colour associations that exist through emotional associations. Associations that marketers might find useful are also investigated. Section 2.5 describes three factors that might influence colour preferences and associations, namely physical, psychological and cultural factors. Section 2.6 focuses on the marketing mix and elements within the marketing mix that may be influenced by colour. Product, place and promotion are discussed in connection to colour. Section 2.7 analyses Generation Y as a market segment and describes its importance to companies.

2.2 DEFINING COLOUR

Isaac Newton (1672) was fascinated by the behaviour of rays of sunlight passing through a glass prism, which led to his theory about light and colours. Newton concluded that white sunlight is a mixture of different kinds of light, each kind being of one pure colour. He also discovered that the colour of any natural body has its origin in both the nature of the light that falls on the object as well as the colour light that is reflected towards the eye.

Kamaruzzaman and Zawawi (2010:283) agree with this theory and indicate that colour is the result of differing qualities of light reflected or emitted towards the observer. De Grandis (1986:17) also emphasises this by stating that the correct terminology for the word colour should be "chromatic

pigment", which refers to the eye's perception when it is stimulated by specific light waves and various lengths that we know as colour.

Colour is a key element in the environment for both humans and other species, and, from an evolutionary perspective, the ability to differentiate between colours and the tendency to approach some and avoid others is often essential for survival (Crozier, 1999:6). Research indicates that colours often serves as a signalling function for certain animals (for example, the redness of fruit signals its readiness for eating), thereby facilitating fitness-relevant behaviour (Elliot & Maier, 2007:251). Colour also serves as a form of warning of danger for animals as well as humans, such as the red of a stop sign or robot and the red colour of several poisonous animals and plants. From the ancient Greek and Egyptian physicians, to the alchemists, and to modern-day corporate executives and psychiatrists, people in many lines of work have noticed and studied the effects of colour on humans (Withrow, 2004:35).

"The world around us is full of colour yet all of it is in our heads" (Banks & Fraser, 2004:10). Not all individuals view and perceive colour the same, as colour is a product of their brains' interpretation of differentiating wavelengths of light (Begum, 2008:11). Colour perceptions differ resulting in differing colour perceptions and associations.

2.3 COLOUR PREFERENCES

Colour preferences are influenced by several factors such as age, gender, geographical region and circumstances (Tangkijviwat, Rattanakasamsuk & Shinoda, 2008: 50). Fehrman and Fehrman (2000:79), and Ou, Ronnier Luo, Sun, Hu, Chen, Guan, Woodcock, Caivano, Huertas, Tremeau, Billger, Izadan and Richter (2011:2) all conclude that colours are preferred in the order of blue, red, green, purple, orange and then yellow. Several researchers (Kamaruzzaman & Zawawi, 2010:286, Manav, 2006:144, Madden *et al.*, 2000:93 & Singh, 2006:784) agree that blue is the most liked colour across nations. Taft (1997:41) states that the colour blue is also the one most favoured by both male and female observers.

Table 2.1: Colour ranking according to preference (Source: Fehrman & Fehrman, 2000:79 & Ou et al. 2011:2)

Ranking	Colour
1	Blue
2	Red
3	Green
4	Purple
5	Orange
6	Yellow

Moss and Colman (2001:97) concluded that male and female design choices and colour preferences tend to differ. Ellis and Ficek (2001:1376) observed that males are more tolerant of blue and green while females are more tolerant of red and yellow. The reason for these differences may be, as Moss and Colman (2001:94) indicate, that baby boys are often dressed in blue and baby girls in pink. This may lead to a preference of blue shades amongst males and a preference of red shades amongst females.

2.4 COLOUR ASSOCIATIONS

According to Banks and Fraser (2004:10), colour associations differ from person to person. They investigated the various associations linked to colours through history and determined that people have certain emotional associations to specific colours as well as particular colour preferences with certain products.

The emotional associations to specific colours are discussed in the following sections.

2.4.1 Emotional associations with colour

“Red, blue, yellow etc. are not just colours. These are emotions, feelings, memories, reflections, associations” (Dmitrieva, 2002:1). Sasidharan (2010:3)

states that a person's emotions behave specifically when confronted with colour. Colour influences human behaviour as well as human psychology (Madden *et al.*, 2000:92). Withrow (2004:33) also emphasises that colour impacts on the body and mind. Some colours provide calmness while others are stimulating, and some even lead to depression or boredom (Kamaruzzaman & Zawawi, 2010:283). Colour affects the mood of a human being by means of psychological aspects. This occurs because of emotional associations linked to certain colours. Manav (2006:144) indicates that individuals associate emotions with certain colours.

Singh (2006:785) distinguishes between happy and sad colours. Blue, orange and yellow are labelled as happy colours, while red, black and brown are seen as sad colours. As cited in Manuv (2006:144) a study concluded that children made a positive association with brighter colours such as orange, yellow, green and blue. Negative associations were made with darker colours such as brown, black and red. Looking at the findings of these two researchers (Singh, 2006:785 & Manuv, 2006:144), the associations linked to colour appear to be similar. However, colour associations are often contradictory.

Paton (2011:4) highlights positive as well as negative associations linked to several colours. O'Connor (2011:56) associates red with love and happiness but also acknowledges that red may be linked to anger and fear. Sasidharan (2010:3) emphasises this by explaining that the colour black may be associated with unhappiness and mourning as well as with power and wealth. There are several emotional associations to specific colours. This study strives to determine which associations are applicable to Generation Y students in the Vaal Triangle Region. In order to accomplish this, the various colour associations were investigated.

2.4.1.1 Blue

Blue is the colour of the sky and of the sea. It is probably the most well-known colour because of its high visibility in the natural world. Blue has a calming effect on most people and is often associated with tranquillity and cleanliness, as well as with coldness (Fehrman & Fehrman, 2000:51-52; Solomon &

Rabolt, 2009: 319; Paton, 2011:4). Sasidharan (2010:3) note that blue may also be associated trust and security. In addition, Fehrman and Fehrman (2000:51-52) mention the negative associations linked to the colour blue, namely misery and bad luck.

2.4.1.2 Green

Green is the colour of nature growing. People perceive this colour as the most natural colour, the colour of new beginnings and growth. Green is a colour with highly consistent associations across various countries (Madden *et al.*, 2000:93). Sasidharan (2010:3), Begum (2008:39), and Solomon and Rabolt (2009: 319) associate the colour green with nature and growth. Green is also associated with jealousy (Paton, 2011:4). Fehrman and Fehrman (2000:50-51) point out that green may also be associated with poison and the supernatural. If a child is asked to draw something creepy like a monster, they typical use the colour green.

2.4.1.3 Yellow

Yellow represents the colour of the sun. Sunlight is essential for all life on earth and, as such, people typically perceive the colour yellow as being a happy colour that brings hope and new beginnings. The colour yellow is mostly associated with happiness, joy and hope (Sasidharan, 2010:3; Paton, 2011:4). Fehrman and Fehrman (2000:144) name yellow as being the most easily perceived colour. This might be the reason as to why yellow is also associated with safety, danger and warning (Begum, 2008:39).

2.4.1.4 Orange

Orange is a mixture of yellow and red, and is visible in sunsets. It is also often linked with new and exciting businesses, as the colour is perceived as being quite daring. Manav (2006:144) describes the colour orange as being lively and energetic. Orange may also be associated with cheerfulness, comfort and security, according to Fehrman and Fehrman (2000:49). Begum (2008:40) indicates that orange may also be associated with warning and danger, among other things.

2.4.1.5 Red

Red is the colour of blood, of danger as well as of love and passion. This colour is known to increase blood pressure and excite many people. The colour red is also subject to the most conflicting associations. O'Connor (2011:56), and Fehrman and Fehrman (2000:48-49) found red to be associated with love, lust and happiness. In contrast, Begum (2008:38), Sasidharan (2010:3) and Paton (2011:4) associate red with danger, anger and aggression. Kyrnin (2011) identifies red as the colour of mourning in South Africa.

2.4.1.6 Purple

Purple is the colour of royalty and of creative self-seeking individuals who want to stand out from a crowd. Purple is the colour most often associated with royalty and luxury. These associations stem mainly from only rich aristocrats being able to afford purple clothes because, in the past, purple was a difficult colour to produce (Fehrman & Fehrman, 2000:52-53). Solomon and Rabolt (2009: 319) state that purple may also be associated with mystery and creativity. O'Connor (2011:56) associates purple with authority and power.

2.4.1.7 Black

Black is an achromatic colour that has no hue and is associated with the night and with death. It is also perceived as an elegant stylish colour linked with formal occasions. Fehrman and Fehrman (2000:47-53) stipulate that black is associated with the negative feelings and with the unknown. As such, black is often associated with unhappiness, fear and death (Begum, 2008:38; Paton, 2011:4). However, black is also associated with power, wealth and elegance (Sasidharan, 2010:3).

2.4.1.8 White

As is the case with black, white is an achromatic colour. In Western cultures, white has purity connotations and, hence, is the most popular colour for brides' dresses. In contrast, in Eastern cultures it represents the colour of

death. White is a synonym for cleanliness and purity as it is the purest form of light perceived. Solomon and Rabolt (2009: 319), and Fehrman and Fehrman (2000:47) associate the colour white with cleanliness, hygiene and purity. Paton (2011:4) and Begum (2008:38) associate white with peace and coldness, and stipulate that some cultures associate white with death.

Emotional associations influence consumers' perceptions and attitudes but there are also other associations to which marketers should pay close attention.

2.4.2 Colour associations important for marketers

Manuv (2007:145) made use of a four-colour emotion scale in order to determine colour perception. The scale measures how warm/cool and active/passive a colour is perceived. The scale also tests how heavy/light and hard/soft certain colours are viewed. Results of this study showed that these perceptions are independent of culture. Following research across several countries, Jacobs *et al.* (1991, 23-25) identified colour associations with price-quality perceptions that are particularly important to marketers, namely expensive, inexpensive, high quality, low quality. Their findings suggest that black, purple and blue are associated with something being expense, blue is associated with something being of high quality, and red and purple are associated with something being inexpensive. The reason why purple is associated with two directly opposing perceptions might be because of the diverse viewpoints from different countries.

These results are depicted in Table 2.1.

Table 2.2: Associations important for marketers (Source: Jacobs *et al.* 1991:23-25)

Association	Colour(s)
Expensive	Black, purple, blue
Inexpensive	Red, purple
High quality	Blue

Colour is also known to influence the perception of waiting time and object size. Time seems to pass slower and objects appear heavier and larger with red light. In the case of blue light, time seems to pass quicker and objects appear smaller and lighter. Casinos use this to their advantage by using red lights so that the gamblers do not feel like they are wasting a lot of time (Singh, 2006:786). Fehrman and Fehrman (2000:143) suggest that colour influences a consumer's taste and smell. Colour may be used to suggest certain flavours. Blackwell, Miniard and Engel (2006:626) mention that most consumers who taste vanilla pudding with brown colouring in it perceive it as being chocolate pudding due to the colour of the pudding. Colour has a significant influence on consumers and marketers must utilise this to their advantage.

2.5 FACTORS INFLUENCING COLOUR ASSOCIATIONS AND PREFERENCES

Aslam (2006:17-18) distinguishes between three aspects that influence human colour perception, namely physical, psychological and cultural aspects.

2.5.1 Physical aspects

Aslam (2006:17) explains that a colour influence may be physical. The brain is triggered by colour to have a certain reaction. Dmitrieva (2002:1) states that colour produces certain reactions in people's minds. The influence of colour is mainly psychological but, because of the integrated nature of people's bodily systems, it may also influence them physiologically (Begum, 2008:35). This is emphasised by various authors who mention colour therapy and colour healing (Fehrman & Fehrman, 2000:186-188; Begum, 2008:35-36; Withrow, 2004:33). It is suggested that certain physiological responses are linked with some colours. Red results in an increase in adrenaline and other stress hormones, leading to an increased heart rate and blood pressure. Blue results in an increase in the tranquilising hormones, which leads to a lower pulse rate and slower breathing (Sasidharan, 2010:3-4).

2.5.2 Psychological aspects

Colour memory has been identified as a psychological factor that influences colour preferences. Colour memory is defined as the long-term colour memories constructed by life experiences resulting in familiarity (Guan and Hung, 2010:216). Ou *et al.* (2010:2-3) suggest that learned experiences influence colour preferences. Manav (2006:148) indicate that colour associations are influenced by the observer's previous knowledge and experience. Grossman and Wisenblit (1999:79) observed that consumers learn colour preferences for particular products, based on associations formulated through experience. Begum (2008:41) believes that colour in itself has no meaning and that colour associations are the result of what people have learned through previous experience. Grossman and Wisenblit (1999:78) concur, stating that a consumer's colour preference for certain products is a result of previous experiences and associations. Therefore, marketers must either create certain associations or build on consumers' previous experience. Wang, Wang and Jin (2009:492) note that an emotional change will occur due to individuals' different experiences as well as their cultural backgrounds. The next section briefly looks at the cultural aspects that influence colour perception.

2.5.3 Cultural aspects

Wang *et al.* (2009:491) indicate that people living in different cultural settings will react differently to different colours. Begum (2008:42) suggests that the different meanings attached to colours depend mainly on culture and, to some extent, the individual. Fehrman and Fehrman (2000:183-185) emphasise the importance of colour within a cultural context by distinguishing between the opposing use of colour within different cultures concerning weddings, death rituals and religion. Jacobs *et al.* (1990:25), and Soloman and Rabolt (2009:317-318) also illustrate various colour associations and preferences across different cultures. Madden *et al.* (2000:102) point out the importance of marketers being attentive to these cultural differences. Sable and Akcay (2010:953), Fehrman and Fehrman (2000:181-186) and Blackwell *et al.*

(2006:627) outline some of these cultural differences, which are depicted in Table 2.2.

Table 2.3: Cultural differences in colour meanings and associations

Colour	Associations (Culture)
Yellow	Marriage (Egypt), Religion (Buddhism), Caution (Europe) and Despair (Brazil)
Red	Marriage (China & Sikhs), Warning (Europe), Bad luck (Nigeria & Germany),
Green	Godliness (Muslims), Religion (Malaysia) and National colour (Mexico)
Blue	Corporate colour (USA), Evil (East Asia), Warmth (Netherlands) and Truth (India),
Purple	Royalty (UK), Love (China & South Korea), Soothe (India) and Religion (Peru).
Orange	National colour (Holland)
White	Death (East Asia) , Purity and Weddings (Western Cultures), Priestliness (India)
Black	Death (Western cultures), Life (Egypt)

Source: Sable & Akcay (2010:953), Fehrman & Fehrman (2000:181-186) and Blackwell *et al.* (2006:627)

2.6 MARKETING MIX ELEMENTS INFLUENCED BY COLOUR

Marketing is more than a mere economic activity; it is the force behind today's consumer society and pervading culture of consumption (Saren, 2007:11). Madden *et al.* (2000:90) indicate that there is legislation in the USA named the Lanham Act that protects colour as a trademark. The existence of this Act emphasises the importance of colour within a business context. Tangkijviwat *et al.* (2008:50) indicate that colour may be used to attract attention and generate the desire to consume. O'Connor (2011:56) notes colour to be a salient element used to create visual equity and differentiation within the

marketplace. Marketers design and implement a marketing mix to attract the attention of potential consumers and persuade them to select their market offering over those offered by competitors. The traditional marketing mix, also known as the Four Ps, comprises four parts, namely product, place, promotion and price (Melewar & Saunders, 2000:543). This study only focuses on those elements of the marketing mix that may be influenced by colour, namely product, place and promotion.

2.6.1 Product

Within the marketing mix, product refers to the good or service that the firm offers for purchase to targeted consumers. Decisions regarding the product type, the brand name and the packaging all form part of the product element of a firm's marketing mix (Jobber, 2010:50). Lamb, Hair, McDaniel, Boshoff, Terblanche, Elliot and Klopper (2010:455) indicate that product includes not only the physical unit but also the packaging, brand name, brand image, value and many other factors. Packaging may be used to influence consumer perception by means of design, colour, shape and material used. Packaging is an effective way of promoting products (Lamb *et al.* 2010:261). Wang *et al.* (2009:490) state that a product's colour design serves to attract consumers and to augment the brand. Product colour and product packaging colour are important influencing factors in the purchase of certain product categories. Madden *et al.* (2000:91) state that colour is one of the top three factors that influence consumers when buying a motor car.

Consumers prefer certain products in specific colours. Blue, red, black and white are consumers' most preferred colours when buying motorcars and clothing (Fehrman & Fehrman, 2000:150; Grossman & Wisenblit, 1999:82). Americans tend to associate cold drink with red while in Eastern countries cold drink is mostly associated with yellow. Green is associated with vegetables and yellow with a box of candy (Grossman & Wisenblit, 1999:83). A research study conducted by Jacobs *et al.* (1991:27) across four different cultures concluded that yellow is associated with hand soap, laundry detergent, a box of candy and a can of cold drink. Red was also found to be associated with candy and cold drink.

2.6.2 Place

Kotler and Armstrong (2008:50) indicate that place includes all the activities that make the product available to the consumers. Lamb *et al.* (2010:455) point out that place refers to the physical distribution of the product. Place may also refer to the environment in which the consumers have access to the product or service. Firms are able to transform this environment in such a way that consumers' state of mind may be influenced.

Hutchings (2006:87) illustrates that a skilled designer can change the colours of a room in such a way that those inside the room feel comfortable and at ease. Restaurants use colours to generate certain reactions from consumers (Schiffman & Kanuk, 2007:136). The colour red stimulates appetite and yellow gains the consumers' interest. This is the reason why fast-food restaurants often use these colours. The colour blue is used by fine dining restaurants to calm and relax their consumers. If the colour blue is used excessively, it might act as an appetite suppressant, which is normally not desirable by restaurants, unless it is an all-you-can-eat buffet restaurant (Singh, 2006:785). Fehrman and Fehrman (2000:142) suggest that the proper combination of colours (yellowish-brown, reddish-yellow, greenish-blue or blue) may trigger thirst. This may be favourable for a bar or cocktail restaurant that want their consumers to drink more.

2.6.3 Promotion

Jobber (2010:18) notes that firms use promotion to introduce their products, services and the benefits of these to their target market. Kotler and Armstrong (2008:51) indicate that promotion's main function is to persuade consumers to buy the product on offer. Melewar and Saunders (2000:547) identify promotion as being the most visible part of a firm's marketing mix. Grossman and Wisenblit (1999:86) argue that colour should play a vital role in the advertising and marketing strategy of a firm. Fehrman and Fehrman (2000:142) point out that colour can help firms sell products by means of subtle manipulation. Hutchings (2006:89) mentions that some firms even use colour unethically in their marketing mix by using bright and high contrast

colours that are so influential that younger buyers may be attracted to products meant for adults. O'Connor (2011:56) argues that colour can help firms enhance their visibility by means of their logo colour. "Colours evoke brands. Whether it is Heineken's distinct green label, Coca-Cola's red, Shell's yellow, or Cadbury's purple, all have different colour values to different consumers" (Singh, 2006:786).

Several firms within South Africa have effectively employed colour as part of their promotional activities. For example, Vanish's pink ("the power of pink"), Outsurance's green and purple (covering insured goods with a green blanket in their advertisements), MTN's yellow ("y'ello summer") or Vodacom's re-branding from blue to red ("Vodacom is red"). This use of colour might be one of the key aspects to some of these firms' financial success. Vodacom implemented the re-branding from blue to red in April 2011 and since then its share price increased by about 20 percent (Bloomberg, 2011).

The following section discusses the Generation Y cohort.

2.7 DEFINING GENERATION Y

Generation Y is classified by several authors as those individuals born between 1977 and 1994 (Schiffman & Kanuk, 2007:439; Noble, Haytko & Phillips, 2009:617; Shim, Serido & Barber, 2010:290). In 2011, individuals who group under Generation Y will range from 17 – 34 years in age.

South Africa's population totalled at around 49 991 300 in 2010, of which an estimated 30 percent formed part of the Generation Y cohort. The male/female distribution of the Generation Y is approximately 50/50. Cultural division of the Generation Y cohort in South Africa is estimated at Africans 84 percent, coloureds 7 percent, Indians/Asians 2 percent and whites 7 percent. This study focuses only on Generation Y students (18 – 24 year olds), which are part of an age group estimated at about 10 percent of the total population of South Africa. (Stats SA: 2010)

Individuals categorised as Generation Y are very active in the marketplace (Noble *et al*., 2009:617). According to a recent study conducted by the

Student village (2010), South African students spend over R28.5 billion per year, which amounts to about R 2 968 per student per month. Generation Y students spend more money than firms realise and Shim *et al.* (2010:290) indicate that marketers are striving to discover ways of appealling to this prominent group in the modern-day economy. In this regard, an understanding of how individuals in this cohort perceive and interpret colour is important in aiding marketers' ability to appeal to this segment successfully given the role that colour plays in the design of the marketing mix.

Figure 2.1 illustrates students' spending patterns in South Africa.

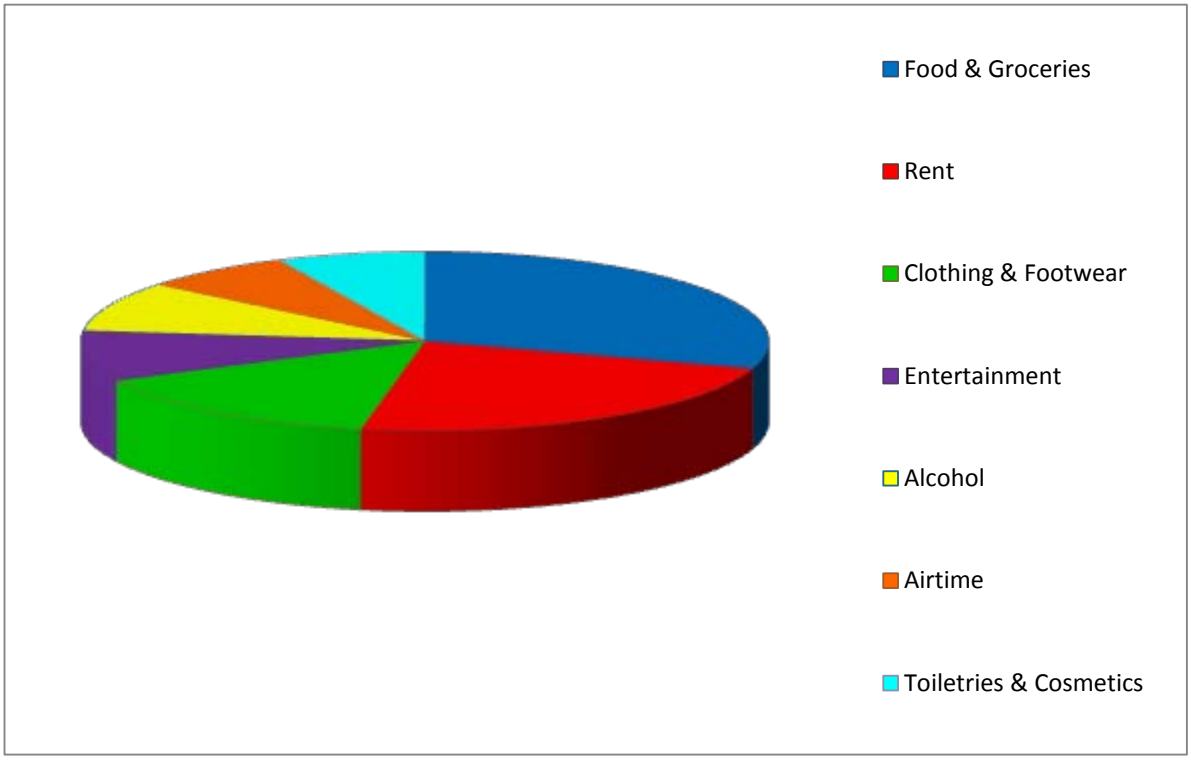

Figure 2.1: Student spending habits in South Africa (Source: Student Village, 2010)

Eisner (2005:9) believes that Generation Y consumers are likely to be independent and not brand loyal. Bae and Miller (2009:41) disagree and state that college-age Generation Y consumers are more brand-conscious. Bakewell and Mitchell (2003:103) observed that almost half of the Generation Y females interviewed in their study pursue quality, even when it entails a higher price. In addition, there is a greater tendency amongst Generation Y

females to engage in impulsive buying behaviour. In contrast, Generation Y males are less likely to buy on impulse, seek quality and be brand-conscious (Bae & Miller, 2009:43). Such gender differences may extend to other aspects of consumer behaviour amongst this cohort, including how they perceive and interpret colour within the marketing environment.

It is clear that Generation Y consumers are significant role-players in the marketplace. There is also a positive correlation between tertiary education and future income and social standing (Bevan-Dye, Dhurup & Surujlal, 2009:174). Therefore, marketers require an in-depth understanding of the factors that influence their consumer behaviour. Funk and Ndubisi (2006:42) indicate that colour as one of the key determinants that influence consumer behaviour.

2.8 CONCLUSION

This chapter investigated colour and its influence on individuals, including colour preferences and colour associations. In addition, the use of colour within the marketing mix of firms was explored. The chapter ended with a description of the Generation Y cohort, as this cohort represents the target population of the study.

The following chapter outlines the research methodology employed for the empirical portion of the study.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

Cant, Gerber-Nel, Nel and Kotzé (2003:3) define marketing research as a systematic and objective process of planning, gathering, analysing and reporting of data. Malhotra (2010:39) explains that marketing research involves the identification, collection, analysis, dissemination and use of information. Marketing research forms the link between the consumer and the marketer in the form of information. Such information enables a firm to do a more effective marketing job, as it facilitates gaining a clearer understanding of the consumer. The primary objective of this study was to determine the influence of colour on the consumer behaviour of Generation Y students. The following aspects were investigated from the literature:

- Definition of colour, its origin and its influence in the world
- Colour preferences and associations that currently exist
- Factors that influence colour preference and association
- Elements within the marketing mix that may be influenced by colour
- Generation Y as a market sector and its' importance to firms

Following the theoretical framework that was provided in the previous chapter, it was decided to conduct a cross-sectional research study on Generation Y students registered at two public HEIs located within the Vaal Triangle Region of South Africa's Gauteng province. The aim of the study was to determine colour preferences and associations of this specific population cohort.

This chapter outlines the research methods used in this study. The sampling plan and the data collection method used are discussed. In addition, the questionnaire administration and data preparation is outlined. This chapter also explain the aspects used in the descriptive statistical analysis as well as the issues of reliability and validity. T-tests and Cohen's D-statistic are discussed as methods of determining statistical and practical differences in

relation to hypotheses testing. The following section examines the research design selected for the study.

3.2 RESEARCH DESIGN

Churchill (1995:145) distinguishes between three types of research design, namely exploratory, descriptive and casual research. Hair *et al.* (2008:32) indicates that descriptive research includes the gathering of information regarding consumer attitudes, intentions, preferences and purchase behaviour. The focus of this study was to obtain data regarding the influence colour has on the consumer behaviour of a specific cohort. This resulted in the implementation of a descriptive research design. A cross-sectional study was used where the information were collected from the target population once by means of a sample survey (Cant *et al.* 2003:32). The research approach used in this study is discussed next.

3.3 RESEARCH APPROACH

Brendt and Petzer (2011:31) distinguish between two basic research methods, namely qualitative and quantitative. Qualitative methods do not make use of statistical analysis. Quantitative methods provide data that can be used for statistical analysis. Specific measurement instruments such as questionnaires are used in quantitative research to collect data by structuring the research in such a way that variables are isolated, making this approach particularistic. Qualitative research, on the other hand, uses a more holistic approach by collecting a wide selection of data such as documents, photos, interviews and observations (Welman, Kruger & Mitchell, 2005:9). Malhotra (2010:171) indicates that qualitative research uses a small sample number of non-representative cases, whereas quantitative research uses a large number of representative cases.

A quantitative research approach was chosen for the purpose of this study due to the statistical analysis that is going to flow from the questionnaires distributed to a large number of respondents.

3.4 SAMPLING STRATEGY

The strategy that was followed in this research study utilised the following aspects of the sampling procedure:

3.4.1 Target population

The target population refers to the elements who share common characteristics, which are relevant for the purposes of the research. The population must be representative of the total group of people from whom the information is needed for the purpose of the research investigation (Hair *et al.* 2008:129).

The target population for this study is Generation Y students registered at South Africa's public higher education institutions (HEIs). These individuals are defined as male and female registered under-graduate students aged between 18 and 24 years old in 2011.

3.4.2 Sampling frame

The researcher has the option of either doing a census where the whole population is included in the study or only selecting a sample of the population to study. A census is expensive so a sample of the population is usually selected as a representation of a given target population (Cant *et al.* 2003:48). Brendt and Petzer (2011:165) indicate that sampling involves selecting some of the elements of the population.

For this study, under-graduate students were selected. The sample frame for this study consisted of a list of South Africa's 23 public HEIs, as stipulated by the Department of Higher Education and Training (2011). This list includes universities, comprehensive universities and universities of technology.

3.4.3 Method of sampling

Brendt and Petzer (2011:173-175) distinguish between two methods of sampling, namely probability sampling and non-probability sampling. Probability sampling is based on the concept of random selection, whereas

non-probability sampling involves choosing sample units subjectively. A non-probability sample is used when the study requires focusing on a specific group. In this research study, the focus is Generation Y students resulting in the use of a non-probability sampling method.

Hair *et al.* (2008:135-136) mention four different types of non-probability sampling methods, namely convenience, judgement, quota and snowball sampling. Convenience sampling is a method in which samples are drawn based on pure convenience. This sampling method is commonly used because it enables the researcher to get a large number of respondents in a relatively short time due to ease of accessibility. Judgement sampling is used to select potential respondents who meet certain requirements of the study. Quota sampling involves pre-specified quotas regarding certain characteristics, which are determined by the research design. Snowball sampling is used when the respondents help the researcher to identify additional people to include in the study.

When selecting a sampling method, several factors must be considered such as the research objectives, the degree of accuracy required, the scope of the research and the statistical analysis needed (Hair *et al.* 2008:137). This study made use of a non-probability convenience sample of two HEI campuses located in the Vaal Triangle region of South Africa's Gauteng province that was drawn from the sampling frame. Thereafter, a convenience sample of 500 under-graduate students were drawn from these HEI campuses - 250 students per campus.

3.4.4 Sample size

Sample size refers to the number of respondents included in the study. With a non-probability study, the sample size is usually a subjective, intuitive judgement made based on previous studies or industry standards (Hair *et al.* 2008:139).

Jacobs *et al.* (1990:22) conducted a similar study on colour perception across different cultures and used a convenience sample of 500 under-graduate

students. This support the 500 students that were used as sample size for this study.

3.5 DATA COLLECTION METHOD

Brendt and Petzer (2011:202-204) emphasise the importance of data collection by indicating that it represents the implementation of the planning done for the research study. Data are collected by means of various methods. Human methods make use of people to collect the data, using personal interviews or telephone interviews. This method is often used with a qualitative research design. Researchers may also make use of electronic methods whereby online surveys, computers or machines are used to collect the data. The last data collection method is self-administered or self-completion questionnaires. The instructions on these questionnaires are clear enough to ensure that respondents can complete them without any assistance.

Hair *et al.* (2008:105) note that the survey research method is usually used for quantitative research with a descriptive or casual research design. In this study, a self-administered questionnaire using the survey method was used to collect the required data.

3.5.1 Questionnaire design

Parasuraman (1991:208) defines a questionnaire as an instrument used for recording responses in research studies. McDaniel and Gates (1999:356) point out that a questionnaire comprises a set of questions designed to generate the data needed to achieve the research objectives. It is therefore important to construct the questionnaire in such a way that it supports the study's objectives. Hair *et al.* (2008:171) emphasise this by indicating that the confirmation of the research objectives should be the first step when designing a questionnaire.

Another step in the questionnaire design process, according to West (1990:80), is determining the structure of the questionnaire. This may be achieved by investigating similar studies and using their findings as a

guideline. Hair *et al.* (2008:172) note that the researcher needs to develop questions and decide upon scaling. The questions may be unstructured (open-ended) or structured (closed-ended). A quantitative research design usually makes use of structured questions with a predetermined set of responses or scale points.

When designing questions, the researcher must pay close attention to certain aspects to ensure the best possible feedback from the respondents. The questionnaire should be accompanied by a cover letter that introduces the research study and encourages respondents to participate. The instructions of the questions should also be clear enough to ensure easy completion (Churchill, 1995: 433). McDaniel and Gates (2002:364) specify that the wording of the questions within the questionnaire should be clear, not biased, easily understood and not offensive to the potential respondents.

This research study made use of these guidelines to ensure a good quality questionnaire. The empirical research objectives were clearly stated and used to design the questions. The questionnaire was accompanied by a cover letter explaining the purpose of the study. The instructions for each question were clearly stated so that the respondents knew exactly what was expected. In order to ensure the correct interpretation and answering of the questions, simple and direct language was used.

3.5.2 Questioning format

Various types of scales may be used in a questionnaire in order to gather information. A rank-order scale is defined as a scale where a respondent is required to look at a group of objects or concepts and rank them against each other (McDaniel & Gates, 1999:325). A Likert scale is used to measure the extent to which a respondent agrees or disagrees with the proposition at hand. A semantic differential scale may be used to determine a respondent's position between two extremes such as 'large and small' (West, 1999:83). Hair *et al* (2008:149) state that a nominal scale is the most basic scale to get a response without any level of intensity, merely involves categorising the responses. Welman *et al.* (2008:156) mention that there are only a few

attitude scales available and that the researchers should compile their own that is relevant to their study.

No existing scale complied with the objectives of this research study so a measuring instrument was developed based on the conclusions drawn from the literature review that was conducted. Several colour preference rankings (rank-order scale) exist, so this research study included a similar scale in order to compare the results with previous findings. A comprehensive literature study was used to generate words to utilise in the questionnaire to determine the colour associations using a Likert scale. An existing semantic differential scale, mentioned by Manav (2006:145), was included in the study to determine colour perception. The literature study also indicated on which product groups Generation Y students typically spend their money. These findings were used to compile a list of specific products on which to test product colour preferences. In addition, a nominal scale was used to determine consumer behaviour patterns regarding specific products.

3.5.3 Questionnaire layout

The questionnaire used for this study comprised seven sections. The first section, Section A, requested demographical information from the respondents. The second section, Section B, ranked colours according to taste. Sections C and D contained questions using a four- and seven-point Likert scales respectively to determine colour associations. Sections E and F contained questions using a four-point Likert scale designed to determine product colour and product-package colour preferences. Section G contained questions designed to determine consumer behaviour patterns of Generation Y students regarding certain products.

Table 3.1 Items answering the empirical research objectives

EMPIRICAL RESEARCH OBJECTIVES	ITEMS
Determine the colour preferences of Generation Y students.	Section B
Determine what emotions with which Generation Y students associate different colours.	Section C
Determine how Generation Y students perceive various colours.	Section D
Investigate product colour and product-packaging colour preferences of Generation Y students.	Section E Section F
Determine consumer behaviour patterns of Generation Y students regarding certain products	Section G

3.6 ADMINISTRATION OF THE QUESTIONNAIRE

The formal survey for this research study was conducted in September 2011 on a sample of 500 respondents. In order to ensure that all the data obtained for the study from the respondents were provided in the same format, one standardised questionnaire was used.

Two public HEIs were utilised to reach the target population in order to administer the questionnaire. Only undergraduate students were included in the study. A self-administered questionnaire was given to the Generation Y students after their respective classes to complete in class. The questionnaires were recollected once the students were finished.

3.7 DATA PREPARATION

During the data preparation process, each questionnaire should be inspected for errors and, where possible, these should be corrected (Malhotra, 2010:45). Brendt and Petzer (2011:218) note that if a questionnaire has too many missing values it is advisable not to capture this data. Hair *et al.* (2008:224) indicate that the coding process refers to the grouping of data and the assigning of values to the various responses from the questionnaire. Accurate coding can make data capturing easier.

In this study, all questionnaires that had 10 percent or more missing values were excluded. Those with less than 10 percent missing values were completed by the statistician where necessary by entering the mean value of the respective questions at each of the missing values. In this study, the questionnaire was pre-coded with the assistance of a statistician and with the supervision of the research supervisor.

Table 3.2 indicates the coding information utilised.

Table 3.2 Coding information

TYPE OF DATA	VARIABLE	QUESTION NUMBER
Demographic Data	A1 to A5	Section A
Colour ranking	B1 to B8	Section B
Colour associations	C1 to C8	Section C
Colour perception	D1 to D48	Section D
Product package colour preference	E1 to E6	Section E
Product colour preference	F1 to F6	Section F
Consumer behaviour	G1 to G3	Section G

3.8 STATISTICAL ANALYSIS

The Statistical Package for Social Sciences (SPSS), Version 18.0 for Windows was used to analyse the captured data. The following section describes the statistical methods applied on the empirical data sets.

3.8.1 Descriptive statistics

Descriptive statistics are concerned with the summary of the data obtained from the respondents (Welman *et al.* 2010:231). Hair *et al.* (2008:235) note that the types of descriptive statistics used by marketing researchers group into two groups, namely measures of central tendency (mean, median and mode) and measures of dispersion (range, variance and standard deviation).

3.8.1.1 Mean

The mean, or average value, is used to measure central tendency. The mean is calculated by summing all the elements in a set and dividing it by the number of elements (Malhotra, 2010:486). The mean can also be seen as the average.

3.8.1.2 Median

The median is the sample statistic value, which divides the data exactly in two, ranked from high to low (Hair *et al.* 2008:154).

3.8.1.3 Mode

The mode is the statistical value in the frequency distribution that occurs the most often (Welman *et al.* 2010:229).

3.8.1.4 Frequency distribution

Frequency distribution is a summary of how many times each possible response to each scale question was recorded by all the respondents. The result is usually converted to a percentage or to histograms to determine if the distribution is even across categories or clustered around a certain category (Hair *et al.* 2008:154).

3.8.1.5 Range

The range measure the spread of the data by calculating the difference between the smallest and largest value (Malhotra, 2010:487).

3.8.1.6 Variance

The variance is the mean squared deviation from the values from the mean (Malhotra, 2010:487).

3.8.1.7 Standard deviation

Churchill (1995:754) demonstrates that the standard deviation may be used to determine whether the results are evenly distributed or clustered together around the mean. Standard deviations are the square root of the variance.

3.9 RELIABILITY

Churchill (1995:539) explains that reliability is the similarity of results if the research study were to be repeated by another researcher. Malhotra (2010:318-319) outlines several ways of assessing reliability, namely test-retests reliability, alternative-forms reliability and internal consistency reliability.

For the purpose of this study, an internal consistency method was used by means of the coefficient alpha (Cronbach's alpha) reliability test. McDaniel and Gates (2002:298) define Cronbach's alpha reliability test as a technique of computing mean reliability coefficient estimates for all possible ways of splitting a set of items in half. The coefficient varies from 0 to 1 and any result below 0.6 indicates a lack of internal consistency (Malhotra, 2010:319).

This study made use of the Cronbach alpha reliability test to determine if the internal consistency of the scale was up to standard.

3.10 VALIDITY

Hair *et al.* (2008:117) define validity as the extent to which the conclusions drawn from the experiment are true. Validity determines if the findings accurately represent the reality. When using an instrument to measure results, it is necessary to determine whether the instrument is measuring what it is supposed to measure. The validity may be determined by a number of different ways. This research study made use of face validity, content validity and a validity check.

3.10.1 Face validity

Face validity is based on the researcher's evaluation by means of intuitive judgement to determine whether the instrument is going to measure what it should (Hair *et al.* 2008:151). The researcher should also ask someone else to evaluate the instrument for face validity. Face validity is considered one of the less adequate evaluations of validity.

Two experienced researchers were asked to review the questionnaire to check for the face validity of the questionnaire.

3.10.2 Content validity

Content validity is a subjective but systematic evaluation of the instrument's ability to measure what is expected. The scale is evaluated to determine if the items cover all that should be measured. In order to do this evaluation, the procedures used to develop the instrument should be investigated. Characteristics of the domain that determine exactly what needs to be measured by the scale should be defined. The items included in the scale should be examined from a literature view to determine how the variables used in the scale were obtained. After making these evaluations, experts should be asked to determine which items, in their opinion, should or should not be included in the scale. After making all necessary changes, the questionnaire should then be re-tested to determine the validity of the changes (McDaniel & Gates, 1999:310).

The content validity of the questionnaire was checked by the study's supervisor and co-supervisor in order to ascertain that the content of the questionnaire was up to standard.

3.10.3 Validity check

The questionnaire used in this study was specifically designed for this study. A validity check was thus very important. After the face and content validity was evaluated, the revised questionnaire was then administered on 30 respondents that formed part of the target population but not of the final

sample. These respondents were supplied with an additional set of open-ended questions to indicate any problems experienced (for example, instructions unclear, unfamiliar words and any other comments). The results were quite pleasing with minimum corrections required. The final questionnaire, with the relevant changes, was then administered to six respondents from the target population to check if the changes were sufficient. Results were satisfactory and the questionnaire was finalised. None of the respondents who participated in this validity check were included in the main study.

3.11 TESTS OF SIGNIFICANCE

As mentioned, a hypothesis is the comparison between two variables to determine if any differences exist. Two hypotheses should be constructed in order to determine which to accept or reject. Normally, a null hypothesis (H_0) states that no significant difference exists whereas an alternative hypothesis (H_a) suggests a significant difference exists. The differences between the variables should be measured to determine the significance of the differences. These differences are measured by means of hypothesis testing (Chisnall, 1992:329).

Before choosing a method for hypothesis testing it is necessary to determine whether the study is making use of parametric tests (interval scales) or non-parametric tests (nominal or ordinal scales). The researcher should then decide whether the hypothesis testing involves one sample or two samples. If two samples are involved, it is necessary to ascertain whether the samples are independent or paired. All of these factors will influence which test of significance is used (Malhotra, 2010:503).

This study makes use of interval scales resulting in the use of a parametric test between two independent samples (that is, male and female, and black and white respondents). According to Malhotra (2010:503), the appropriate method of measuring statistical significance for an independent two sample parametric test would be a two-group t-test.

3.11.1 Statistical significance

This study made use of the t-test to determine if differences between the samples exist. Welman *et al.* (2008:237) explain that a t-test is used to compare two groups with each other in order to determine if any statistically significant differences exist.

This is calculated by using the mean value (denoted as $\bar{x}$) of each sample, together with the standard deviation (denoted as s) to calculate the t-value (denoted as t), which determines the probability (denoted as p) of statistical significance. A level of significance (denoted as α) should be specified, which will determine if the null hypothesis is accepted or rejected. Typically, an α-value of 0.05 is used, which represent a 95 percent level of significance (Brendt & Petzer, 2011:254). The practical significance of differences in this study were only computed for the differences that were statistically significant ($p < 0.05$).

3.11.2 Practical significance

Whenever statistically significant differences between variables are determined, Cohen's D- statistic (denoted as D) is calculated to determine the level of practical significance (Pallant, 2007: 207-208).

- $0.20 \leq D < 0.50$: small practical significance,
- $0.50 \leq D < 0.80$: medium practical significance
- $0.80 \leq D$: large practical significance

The level of practical significance determines the actual effect of the difference.

3.12 SYNOPSIS

The research methodology used in the design of this research study was discussed in this chapter. For the purposes of this study, a quantitative approach using a self-administered questionnaire distributed to a non-probability convenience sample of Generation Y students was employed. The

data collection and administration processes used were discussed. The various statistical procedures used in this study were also investigated.

In the following chapter, the data obtained during the research study will be analysed and interpreted. These findings will enable the researcher to report on the information obtained in the form of meaningful data. Several statistical methods will be used in order to interpret the findings. The data are analysed by means of descriptive statistics and the results of the reliability test are presented. Hypotheses are also formulated and tested to determine if any significant differences exist between male and female respondents, as well as black and white respondents.

CHAPTER 4

ANALYSIS AND INTERPRETATION OF EMPIRICAL FINDINGS

4.1 INTRODUCTION

This chapter reports on and interprets the empirical findings of this study. The chapter includes an overview of the preliminary data analysis in Section 4.2. The descriptive analysis of the data is analysed and discussed in Section 4.3. Section 4.4 gives an overview on the reliability and validity of the main study. Thereafter, in Section 4.5, the various hypotheses for this study are formulated and tested.

In order to evaluate and perform the data analysis, SPSS Version 18.0 for Windows was used. The data analysis was conducted in two stages. The first stage involved analysing the main survey's descriptive statistics and the second stage involved testing hypotheses. The next section will discuss the preliminary data analysis procedure.

4.2 PRELIMINARY DATA ANALYSIS

A preliminary data analysis by means of coding and tabulation has to be performed before analysing the data set. The coding and tabulations of the data set for the study are discussed below.

4.2.1 Coding

Parasuraman (1991:614) define coding as all the tasks associated with transforming data for analysis. The data should be grouped into meaningful categories and numerical codes assigned to these categories. This enables a data set to be created that is suitable for analysis. Welman *et al.* (2008:214) state that coding helps the researcher to make sense of the data that has been collected by attaching meaning to the raw data.

Questions in the questionnaire used in this study were classified into seven sections, namely, Section A - demographical data, Section B - colour ranking, Section C - colour associations, Section D - colour perceptions, Section E -

product packaging colour preference, Section F - product colour preferences and Section G - consumer behaviour patterns regarding certain products. Refer to Appendix C for the tables presenting variable codes and assigned values.

4.2.2 Tabulation

Once the data is coded, the next step is to tabulate the data. Cant *et al.* (2008:233) define tabulation as the simple process of counting the number of responses in each of the categories. Tabulation can be done either through one-way tabulation or through cross-tabulation. One-way tabulation focuses on the frequency of a single variable, whereas cross-tabulation compares two variables in one table. Refer to Appendix D for the one-way tabulation of the frequencies of responses for the various sections.

4.2.3 Data gathering process

As indicated in Chapter 3, the final questionnaire consisted of 224 items, grouped into seven sections. Section A consisted of five items, which gathered the demographic data of the respondents and Section B had eight items, which were used to determine colour ranking according to the preference of respondents. Section C consisted of 40 items, designed to determine colour associations and Section D had 48 items designed to measure colour perception. Section E and F both had 48 items each that measured product-package colour preference and product colour preference, respectively. Section G had 27 items, which were designed to determine consumer behaviour patterns regarding specific products.

In order to obtain the required sample size of 500 Generation Y students, two HEIs were used to gather information from the target population. These 500 questionnaires were distributed and all of these were received back. Out of these 500 responses, only 416 were usable. The 84 that were not included in the study had more than 10 percent of the question not fully completed and were thus excluded.

The 416 completed questionnaires included seven respondents aged 25 years and older. As stipulated in Chapter 1, this study focuses on the Generation Y students between 18 and 24 years old; therefore, these seven questionnaires were excluded from the study. This resulted in 409 usable questionnaires.

The descriptive statistics computed in this study are discussed in Section 4.3.

4.3 DESCRIPTIVE ANALYSIS

McDaniel and Gates (2002:488) indicate that the most efficient way of summarising the characteristics of a large set of data is by means of descriptive statistics. Wells *et al.* (2008:232) illustrate that descriptive statistics may be presented graphically by means of histograms, bar diagrams and pie charts. Graphical illustrations of the data make it easier to interpret and understand large sets of data.

The data gathered from the questionnaires are analysed as follows: Data from Section A involved the sample's demographic data and the frequency distributions thereof are presented graphically. Section B investigated the colour ranking and these findings are presented by means of bar graphs. Section C probed colour associations and these findings are presented in a table format. Section D explored colour perception and these findings are illustrated on a graph with quadrants. Sections E and F explored product-package colour preferences and product colour preferences and the results are presented in tables – one per product. Section G investigated consumer behaviour patterns regarding specific products and the results are presented in tables – one per product.

4.3.1 Frequencies: demographic profile of respondents

Section A of the questionnaire consisted of five questions regarding the demographic information of the respondents. The questions focussed specifically on the respondents' gender, age, designated ethnic group, monthly expenses and ability to perceive colour. The aim of Section A was to

provide a profile of the sample group in order to make the comparisons (gender and culture) stipulated in the research objectives.

The first question asked the respondents to indicate their gender. The percentage of respondents from each gender is indicated in Figure 4.1.

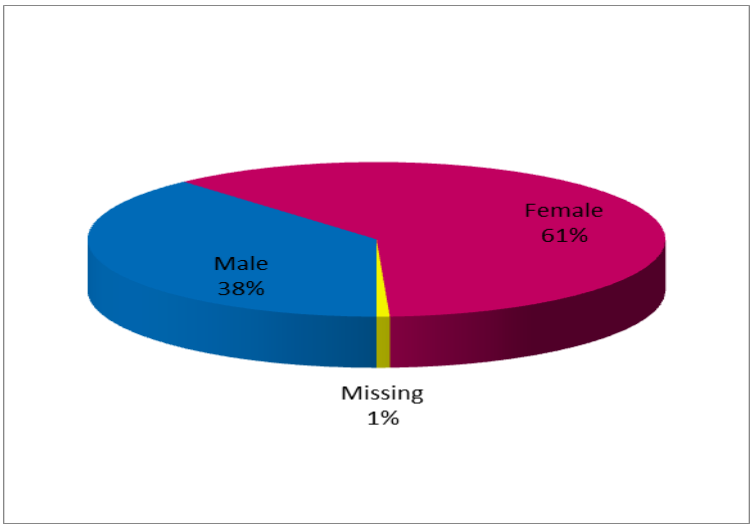

Figure 4.1: Gender distribution of sample group

As is evident from Figure 4.1, the sample group consisted of more female respondents (61%) than male respondents (38%), with 1 percent of the sample failing to indicate their gender. This gender distribution is sufficiently representative for comparisons to be drawn between male and female respondents.

The second question of Section A required the respondents to indicate their current age. This question was included to ensure that only respondents who form part of the target population (Generation Y students who age range from 18 to 24 years of age) are included. Of the respondents, 1.7 percent indicated that they are older than 25 years and, as such, they were excluded from this study. The age distribution of the respondents that were included in this study is illustrated in Figure 4.2.

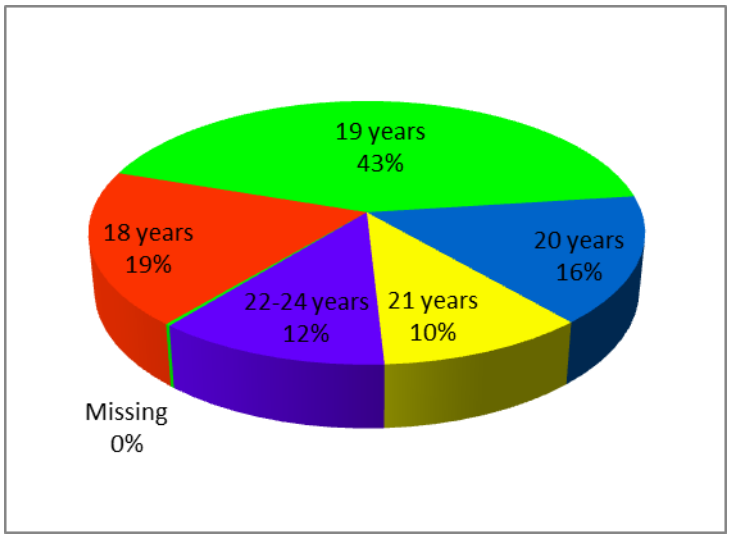

Figure 4.2: Age distribution of respondents

This age distribution of respondents presented in Figure 4.2 indicates that the majority of respondents (62%) are 19 years and younger. In this sample, 38 percent of the respondents were aged between 20 years and 24 years. This is a good representation of the target population.

Respondents were also asked to indicate their designated ethnic group. These results were gathered in order to make a comparison between the different ethnic groups. The majority of the respondents indicated their designated group as being black, followed by 19 percent who indicated their designated group as being white, 2 percent as Indian and 1 percent as coloured. Only 1 percent of respondents did not indicate any group and none indicated being Asian.

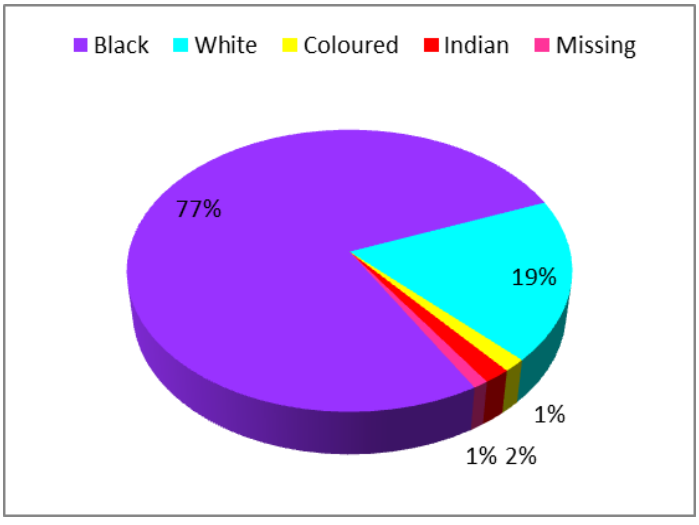

Figure 4.3: Race distribution of sample group

Owing to the small percentage of Indian and coloured respondents, these respondents did not form part of the comparison between the different race groups. Only the differences between black and white respondents were investigated.

Respondents were also asked to indicate their monthly expenses in order to determine their buying power. Figure 4.4 presents the monthly expenses of the sampled respondents.

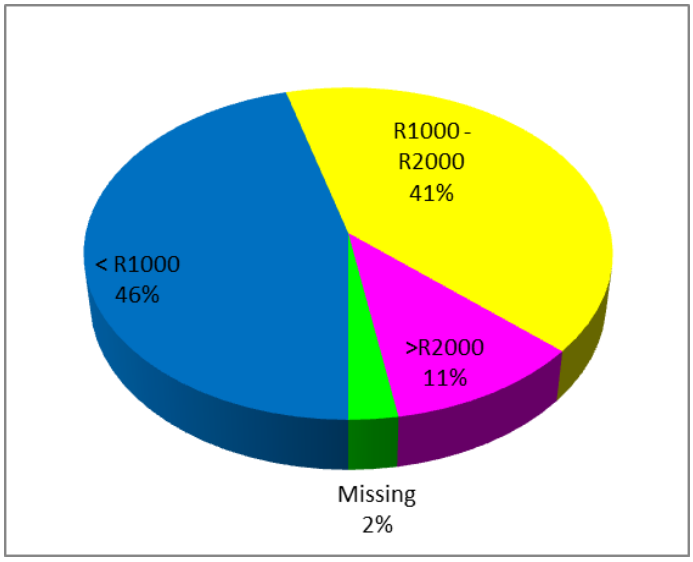

Figure 4.4: Monthly expenses of sample group

The last question in Section A requested respondents to indicate whether they are able to distinguish between different colours. The reason for this question was to eliminate any colour-blind respondents. No respondents indicated that they were colour blind. Of the respondents, 6 percent stated that they are partly colour blind and 1 percent provided no response. The remaining 93 percent of respondents indicated that they are able to distinguish between different colours. This resulted in all respondents being included in the study as none stated being completely colour blind.

4.3.2 Colour ranking

Section B in the questionnaire listed eight colours (yellow, red, green, blue, purple, orange, white and black) that the respondents were requested to rate on a scale from 1 to 8 (1 the favourite colour and 8 the least favourite colour).

Figure 4.5 illustrates the number of respondents who selected each of the colours as their favourite colour.

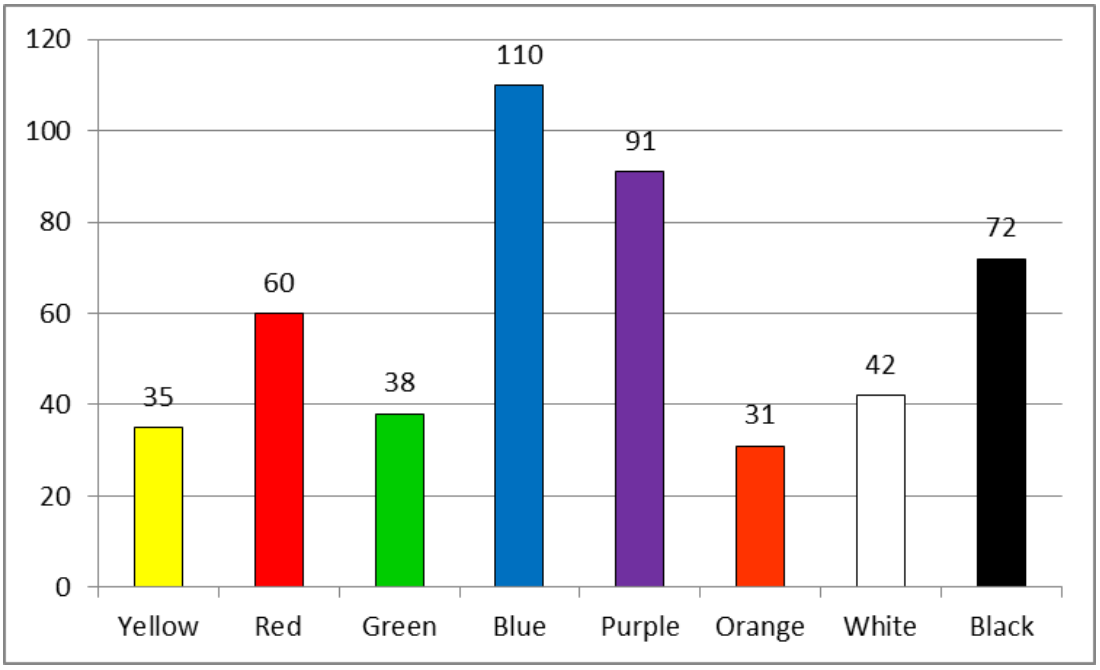

Figure 4.5: Colour ranking (favourite colour)

Blue were selected as the favourite colour by 110 of the respondents, which is consistent with the literature. Several researchers (Kamaruzzaman & Zawawi, 2010:286, Manav, 2006:144, Madden *et al.*, 2000:93 & Singh, 2006:784) indicate that blue is more often the favourite colour of respondents, ranked above any other colour. The colour purple was selected as the favourite colour by 91 respondents, followed by black (72 respondents).

Figure 4.6 illustrates the number of respondents who selected each of the listed colours as their least favourite colour.

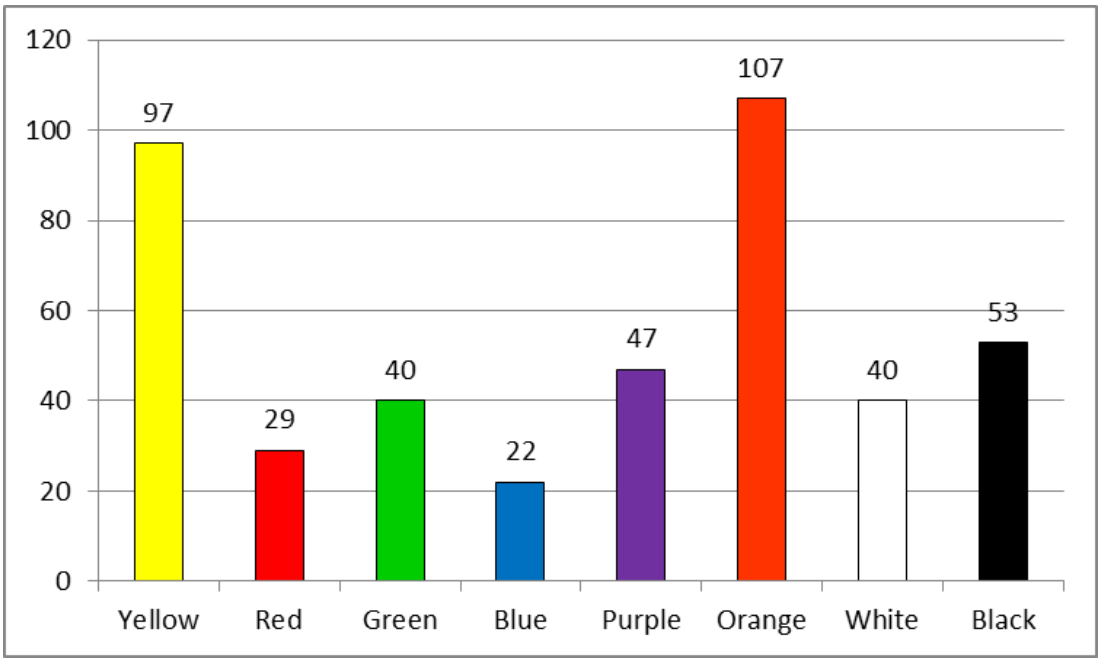

Figure 4.6: Colour ranking (least favourite colour)

Orange (107 respondents) and yellow (97 respondents) are clearly the least preferred colours of the majority of respondents. The overall colour ranking was determined by calculating the mean for each of the colour's results and Table 4.1 illustrates these mean values together with the standard deviation computed for each colour's results.

Table 4.1: Overall colour rankings (mean values)

	n	Mean	Standard deviation
Blue	409	5.72	2.166
Purple	409	5.05	2.449
Red	409	4.94	2.117
Black	409	4.86	2.428
White	409	4.60	2.157
Green	409	4.44	2.172
Yellow	409	3.71	2.319
Orange	409	3.35	2.213

Table 4.1 indicates that the Generation Y students included in this study prefer colours in the folowing order: blue, purple, red, black, white, green, yellow and orange. This is in contrast with previous research studies (Fehrman & Fehrman, 2000:79 & Ou *et al.* 2011:2), which state that colour ranking is usually in the following order: blue, red, green, purple, orange and yellow (white and black were not included in these studies). The most significant difference is that purple was ranked as the second favourite colour by this study's respondents, while the studies mentioned indicated purple as ranked fourth. The findings in this study are consistent with the previous studies mentioned in terms of blue being the most preferred colour, and yellow and orange being the least preferred colours. The following section investigates the various colour associations.

4.3.3 Colour associations

Words that are frequently associated with certain colours were generated from the literature for use in this questionnaire. Five words were generated per colour and respondents were requested to indicate their level of agreement/disagreement as to the perceived association between each of the five words and the relevant colour. Figure 4.7 represents the associations linked with the colour yellow.

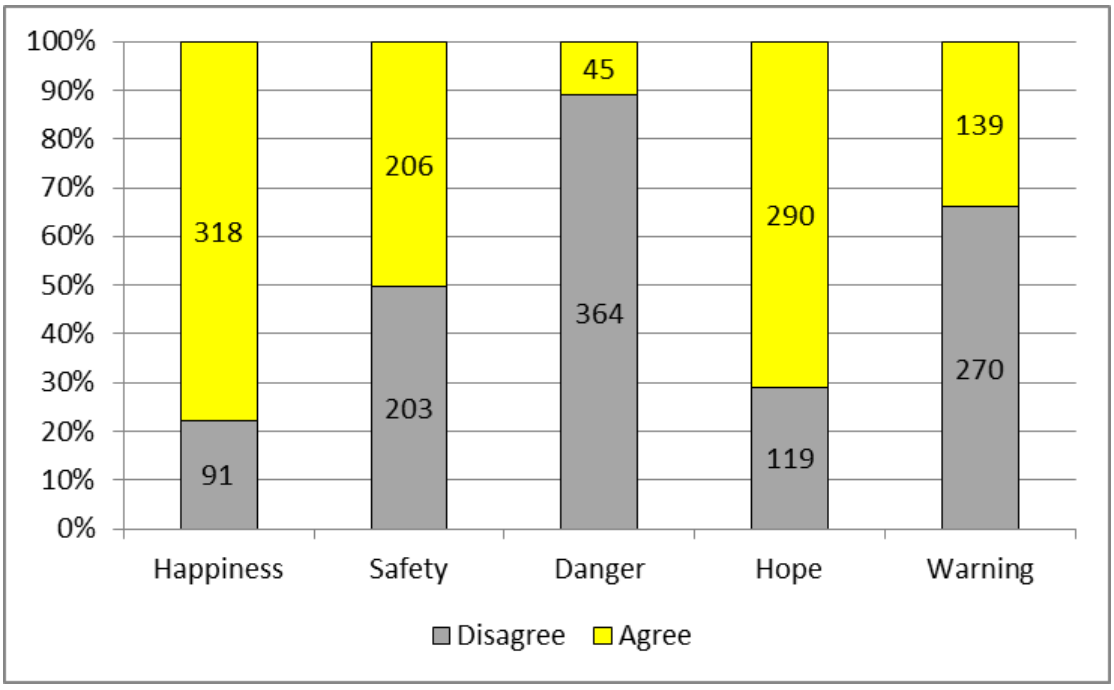

Figure 4.7: Yellow colour associations

As is evident from Figure 4.7, the majority of respondents agreed that yellow is associated with happiness and hope. Respondents were inconclusive about associating yellow with safety. Most respondents disagreed with the association of danger and warning with the colour yellow. This is quite surprising keeping in mind that yellow is the colour used to indicate road hazards in South Africa.

The next colour tested was red. Figure 4.8 illustrates the respondents' perceived associations with the colour red.

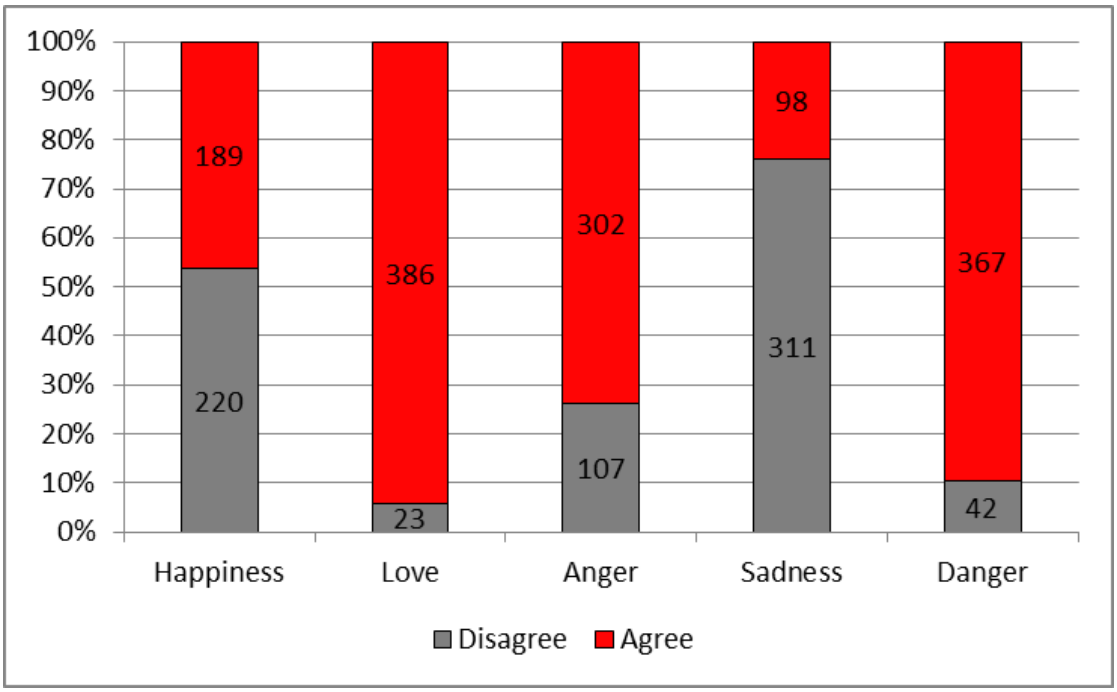

Figure 4.8: Red colour associations

Figure 4.8 indicates that the majority of respondents agreed that red is associated with love, danger and anger. Respondents were unconvinced concerning the association of red with happiness. The respondents disagreed with the association between sadness and the colour red, even though Kyrnin (2011) mentions that in some South African cultures red is associated with sadness.

Figure 4.9 illustrates the respondents' perceived associations with the colour green.

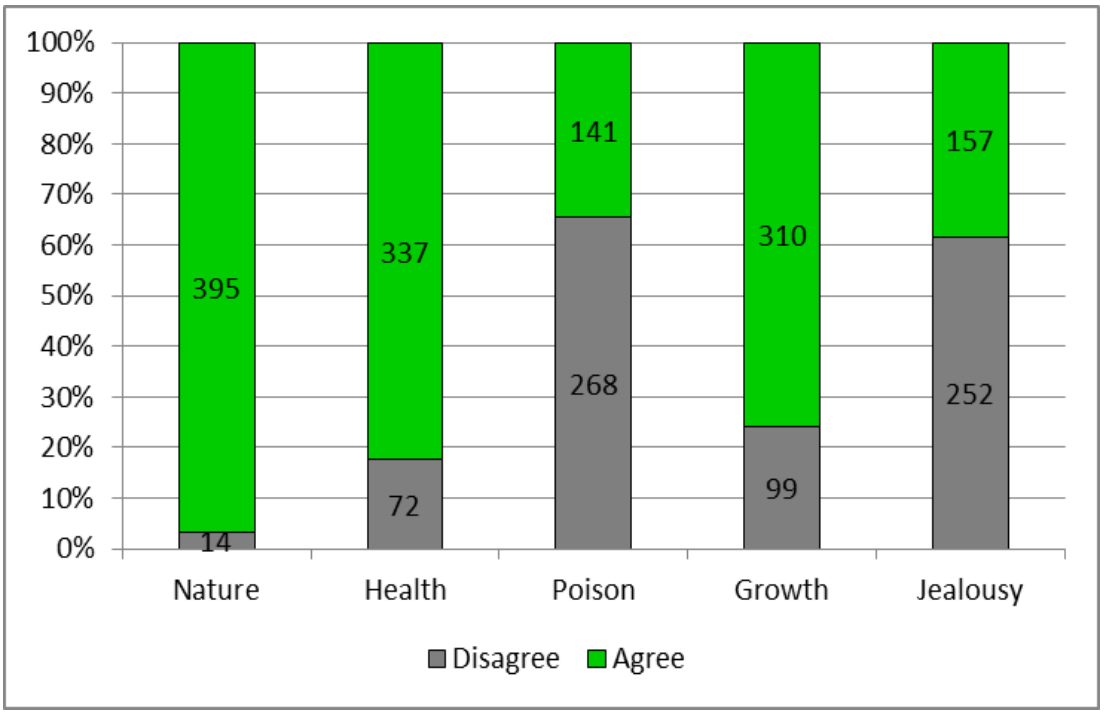

Figure 4.9: Green colour associations

From Figure 4.9, it is evident that most of the respondents agreed that green is associated with nature, health and growth. Approximately 60 percent of the respondents disagreed with the association of green with poison and jealousy.

Figure 4.10 illustrate the respondents' perceived associations with the colour blue.

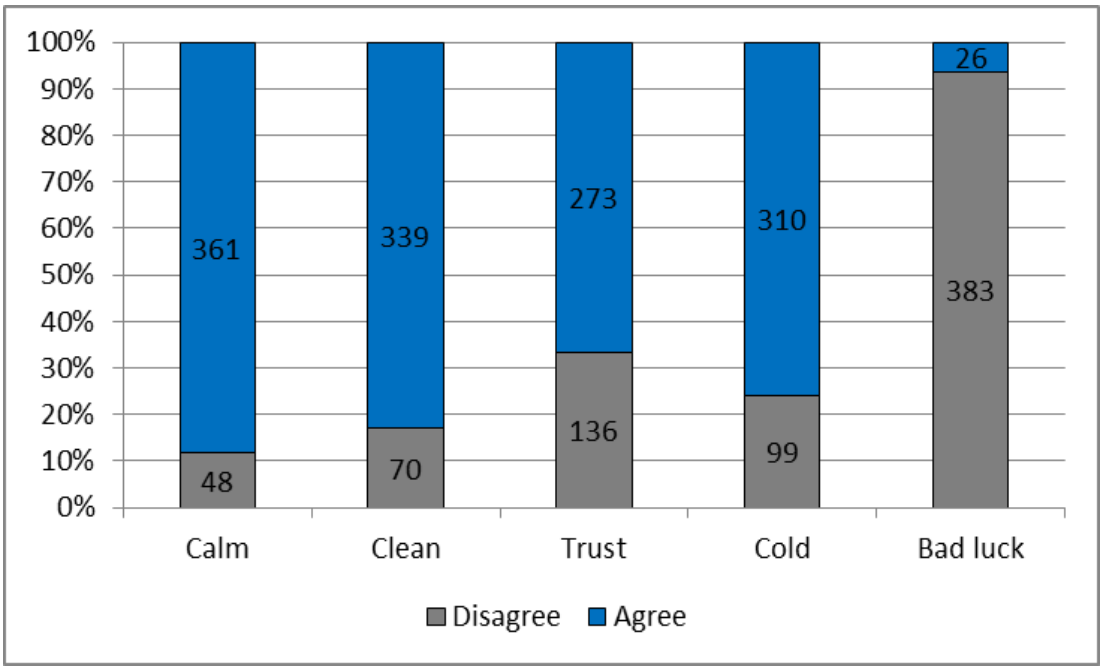

Figure 4.10: Blue colour associations

Figure 4.10 indicates that the majority of respondents agreed that blue is associated with all of the mentioned words (calm, clean, trust and cold), except for bad luck. More than 90 percent of all respondents disagreed with associationg blue with bad luck.

Figure 4.11 illustrate the respondents' perceived associations with the colour purple.

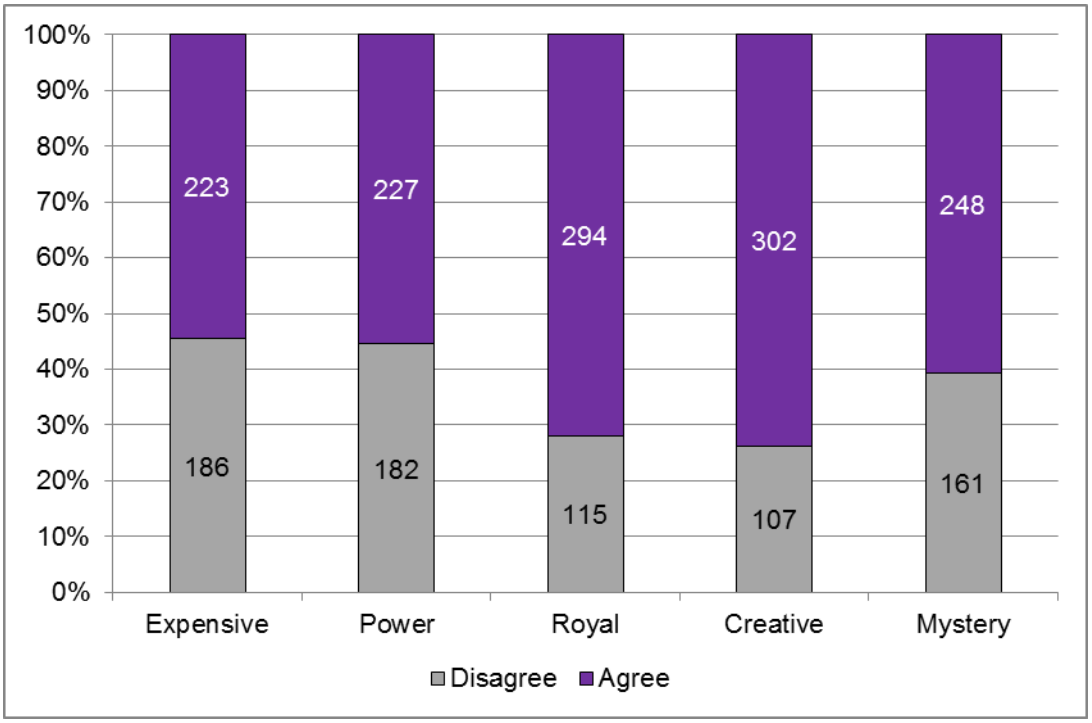

Figure 4.11: Purple colour associations

Figure 4.11 shows that more than 70 percent of the respondents agreed that purple is associated with royalty and creativity. Of the respondents, 60 percent concured that purple is linked to mystery. More than half of respondents associated purple with 'expensive' and 'power'.

Figure 4.12 illustrate the respondents' perceived associations with the colour orange.

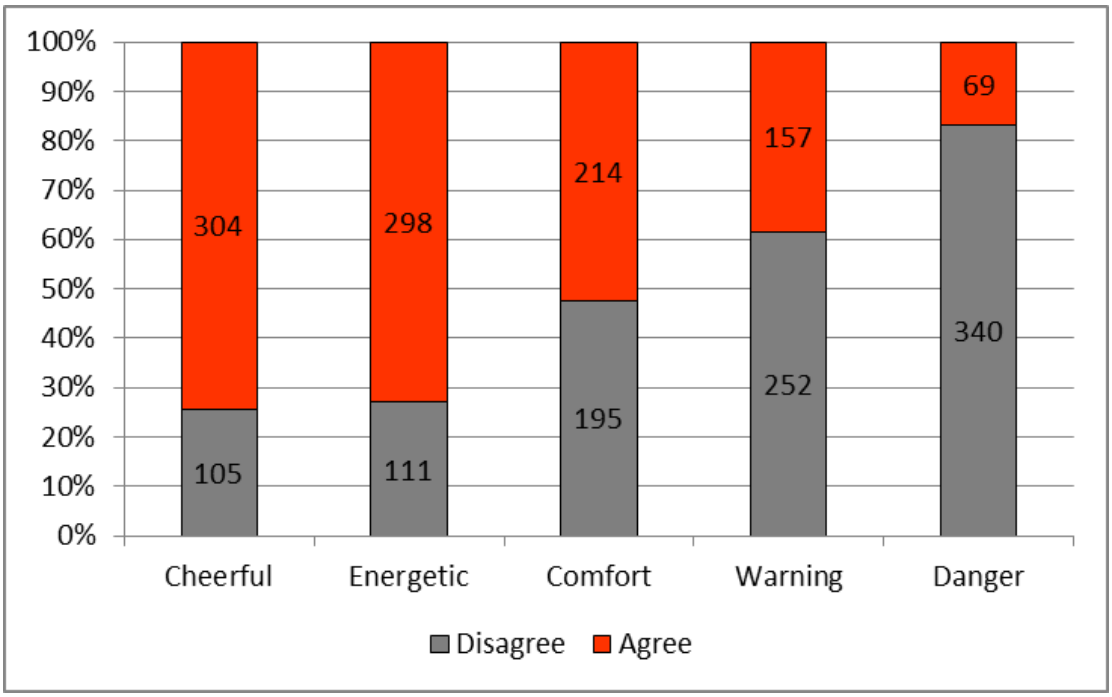

Figure 4.12: Orange colour associations

According to Figure 4.12, the association between orange and danger was rejected by more than 80 percent of respondents. Respondents also disagreed with the link between orange and warning. These two colour association rejections are interesting keeping in mind that orange is a colour that is widely used to warn people of dangerous hazards. Respondents were not convincingly in agreement with linking orange with comfort. Most of the respondents (more than 70%) felt that orange could be associated with the words ‘cheerful’ and ‘energetic’.

Figure 4.13 illustrate the respondents’ perceived associations with the colour white.

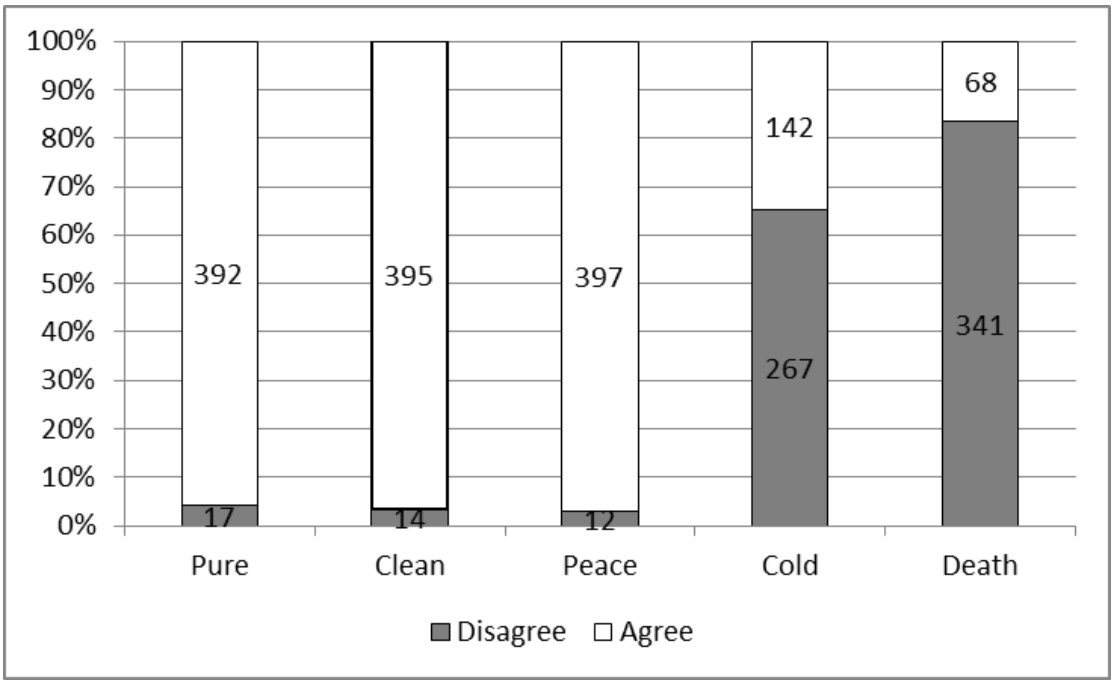

Figure 4.13: White colour associations

As shown in Figure 4.13, a convincing 90 percent of respondents indicated associating white with ‘pure’, ‘clean’ and ‘peace’. However, most of the respondents disagreed with white being associated with ‘cold’ and ‘death’.

Figure 4.14 illustrate the respondents’ perceived associations with the colour black.

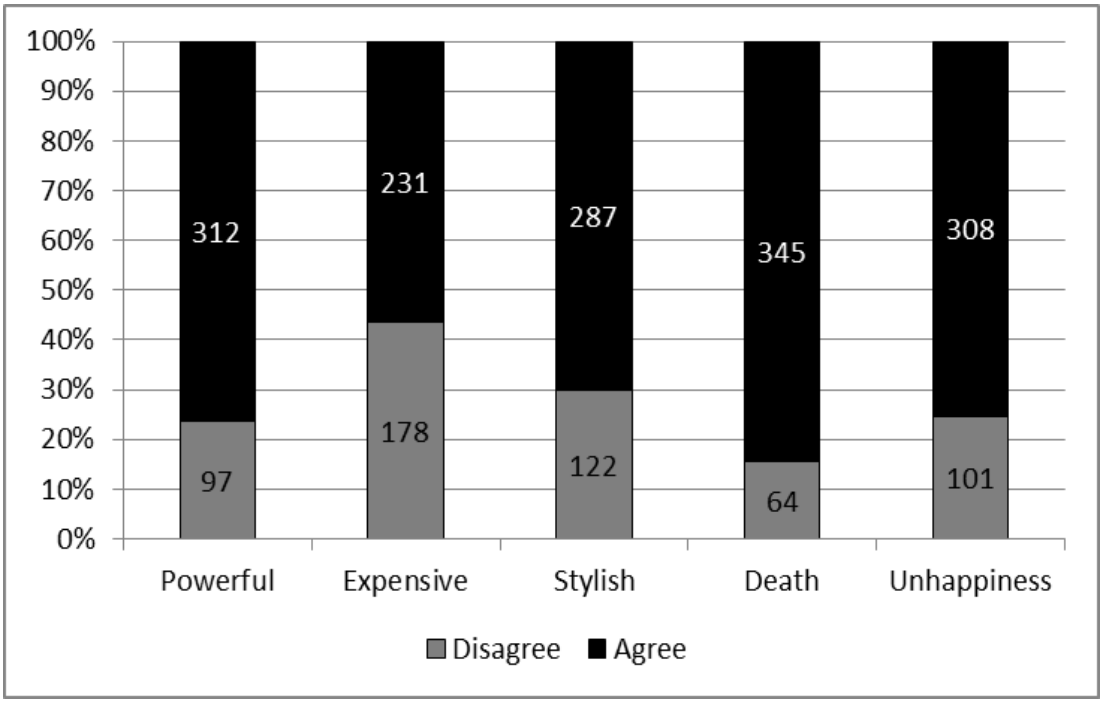

Figure 4.14: Black colour associations

According to Figure 4.14, most of the respondents agreed with all of the associations ('powerful', 'expensive', 'stylish', 'death', and 'unhapiness') linked with the colour black.

The following section discusses the study's findings regarding colour perceptions

4.3.4 Colour perceptions

Section D of the questionnaire consisted of a semantic differential scale designed to determine the colour perceptions of respondents. Figure 4.15 represents the low quality/high quality and inexpensive/expensive colour perception results.

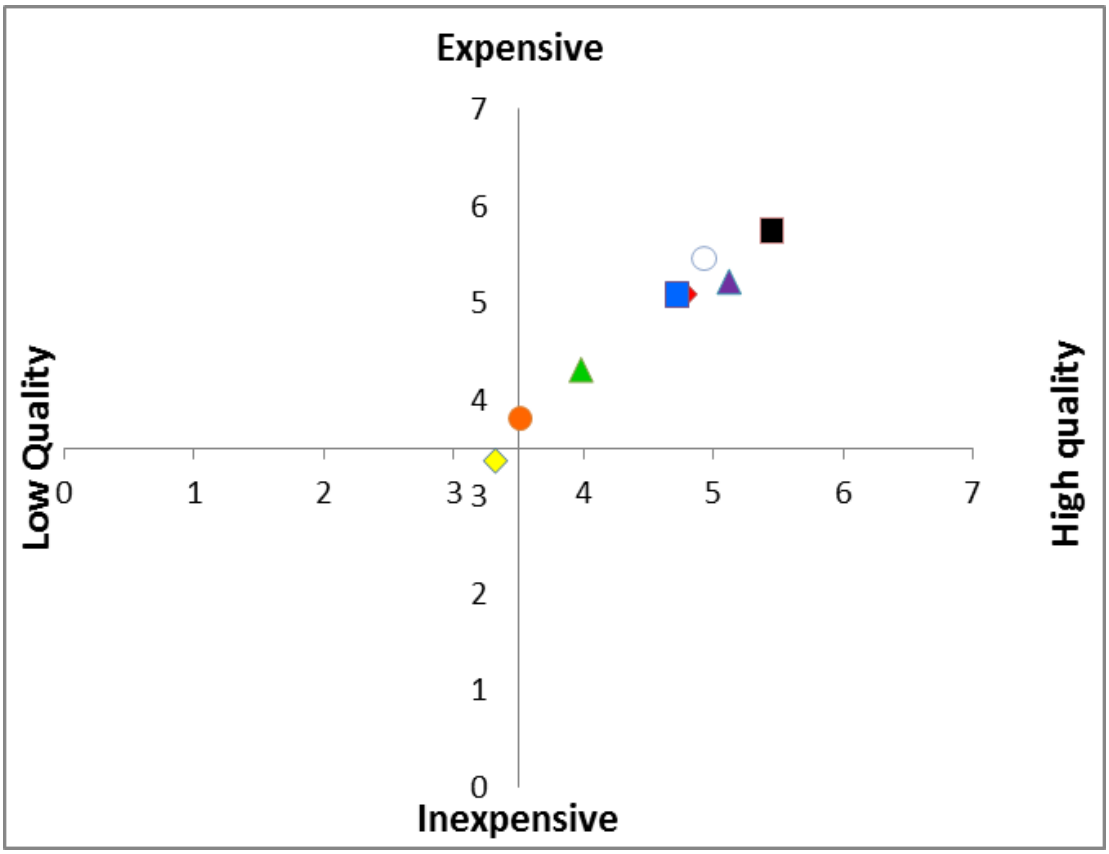

Figure 4.15: Colour perception: low quality/high quality and inexpensive/expensive

As can be seen in Figure 4.15, all of the colours except for yellow group in the high quality/expensive quadrant. Black is perceived as the colour which is more expensive and of a higher quality than any of the other colours. White is

also perceived as an expensive colour, while purple is seen as a colour that represents high quality. Blue and red are perceived evenly in relation to high quality and expensiveness. Orange, green and yellow are closer to the inconclusive part of the graph, with green a little more towards high quality and expensiveness and orange as somewhat expensive. Yellow is perceived as a little inexpensive and of lower quality and is the only colour in this specific quadrant.

Figure 4.16 represents the soft/hard and light/heavy colour perception results.

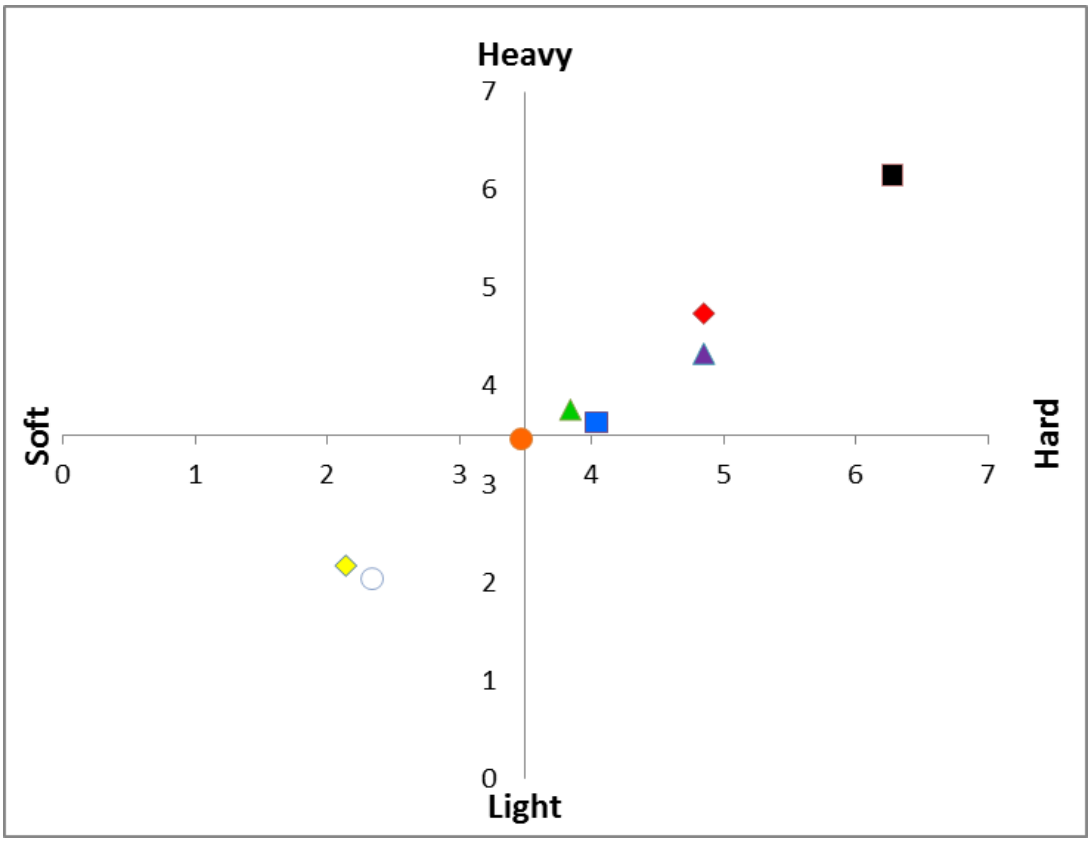

Figure 4.16: Colour perception: soft/hard and light/heavy

Figure 4.16 indicates that the colours grouped into two quadrants, with orange in an inconclusive position. White and yellow are grouped in the soft/light quadrant. Green, blue, purple, red and orange are in the hard/heavy quadrant, with black being the colour that is perceived as being the heaviest and hardest colour, followed by red and then purple.

Next, the respondents' perceptions of colour on the dimensions of passive/active and cold/warm were tested. Figure 4.17 represents the passive/active and cold/warm colour perception results.

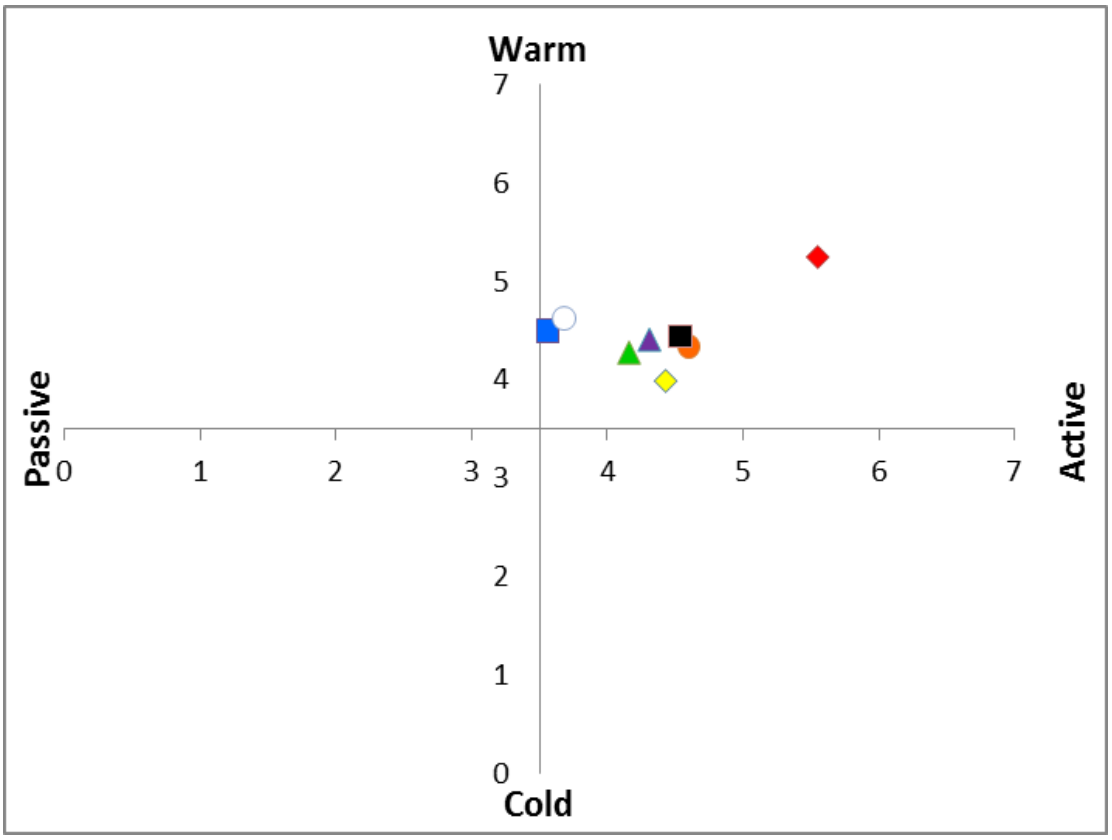

Figure 4.17: Colour perception: passive/active and cold/warm

As is evident from Figure 4.17, these findings were somewhat inconclusive with all the colours grouped closely together in the warm/active quadrant. The only notible result is that red is perceived as the warmest and most active colour.

The next section investigates the findings regarding product-package colour preferences.

4.3.4 Product-package colour preference

Section E of the questionnaire was designed to test respondents' product-package colour preferences regarding specific product categories. Figure 4.18 presents these results.

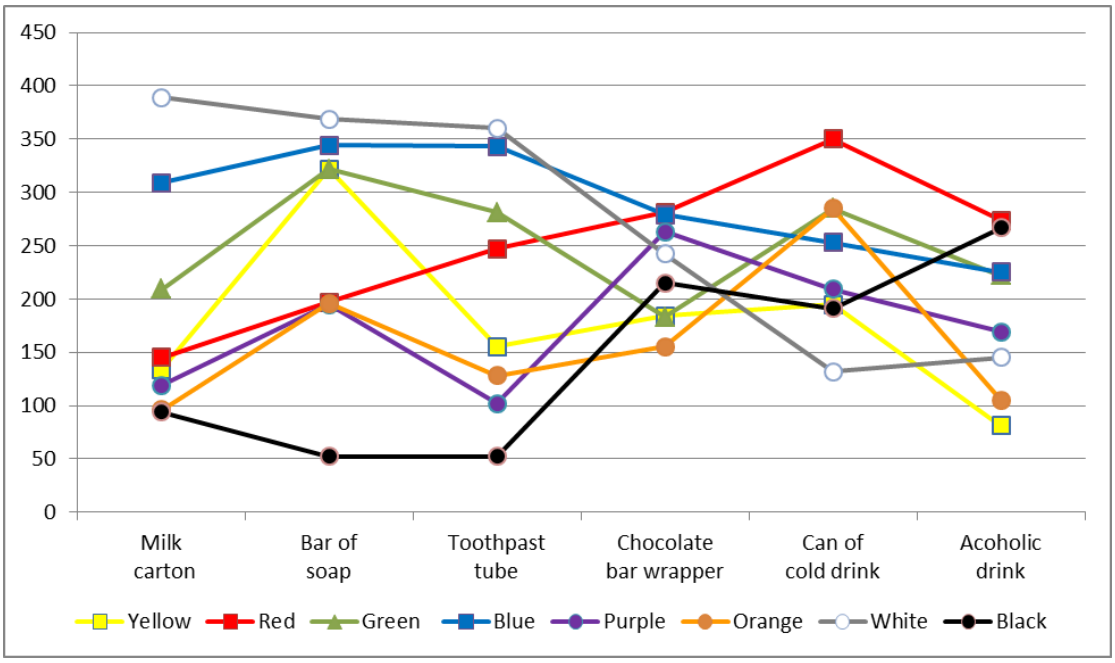

Figure 4.18: Product-package colour preference

According to Figure 4.18, blue and white are the colours most preferred for a milk carton, a bar of soap and a toothpaste tube, while black is the least preferred colour for the same items. Chocolate bar wrappers are preferred in red, blue and also purple and white. Red is the most preferred colour for a can of cold drink (probably due to the market conditioning by Coca-Cola), followed by orange and green. White was indicated as the least preferred colour for cold-drink cans. Alcoholic drinks are mostly preferred in the colour red, followed by black. Green and blue are also preferable colours for an alcoholic drink, while yellow and orange are the least preferred colours.

The next section looks at product colour preferences.

4.3.5 Product colour preference

Section F of the questionnaire was designed to test respondents' product colour preferences regarding specific product categories. Figure 4.19 presents these results.

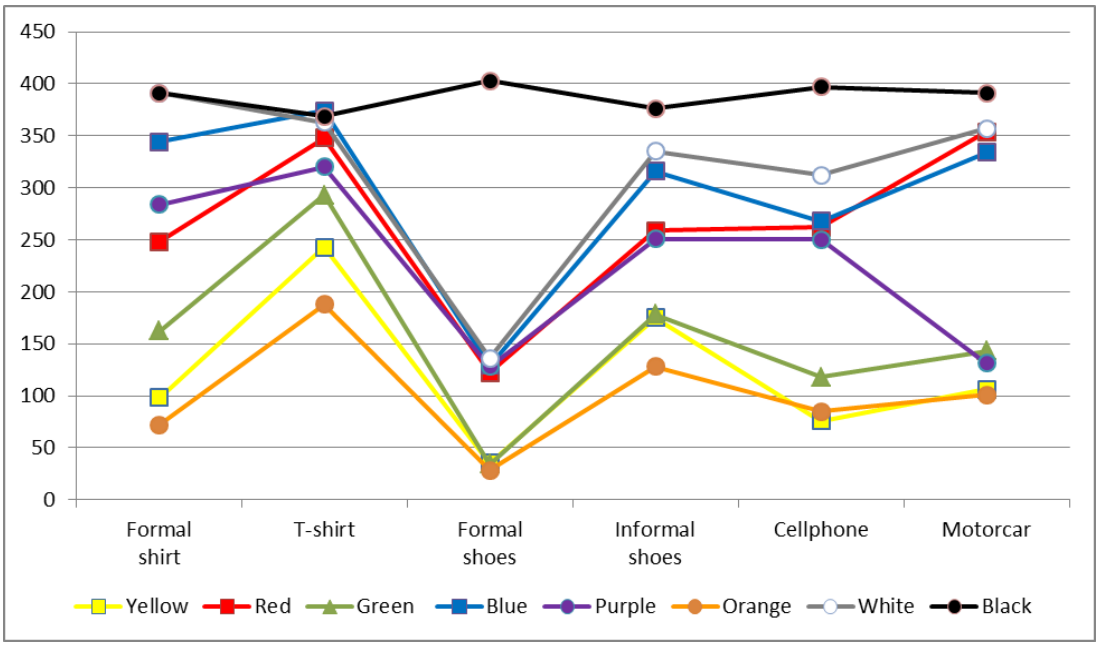

Figure 4.19: Product colour preference

According to Figure 4.19, a formal shirt, a t-shirt as well as informal shoes are preferred in black, white and blue. The respondents indicated that they prefer formal shoes to be black. These respondents indicated that they prefer a cellphone and a motorcar in the colours of black, white, red as well as blue. The most notible results from this section are the high preference for the colour black for all mentioned products, together with the lack of preference for orange and yellow products.

4.3.6 Consumer behaviour

Figure 4.20 illustrates Generation Y students' planned and impulse behaviour.

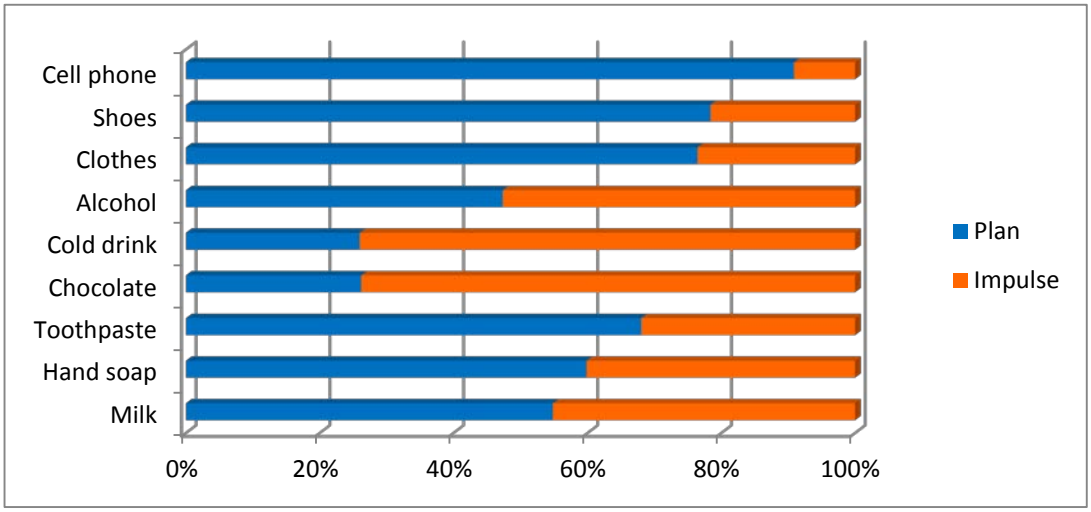

Figure 4.20: Consumer behaviour: planned or impulse

Figure 4.20 suggests that Generation Y students tend to plan before they purchase most of the listed products. The only products purchased on impulse by the majority of student respondents were indicated as alcohol, cold drink and chocolate.

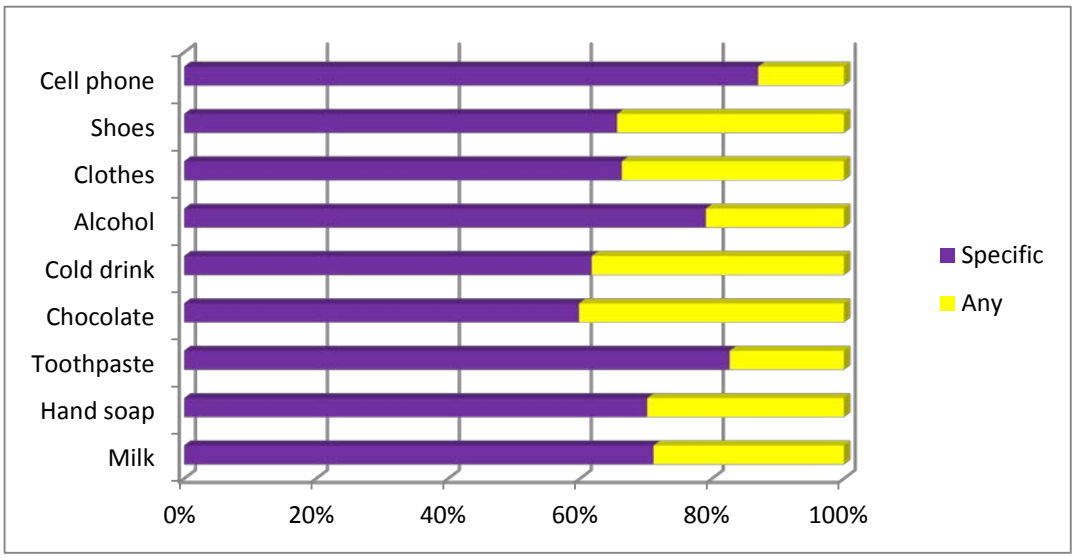

Figure 4.21: Consumer behaviour: brand loyalty

According to Figure 4.21, the majority of respondents indicated that they are relatively brand loyal, preferring specific brands when purchasing all the products listed.

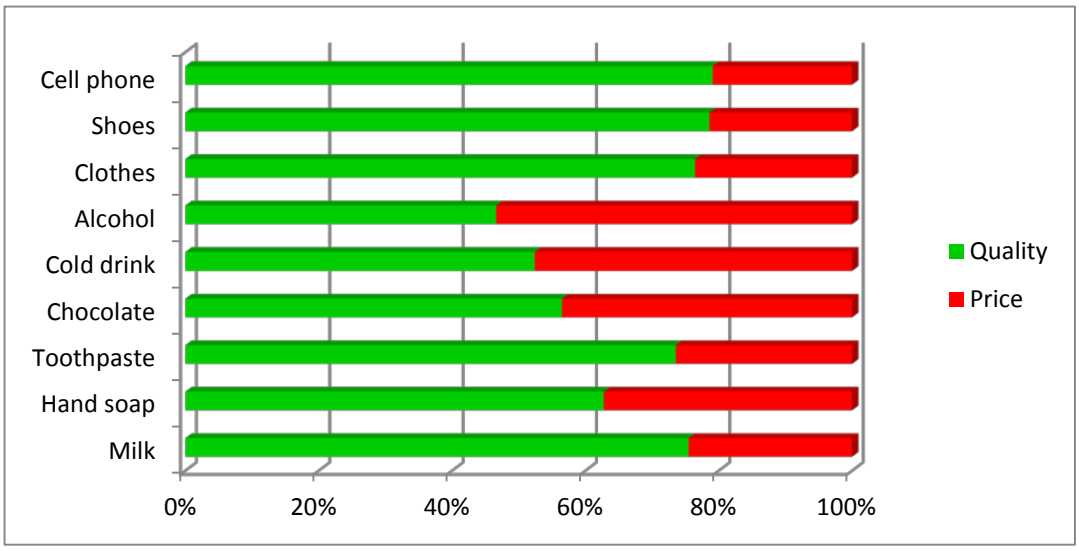

Figure 4.22: Consumer behaviour: quality or price

Figure 4.22 indicates that the respondents tend to prefer quality above price for all the products listed, except for alcohol, cold drink and chocolate.

Interestingly, the same products purchased on impulse by most of the respondents are also the products where price is more important than quality.

4.4 RELIABILITY

The reliability of the scale was tested by means of Cronbach's alpha. Not all sections in the questionnaire were suitable for the Cronbach's alpha reliability test so only those sections that were suitable were included (Section B, D, E & F). Table 4.2 presents these results.

Table 4.2 Reliability measures of the scales in Sections B, D, E and F

Section in Questionnaire	Number of items	Cronbach's α
Colour associations	40	0.716
Colour perceptions	48	0.707
Product package colour preference	48	0.795
Product colour preference	48	0.821

The Cronbach coefficient alpha was calculated for each section's scale in order to test reliability. Malhotra (2010:319) states that a coefficient value below 0.6 indicates unsatisfactory internal consistency reliability. All of the scales tested returned Cronbach alphas above 0.7, which indicates good internal reliability (Pallant, 2010:100).

4.5 HYPOTHESES TESTING

Malhotra (2010:491,503) states that hypotheses testing involves associations or differences and that the hypothesis test selected for differences depends on whether the data is metric or non-metric and on the number of samples involved and whether they are independent or paired. In this study, differences between male and female respondents were tested as well as differences between black and white respondents. In both cases, there were two independent samples and the data was metric; therefore, t-tests were used to test hypotheses (Malhotra, 2010:503; Pallant, 2010:204).

T-tests were used to compare the following variables regarding gender and race:

- male and female respondents' colour preference ranking
- black and white respondents' colour preference ranking
- male and female respondents' colour associations
- black and white respondents' colour associations
- male and female respondents' product package colour preferences
- black and white respondents' product package colour preferences
- male and female respondents' product colour preferences
- black and white respondents' product colour preferences

For the significance tests, the significance level was set at the conventional 5 percent; that is, $\alpha = 0.05$ and the decision rule applied is as follows:

If P-value $\geq \alpha$, conclude H_o

If P-value $< \alpha$, conclude H_a

Refer to Appendix E for the results of the t-tests on gender and race differences. Cohen's D statistic was computed to determine the level of practical significance (> 0.8 = large practical effect, 0.5 to 0.8 = medium practical effect and 0.2 to 0.5 = small practical effect).

4.5.1 Comparison between male and female respondents' colour preference ranking

In order to determine whether there were significant statistical differences between the male and female respondents' colour preference ranking, a t-test was conducted. Where a statistically significant difference ($p < 0.05$) existed, the Cohen's D statistic was computed in order to determine whether the difference was practically significant.

The hypotheses are formulated as follows:

$H_0$1: There is no difference between the male and female respondents' colour preference ranking.

H_a1: There is a difference between the male and female respondents' colour preference ranking.

From Table E1, two significant statistical differences were computed between the male and female respondents regarding colour preference ranking. These differences were statistically significant at $p < 0.05$ and they are presented in Table 4.3.

Table 4.3: Statistical and practical significant differences between male and female respondents regarding colour preference ranking (refer to Table E1)

	Male			Female					
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Red	157	5.41	2.072	250	4.63	2.094	3.652	.000	0.372*
Purple	156	3.84	2.351	250	5.80	2.193	-8.537	.000	0.834***

* Small effect, practically non-significant

** Medium effect and moving toward practical significance

*** Large effect, practically significant

Significant statistical differences were recorded between the male and female respondents concerning the ranking of the colours red and purple. The male respondents indicated a higher preference for red than that indicated by the female respondents, while the female respondents ranked purple higher than the male respondents ranked it. Therefore, for the colour ranking of red and purple, the null hypothesis H_o1 is rejected and the alternative H_a1 is concluded. With the exception red and purple, there were no significant statistical differences between the male and female respondents. As such, the null hypothesis H_o1 cannot be rejected for the remaining colours of yellow, green, blue, orange, white and black.

In order to assess the practical significance of the differences between the male and female respondents on the ranking of red and purple, Cohen's D-statistic was calculated. There is a small effect, moving towards practical significance on red (D = 0.372) and a large effect that is practically significant with purple (D = 0.834).

4.5.2 Comparison between black and white respondents' colour preference ranking

In order to determine whether there were significant statistical differences between the black and white respondents' colour preference ranking, a t-test was conducted. Where a statistically significant difference ($p < 0.05$) existed, the Cohen's D statistic was computed in order to determine whether the difference was practically significant.

The hypotheses are formulated as follows:

$H_0$2: There is no difference between the black and white respondents' colour preference ranking.

H_a2: There is a difference between the black and white respondents' colour preference ranking.

From Table E2, two significant statistical differences were recorded between the black and white respondents regarding colour preference ranking. These differences were statistically significant at $p < 0.05$ and they are presented in Table 4.4.

Table 4.4: Statistical and practical significant differences between black and white respondents regarding colour preference ranking (refer to Table E2)

	Black			White					
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Green	315	4.21	2.183	77	5.38	1.871	-4.306	.000	0.536**
Black	316	5.05	2.402	77	4.18	2.366	2.864	.004	0.368*

* Small effect, practically non-significant

** Medium effect and moving toward practical significance

*** Large effect, practically significant

Significant statistical differences were recorded between the black and white respondents concerning the ranking of the colours green and black. The white respondents indicated preferring green more so than that indicated by the black respondents. The black respondents indicated preferring the colour black more so than that indicated by the white respondents. Therefore, for the colour ranking of green and black, the null hypothesis H_o2 is rejected and the alternative H_a2 is concluded. With the exception green and black, there were no significant statistical differences between the black and white respondents. As such, the null hypothesis H_o2 cannot be rejected for the remaining colours of yellow, red, blue, purple, orange and white.

In order to assess the practical significance of the differences between black and white respondents, Cohen's D-statistic was calculated. There is a medium effect, moving towards practical significance on green (D = 0.536) and a small effect, moving towards practically significance with black (D = 0.368).

4.5.3 Comparison between male and female respondents' colour associations

In order to determine whether there were significant statistical differences between the male and female respondents' colour associations, a t-test was conducted. Where a statistically significant difference ($p < 0.05$) existed, the

Cohen's D statistic was computed in order to determine whether the difference was practically significant.

The hypotheses are formulated as follows:

$H_0$3: There is no difference between the male and female respondents' colour associations.

H_a3: There is a difference between the male and female respondents' colour associations.

From Table E3, several significant statistical differences were computed between the male and female respondents regarding colour associations. These differences were statistically significant at $p < 0.05$ and they are presented in Table 4.5.

Table 4.5: Statistical and practical significant differences between male and female respondents regarding colour association (refer to Table E3)

	Male			Female					
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Red									
Love	159	3.46	.801	254	3.77	.536	-4.747	.000	0.387*
Purple									
Power	159	2.37	.918	254	2.87	.924	-5.397	.000	0.541**
Royal	159	2.68	.983	254	3.27	.862	-6.394	.000	0.600**
Creative	159	2.82	.853	254	3.09	.848	-3.055	.002	0.317*
White									
Peace	159	3.65	.676	254	3.83	.416	-3.405	.001	0.266*

* Small effect, practically non-significant

** Medium effect and moving toward practical significance

*** Large effect, practically significant

Significant statistical differences were recorded between the male and female respondents concerning associations made with the colours red, purple and white. The female respondents associated red more with love than their male counterparts did. Purple was also more often associated with the words ‘power’, ‘royal’ and ‘creative’ by the female respondents. The association of peace with the colour white was more prevalent amongst the female respondents. Therefore, for the colour associations with red (love), purple (power, royal and creative) and white (peace), the null hypothesis H_o3 is rejected and the alternative H_a3 is concluded. With the exception red, purple and white, there were no other significant statistical differences between the male and female respondents regarding colour association. As such, the null hypothesis H_o3 cannot be rejected for the remaining colour associations.

In order to assess the practical significance of the differences between the male and female respondents, Cohen’s D-statistic was calculated. There is a small effect, moving towards practical significance on the association of red with ‘love’ (D = 0.387), as well as purple with creative (D = 0.317) and white with ‘peace’ (D = 0.266). There is medium effect, moving towards practical significance on the association of purple with ‘power’ (D = 0.541) and ‘royal’ (D = 0.600).

4.5.4 Comparison between black and white respondents’ colour associations

In order to determine whether there were significant statistical differences between the black and white respondents’ colour associations, a t-test was conducted. Where a statistically significant difference ($p < 0.05$) existed, the Cohen’s D statistic was computed in order to determine whether the difference was practically significant.

The hypotheses are formulated as follows:

$H_0$4: There is no difference between the black and white respondents’ colour associations.

H_a4: There is a difference between the black and white respondents' colourassociations.

From Table E4, six significant statistical differences were computed between the black and white respondents regarding colour associations. These differences were statistically significant at $p < 0.05$ and they are presented in Table 4.6.

Table 4.6: Statistical and practical significant differences between black and white respondents regarding colour association (refer to Table E4)

	Black			White					
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Yellow									
Safety	321	2.50	.870	78	2.14	.879	3.248	.001	0.41*
Hope	321	2.85	.776	78	2.38	.943	4.549	.000	0.498*
Red									
Sadness	321	2.02	.935	78	1.49	.769	4.651	.000	0.567**
Green									
Jealousy	321	2.11	1.031	78	3.00	1.093	-6.743	.000	0.814***
Blue									
Calm	321	3.30	.765	78	3.62	.707	-3.323	.001	0.418*
Orange									
Cheerful	321	3.04	.826	78	2.72	1.127	2.863	.004	0.284*
Comfort	321	2.68	.809	78	2.19	.869	4.726	.000	0.564**
Danger	321	1.62	.824	78	2.06	.985	-4.073	.000	0.447*
Black									
Powerful	321	3.26	.975	78	2.69	1.199	4.413	.000	0.475*

* Small effect, practically non-significant

** Medium effect and moving toward practical significance

Significant statistical differences were recorded between the black and white respondents regarding associations made with the colours yellow, red, green, blue, orange and black. The black respondents tended to associate yellow with ‘safety’ and ‘hope’. Red was associated with ‘sadness’ more frequently by the black respondents than by the white respondents. The colour green was associated with ‘jealousy’ more frequently by the white respondents than by the black respondents. ‘Calm’ was associated with blue by more white respondents than black respondents. The black respondents tended to associate orange with ‘cheerful’ and ‘comfort’ more so than the white respondents did. The white respondents associated danger with orange more often than the black respondents did. The black respondents associated the colour black with ‘powerful’ more often than the white respondents did.

Therefore, for the colour association of yellow (safety and hope), red (sadness), green (jealousy), blue (calm), orange (cheerful, comfort and danger) and black (powerful), the null hypothesis H_o4 is rejected and the alternative H_a4 is concluded. With the exception yellow, red, green, blue, orange and black, there were no significant statistical differences between the black and white respondents regarding colour association. As such, the null hypothesis H_o4 cannot be rejected for the remaining colour associations.

In order to assess the practical significance of the differences between the black and white respondents, Cohen’s D-statistic was calculated. There is a small effect, moving towards practical significance on the association of yellow with ‘safety’ (D = 0.41) and ‘hope’ (D = 0.498), as well as blue with ‘calm’ (D = 0.418), orange with ‘cheerful’ (D = 0.284) and ‘danger’ (D = 0.447) and black with ‘powerful’ (D = 0.475). There is medium effect, moving towards practical significance on the association of red with ‘sadness’ (D = 0.567) and orange with ‘comfort’ (D = 0.564). There is large effect that is practically significant for the association of green with ‘jealousy’ (D = 0.814).

4.5.5 Comparison between male and female respondents' product-package colour preferences

In order to determine whether there were significant statistical differences between the male and female respondents' product-package colour preference, a t-test was conducted. Where a statistically significant difference ($p < 0.05$) existed, the Cohen's D statistic was computed in order to determine whether the difference was practically significant.

The hypotheses are formulated as follows:

$H_0$5: There is no difference between the male and female respondents' product-package colour preferences.

H_a5: There is a difference between the male and female respondents' product-package colour preferences.

From Table E5, several significant statistical differences were recorded between the male and female respondents concerning product-package colour preferences. These differences were statistically significant at $p < 0.05$ and they are presented in Table 4.7.

Table 4.7: Statistical and practical significant differences between male and female respondents regarding product-package colour preferences (refer to Table E5)

	Male			Female					
	n	$\bar{x}$	s	n	$\bar{x}$	s	t	p	D
Bar of hand soap									
Black	159	1.62	.998	254	1.30	.737	3.778	.000	0.321*
Toothpaste tube									
Blue	159	3.03	.987	254	3.33	.849	-3.341	.001	0.304*
Black	159	1.62	.998	254	1.30	.768	3.703	.000	0.321*
Chocolate-bar wrapper									
White	159	2.86	1.064	254	2.53	1.144	2.965	.003	0.288*
Black	159	2.74	1.160	254	2.35	1.206	3.227	.001	0.323*

Table 4.7: Statistical and practical significant differences between male and female respondents regarding product-package colour preferences (refer to Table E5) (continued...)

	Male			Female					
	n	$\bar{x}$	s	n	$\bar{x}$	s	t	p	D
Alcoholic drink									
Purple	159	2.01	1.088	254	2.46	1.178	-3.960	.000	0.382*

* Small effect, practically non-significant

** Medium effect and moving toward practical significance

*** Large effect, practically significant

Significant statistical differences were recorded between the male and female respondents concerning product-package colour preferences for a bar of hand soap, a toothpaste tube, a chocolate-bar wrapper and an alcoholic drink. The male respondents had a slightly higher tendency to prefer a black bar of hand soap than the female respondents did. The female respondents preferred a blue toothpaste tube more than their male counterparts did, while the male respondents tended to prefer a black toothpaste tube more than the female respondents did. A black as well as a white chocolate-bar wrapper was preferred more by the male respondents. The female respondents tended to prefer a purple alcoholic drink more than the male respondents did.

Therefore, for product package colour preference of a bar of hand soap (black), a toothpaste tube (blue as well as black), a chocolate-bar wrapper (white as well as black) and an alcoholic drink (purple), the null hypothesis H_o5 is rejected and the alternative H_a5 is concluded. With the exception of a bar of hand soap, a toothpaste tube, a chocolate-bar wrapper and an alcoholic drink, there were no significant statistical differences between the male and female respondents concerning product-package colour preferences, and the null hypothesis H_o5 cannot be rejected for the remaining products' packaging colour preferences.

In order to assess the practical significance of the differences between the male and female respondents, Cohen's D-statistic was calculated. There is a

small effect, moving towards practical significance on the colour preference of a black bar of hand soap (D = 0.321), a blue (D = 0.304) as well as a black (D = 0.321) toothpaste tube. There is also a small effect, moving towards practical significance on the colour preference of a purple alcoholic drink (D = 0.382) and a black (D = 0.323) as well as a white (D = 0.288) chocolate-bar wrapper.

4.5.6 Comparison between black and white respondents' product-package colour preferences

In order to determine whether there were significant statistical differences between the black and white respondents' product-package colour preference, a t-test was conducted. Where a statistically significant difference ($p < 0.05$) existed, the Cohen's D statistic was computed in order to determine whether the difference was practically significant.

The hypotheses are formulated as follows:

$H_0$6: There is no difference between the black and white respondents' product-package colour preference.

H_a6: There is a difference between the black and white respondents' product-package colour preference

From Table E6, several significant statistical differences were recorded between the black and white respondents concerning product-package colour preferences. These differences were statistically significant at $p < 0.05$ and they are presented in Table 4.8.

Table 4.8: Statistical and practical significant differences between black and white respondents regarding product-package colour preferences (refer to Table E6)

	Black			White					
	n	$\bar{x}$	s	n	$\bar{x}$	s	t	p	D
Milk carton									
Yellow	321	2.13	.971	78	1.67	.892	3.819	.000	0.474*
Bar of hand soap									
Yellow	321	3.16	.891	78	2.53	1.053	5.396	.000	0.598**
Green	321	3.24	.932	78	2.69	1.036	4.525	.000	0.531**
Toothpaste tube									
Yellow	321	2.30	1.008	78	1.59	.874	5.712	.000	0.704**
Chocolate-bar wrapper									
Black	321	2.39	1.173	78	2.91	1.208	-3.518	.000	0.430*
Alcoholic drink									
Yellow	321	1.64	.865	78	2.04	1.110	-3.397	.001	0.360*

* Small effect, practically non-significant

** Medium effect and moving toward practical significance

*** Large effect, practically significant

Significant statistical differences were recorded between the black and white respondents concerning product-package colour preferences for a milk carton, a bar of hand soap, a toothpaste tube, chocolate-bar wrapper and an alcoholic drink. The black respondents indicated preferring a milk carton, a bar of hand soap and a toothpaste tube in yellow more so than white respondents did. Green as the colour for a bar of hand soap was also more preferred by black respondents. The white respondents preferred a chocolate-bar wrapper to be black and an alcoholic drink to be yellow more so than black respondents did.

Therefore, for product-package colour preference of a milk carton (yellow), a bar of hand soap (yellow as well as green), a toothpaste tube (yellow), a chocolate-bar wrapper (black) and an alcoholic drink (yellow), the null

hypothesis H_o6 is rejected and the alternative H_a6 is concluded. With the exception a milk carton, a bar of hand soap, a toothpaste tube, a chocolate-bar wrapper and an alcoholic drink, there were no significant statistical differences between the black and white respondents regarding product-package colour preferences, and the null hypothesis H_o5 cannot be rejected for the remaining products' packaging colour preferences.

In order to assess the practical significance of the differences between the black and white respondents, Cohen's D-statistic was calculated. There is a small effect, moving towards practical significance on the colour preference of a yellow milk carton (D = 0.474), a black chocolate-bar wrapper (D = 0.43) and a yellow alcoholic drink (D = 0.36). There is medium effect, moving towards practical significance on the colour preference of a yellow (D = 0.598) as well as a green (D = 0.704) bar of hand soap and a yellow toothpaste tube (D = 0.531).

4.5.7 Comparison between male and female respondents' product colour preferences

In order to determine whether there were significant statistical differences between the male and female respondents' product colour preference, a t-test was conducted. Where a statistically significant difference ($p < 0.05$) existed, the Cohen's D statistic was computed in order to determine whether the difference was practically significant.

The hypotheses are formulated as follows:

$H_0$7: There is no difference between the male and female respondents' product colour preference.

H_a7: There is a difference between the male and female respondents' product colour preference.

From Table E7, several significant statistical differences were between the male and female respondents regarding product colour preferences. These

differences were statistically significant at $p < 0.05$ and they are presented in Table 4.9.

Table 4.9: Statistical and practical significant differences between male and female respondents regarding product colour preferences (refer to Table E7)

	Male			Female					
	n	$\bar{x}$	s	n	$\bar{x}$	S	t	p	D
Formal shirt									
Purple	159	2.54	1.112	254	3.11	1.018	-5.299	.000	0.513**
T-shirt									
Yellow	159	2.36	1.070	254	2.84	1.103	-4.333	.000	0.435*
Purple	159	2.81	1.076	254	3.43	.825	-6.679	.000	0.576**
Formal shoes									
Red	159	1.52	.878	254	2.13	1.165	-5.746	.000	0.524**
Purple	159	1.58	.937	254	2.20	1.186	-5.571	.000	0.523**
Informal shoes									
Yellow	159	1.86	.931	254	2.41	1.138	-5.096	.000	0.483*
Red	159	2.48	1.042	254	2.83	1.038	-3.258	.001	0.336*
Purple	159	2.22	1.151	254	3.02	.966	-7.559	.000	0.695**
Orange	159	1.79	.935	254	2.12	1.073	-3.189	.002	0.308*
Cell phone									
Purple	159	2.12	1.116	254	3.15	1.036	-9.506	.000	0.923***
Motorcar									
Purple	159	1.79	.970	254	2.18	1.128	-3.651	.000	0.346*

* Small effect, practically non-significant

** Medium effect and moving toward practical significance

*** Large effect, practically significant

Significant statistical differences were recorded between male and female respondents regarding product colour preference for a formal shirt, a t-shirt, formal shoes, informal shoes, a cell phone and a motor car. All the statistically significant differences computed indicated a higher preference amongst the

female respondents. The female respondents had a higher tendency to prefer a purple formal shirt, a t-shirt coloured yellow or purple, formal shoes in red or purple, informal shoes in yellow, red, purple or orange. The female respondents also indicated preferring a purple cell phone and a purple motorcar more so than the male respondents did.

Therefore, for product colour preferences of a formal shirt (purple), a t-shirt (yellow, as well as purple), formal shoes (red as well as purple), informal shoes (yellow, red, purple and orange), a cell phone (purple) and a motorcar (purple), the null hypothesis H_o7 is rejected and the alternative H_a7 is concluded. With the exception of a formal shirt, a t-shirt, formal shoes, informal shoes, a cell phone and a motorcar, there were no significant statistical differences between the male and female respondents concerning product colour preferences, and the null hypothesis H_o7 cannot be rejected for the remaining products' colour preferences.

In order to assess the practical significance of the differences between the male and female respondents, Cohen's D-statistic was calculated. There is a small effect, moving towards practical significance on the colour preference of a yellow t-shirt (D = 0.435), purple motorcar (D = 0.346) and orange (D = 0.308) as well as yellow (D = 0.483) informal shoes. There is medium effect, moving towards practical significance on the colour preference of a purple formal shirt (D = 0.513), t-shirt (D = 0.576) and informal shoes (D = 0.695). There is also a medium effect, moving towards practical significance on red formal shoes (D = 0.524). There is large effect that is practically significant with the product colour preference of a purple cell phone (D = 0.923).

4.5.8 Comparison between black and white respondents' product colour preferences

In order to determine whether there were significant statistical differences between the black and white respondents' product colour preference, a t-test was conducted. Where a statistically significant difference ($p < 0.05$) existed, the Cohen's D statistic was computed in order to determine whether the difference was practically significant.

The hypotheses are formulated as follows:

$H_0$8: There is no difference between the black and white respondents' product colour preference.

H_a8: There is a difference between the black and white respondents' product colour preference.

From Table E8, several significant statistical differences were recorded between the black and white respondents regarding product colour preferences. These differences were statistically significant at $p < 0.05$ and they are presented in Table 4.10.

Table 4.10: Statistical and practical significant differences between black and white respondents regarding product colour preferences (refer to Table E8)

	Black			White					
	n	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Formal shirt									
Yellow	321	1.91	.996	78	1.54	.863	3.002	.003	0.371*
Black	321	3.70	.669	78	3.92	.268	-2.874	.004	0.329*
T-shirt									
Yellow	321	2.81	1.076	78	2.04	1.098	5.678	.000	0.701**
Formal shoes									
Blue	321	2.02	1.085	78	1.58	1.013	3.242	.001	0.406*
Purple	321	2.07	1.156	78	1.59	.999	3.387	.001	0.415*
White	321	2.84	1.183	78	3.29	1.186	-3.015	.003	0.379*
Informal shoes									
Yellow	321	2.31	1.093	78	1.72	.952	4.382	.000	0.540**
Purple	321	2.82	1.077	78	2.29	1.106	3.836	.000	0.479*

Table 4.10: Statistical and practical significant differences between black and white respondents regarding product colour preferences (refer to Table E8) (continued...)

	Black			White					
	n	$\bar{x}$	s	n	$\bar{x}$	s	t	p	D
Motorcar									
Purple	321	2.13	1.087	78	1.62	.957	3.820	.000	0.469*

* Small effect, practically non-significant

** Medium effect and moving toward practical significance

*** Large effect, practically significant

Significant statistical differences were recorded between the black and white respondents regarding product colour preference for a formal shirt, a t-shirt, formal shoes, informal shoes and a motor car. The black respondents preferred yellow formal shirts as well as t-shirts more so than the white respondents did. The white respondents tended to prefer a black formal shirt and white formal shoes more than the black respondents did. Blue and purple formal shoes, and yellow and purple informal shoes were more preferred by the black respondents than by the white respondents. The black respondents preferred a purple motorcar more so than the white respondents did.

Therefore, for product colour preferences of a formal shirt (yellow as well as black), a t-shirt (yellow), formal shoes (blue, purple & white), informal shoes (yellow as well as purple) and a motorcar (purple), the null hypothesis H_o8 is rejected and the alternative H_a8 is concluded. With the exception of a formal shirt, a t-shirt, formal shoes, informal shoes and a motorcar, there were no significant statistical differences between the black and white respondents regarding product colour preferences, and the null hypothesis H_o8 cannot be rejected for the remaining products' colour preferences.

In order to assess the practical significance of the differences between male and female respondents, Cohen's D-statistic was calculated. There is a small effect, moving towards practical significance on the colour preference of a yellow (D = 0.371) as well as a black (D = 0.329) formal shirt and purple

informal shoes (D = 0.479). There is also a small effect, moving towards practical significance on the colour preference for a purple motorcar (D = 0.469), blue (D = 0.406), purple (D = 0.415) as well as white (D = 0.379) formal shoes. There is medium effect, moving towards practical significance on the colour preference of a yellow t-shirt (D = 0.701).

4.6 SYNOPSIS

This chapter sought to report on and interpret the empirical findings of the study. Section 4.2 described the preliminary data analysis process, which included a discussion on the coding and tabulation of the data.

Section 4.3 presented the descriptive analysis of the data sets, where the results of the main survey were then tabulated and graphically illustrated. In addition, the data was tested for validity and reliability and this was then further discussed in Section 4.4.

In Section 4.5, hypotheses testing was discussed and a comparative analysis amongst gender as well as ethnic groups was employed. T-tests were used to test whether there were any significant statistical differences between these variables. Cohen's D tests were used to investigate whether significant practical differences existed between the male and female as well as between black and white respondents regarding their colour preference and associations. These tests were then used to provide evidence to support the hypotheses of the study.

The next chapter, Chapter 5, presents the recommendations and concluding remarks of the study.

CHAPTER 5

RECOMMENDATIONS AND CONCLUSION

5.1 INTRODUCTION

Colour influences the human mind and body through physical as well as psychological reactions to specific colours. These reactions are conditioned by previous experiences leading to certain preferences, associations and perceptions regarding certain colours. There are various aspects within a firm where colour may be utilised to the benefit of its marketing efforts. Marketers must realise that colour may be very influential and it is important to pay close attention to the associations and preferences of the firm's target market(s) (Chapter 2).

The influence of colour on human perceptions has been widely studied in many research fields. Most marketers recognise the importance of colour within the marketing environment (Section 1.1). Colour has different meanings for different people and these differences need to be acknowledged to ensure success in marketing efforts. If colour is used strategically within the marketing mix (product, place and promotion) of a firm, it may influence consumers positively (Section 1.2). This study endeavoured to determine the colour preferences, associations and perceptions of Generation Y students in South Africa. The findings of this study will be of value to those marketers who target this cohort and may utilised by them to use colour more effectively within their marketing mix.

Recommendations regarding colour usage will be presented in Section 5.4. The future research opportunities will be outlined in Section 5.5. An overview of the study (Section 5.2) and the contributions made by the study (Section 5.3) is also included in this chapter.

5.2 OVERVIEW OF THE STUDY

Each chapter in this research study played a specific role concerning the outlined objectives of the study. These objectives were used as a guideline to

help construct the chapters and to ensure that objectives of the study were met.

The primary objective that this study aimed to achieve was to determine the influence of colour on the consumer behaviour of Generation Y students in the South African market. In order to attain this objective, the following theoretical objectives were formulated for the study:

- Define colour, its origin and influence in the world.
- Review the literature on the colour preferences and associations that exist.
- Examine the literature for factors that might influence colour preference and association.
- Investigate elements within the marketing mix that may be influenced by colour.
- Analyse Generation Y as a market sector and its' importance to firms.

Chapter 2 of this research study was aimed at achieving these theoretical objectives. Section 2.2 defined colour and investigated the influence it has in the world. Existing colour preferences were presented in Section 2.3. Various emotional as well as cultural colour associations and preferences were discussed in Section 2.4. The factors that influence these associations and preferences were analysed in Section 2.5. The elements within the marketing mix that may be influenced by colour (product, place and promotion) were outlined in Section 2.6. The Generation Y students' characteristics and consumer behaviour were discussed in Section 2.7.

Once the theoretical objectives were met, the empirical research followed. In order to ensure the correct methods were used to investigate the empirical objectives Chapter 3 analysed the research methodology used in this research study. The research design (Section 3.2) and the research approach (Section 3.3) were outlined, together with the sampling strategy (Section 3.4) and the data gathering process (Section 3.5). The administration of the questionnaire (Section 3.6) and the preparation of the data (Section 3.7) were discussed. In addition, the statistical analysis (Section 3.8), together with the

reliability (Section 3.9), validity (Section 3.10) and tests of significance (Section 3.11) were outlined within this chapter. The research methodology then formed the foundation for the empirical research study undertaken.

The empirical objectives formulated to achieve the primary objective of this study were as follows:

- Determine the colour preferences of Generation Y students.
- Determine what emotions Generation Y students associate with different colours.
- Determine how Generation Y students perceive various colours.
- Investigate product colour and product packaging colour preferences of Generation Y students.
- Determine the consumer behaviour patterns of Generation Y students regarding specified products

Chapter 4 outlined the research findings of the empirical study. Section 4.3 presented the descriptive statistics that answered the questions emanating from the empirical objectives. Section 4.3.2 presented the colour preferences of Generation Y students and the various emotional colour associations were outline in Section 4.3.3. The colour perceptions of Generation Y students were illustrated in Section 4.3.4. Product-package colour preferences and product colour preferences were discussed in Section 4.3.6 and Section 4.3.7 respectively. Certain consumer behaviour patterns of Generation Y students were outlined in Section 4.3.6.

The following section describes the contributions made by this study.

5.3 CONTRIBUTIONS OF THE STUDY

This research study investigated the influence that the use of colour in marketing has on Generation Y students. Consumers make certain associations between products and colour. Each person also has certain emotions linked to specific colours that are influenced by psychological aspects, learned associations and culture. It is therefore clear that colour is an

important factor when it comes to the design of a marketing mix (product, place, promotion). Marketers may use this knowledge to link their product, product packaging and branding, which includes the distribution and promotion strategy, to a colour or a colour combination in order to increase awareness for their brand and thereby improve its competitiveness within the marketplace.

If colour is used effectively in the various parts of the marketing mix, this is likely to contribute to improving sales turnover and, in turn, profitability given the salience of successful branding within today's highly competitive business environment. Given that, as outlined in Section 2.8, South Africa's Generation Y student cohort represents a market segment of significant potential, it is important for marketers to understand the colour preferences, associations and perceptions of this cohort. The market is highly competitive and if marketers understand the importance of colour and implement it correctly, they can rise above the competition.

This study outlines guidelines regarding colour preferences of Generation Y students as well as their emotional associations and perceptions of specific colours. Product colour and product-package colour preferences were outlined to help marketers in their endeavours to target this cohort successfully.

5.4 RECOMMENDATIONS

The literature review and the statistical analysis of the gathered data were used to derive the following recommendations regarding colour and Generation Y students. These recommendations are made to guide marketers in their use of colours in various aspects of their marketing mix efforts aimed at the Generation Y student cohort.

5.4.1 Colour ranking

Section 4.3 concluded that blue, purple, red and black were the most preferred colour amongst Generation Y students and, orange and yellow the least preferred colours. Therefore, it is recommended that blue, red, purple

and black be used for branding purposes when targeting this cohort, while avoiding the use of orange and yellow.

The differences regarding colour ranking between the male and female respondents are depicted in Table 5.1 (Section 4.5.1).

Table 5.1: Colour ranking differences between male and female respondents

Gender	
Male	**Female**
More tolerant of red	Preferred purple more

Please note: the table only represent significant differences between the groups and not overall preference

The differences regarding colour ranking between the black and white respondents are depicted in Table 5.2 (Section 4.5.2).

Table 5.2: Colour ranking differences between black and white respondents

Race	
Black	**White**
Higher preference for black	Ranked green higher

Please note: the table only represent significant differences between the groups and not overall preference

5.4.2 Colour associations

Section 4.3.3 illustrated which of the five-assigned association of each colour Generation Y students agreed with. Marketers may apply these associations strategically within their firms. Table 5.3 presents all of the associations Generation Y students made regarding each colour

Table 5.3: Colour associations of Generation Y students

Colour		Association
Yellow		Happiness and Hope
Red		Love, Anger and Danger
Green		Nature, Health and Growth
Blue		Calm, Clean, Trust and Cold
Purple		Royal, Creative, Mystery, Expensive and Power
Orange		Cheerful and Energetic
White		Pure, Clean and Peace
Black		Powerful, Expensive, Stylish, Death and Unhappiness

The colour association differences between the male and female respondents, as well as between the black and white respondents are depicted in Table 5.4 and Table 5.5 (Sections 4.5.3 & 4.5.4).

Table 5.4: Colour association differences between male and female respondents

Gender	
Male	**Female**
No significant difference	Associate red with ‘Love’
	Associate purple with ‘Power‘, ‘Royal‘ and ‘Creative‘
	Associate white with ‘Peace’

Please note: the table only represent significant differences between the groups and not overall colour associations

Table 5.5: Colour association differences between black and white respondents

Race	
Black	**White**
Associate yellow with ‘Safety’ and ‘Hope’	Associate green with ‘Jealousy’
Associate red with ‘Sadness’	Associate blue with ‘Calm’
Associate orange with ‘Cheerful’ and ‘Comfort’	Associate orange ‘Danger’
Associate black with ‘Powerful’	

Take note: the table only represent significant differences between the groups, not overall colour associations

It is recommended that marketers find the association that best represents their brand or firm and apply the colour linked to that association. It is also advisable to check the associations linked with the current colours of the brand and firm to ensure that the associations are favourable.

5.4.3 Colour perceptions

Section 4.3.4 illustrated the colour perceptions of the responding Generation Y students by mapping the colours in quadrants (refer to Figures 4.16, 4.17 & 4.18).

According to the Generation Y student that participated in this study, the colour yellow grouped into the low quality/inexpensive quadrant while the other colours of orange, green, blue, red, purple, white and black grouped into the high quality/expensive quadrant. Black was perceived as being the most expensive as well as highest quality colour (Figure 4.16). White and yellow grouped into the soft/light quadrant No conclusive results were found for the colour orange. Green, blue, purple, red and black were grouped into the heavy/hard quadrant. Black was perceived as being the heaviest as well as the hardest of all the colours (Figure 4.17). All colours tested (blue, white, green, purple, yellow, black, orange and red) grouped into the warm/active

quadrant, with red being perceived as the warmest and most active colour (Figure 4. 18).

Marketers should take cognisance of these colour perceptions when designing a marketing mix in order to enhance the perceptions consumers have of the firm and its market offering(s).

5.4.4 Product-package colour preference

Section 4.3.5 outlined the various product-package colour preferences of Generation Y students. Table 5.6 illustrates the most preferred colours for the various product packages.

Table 5.6 Product-package colour preferences

Product package	Colour preference
Milk carton	White, blue and green
Bar of soap	White, blue, yellow and green
Toothpaste tube	White, blue and green
Chocolate bar wrapper	Red, blue and purple
Can of cold drink	Red, green and orange
Alcoholic drink	Red, black, and blue

Marketers of the products listed in Table 5.6 that are targeted at Generation Y students should consider packaging the various products in the colour preferred by this target market.

The product-package colour preference differences between the male and female respondents are depicted in Table 5.7 (Section 4.5.5).

Table 5.7: Product-package colour preference differences between male and female respondents

Gender	
Male	**Female**
Bar of hand soap (Black)	Toothpaste tube (Blue)
Toothpaste tube (Black)	Alcoholic drink (Purple)
Chocolate bar wrapper (White & Black)	

Please note: the table only represent significant differences between the groups and not overall product-package colour preferences

Marketers of the products listed in Table 5.7 that are targeted at Generation Y students should consider differentiating their product packaging colour to appeal to each of the genders specifically.

The product-package colour preference differences between the male black and white respondents are depicted in Table 5.8 (Section 4.5.6).

Table 5.8: Product-package colour preference differences between black and white respondents

Race	
Black	**White**
Milk carton (Yellow)	Chocolate bar wrapper (Black)
Bar of hand soap (Yellow and green)	Alcoholic drink (Yellow)
Toothpaste tube (Yellow)	

Please note: the table only represents significant differences between the groups and not overall product-package colour preferences

Marketers of the products listed in Table 5.8 that are targeted at Generation Y students should consider differentiating their product packaging colour to appeal to each of these ethnic groups specifically.

5.4.5 Product colour preference

Section 4.3.6 outlined the various product colour preferences of Generation Y students. Table 5.9 illustrates the most preferred colours for the various products included in the study.

Table 5.9 Product colour preferences

Product	Colour preference
Formal shirt	Black, blue and purple
T-shirt	Black, blue and white
Formal shoes	Black
Informal shoes	Black, white and blue
Cell phone	Black, white and blue
Motorcar	Black white and red

Marketers of the products listed in Table 5.9 that are targeted at Generation Y students should consider the colours preferred by the target market in their product design decisions.

The product colour-preference differences between the male and female respondents are depicted in Table 5.10 (Section 4.5.3).

Table 5.10: Product colour-preference differences between male and female respondents

Gender	
Male	**Female**
No significant differences	Formal shirt (Purple) T-shirt (Yellow and Purple) Formal shoes (Red and Purple) Informal shoes (Yellow, Red, Purple and Orange) Cell phone (Purple) Motorcar (Purple)

Please note: the table only represents significant differences between the groups and not overall product colour preferences

Marketers of the products listed in Table 5.10 that are targeted at male or female Generation Y students should consider theses gender-specific colour preferences in their product design decisions.

The product colour-preference differences between the black and white respondents are depicted in Table 5.11 (Sections 4.5.4).

Table 5.11: Product colour-preference differences between black and white respondents

Race	
Black	**White**
Formal shirt (Yellow)	Formal shirt (Black)
T-shirt (Yellow)	Formal shoes (White)
Formal shoes (Blue and Purple)	
Informal shoes (Yellow and Purple)	
Motorcar (Purple)	

Please note: the table only represent significant differences between the groups and not overall product colour preferences

Marketers of the products listed in Table 5.11 that are targeted at black or white Generation Y students should consider these race-specific colour preferences in their product design decisions.

5.4.6 Consumer behaviour

Section 4.3.6 outlined the consumer behaviour of Generation Y students concerning certain products. Table 5.12 presents these findings.

Table 5.12: Consumer behaviour patterns of Generation Y students

Product package	Consumer behaviour patterns
Milk	Plan to purchase a specific brand of high quality
Hand soap	Plan to purchase a specific brand of high quality
Toothpaste	Plan to purchase a specific brand of high quality
Chocolate	Impulsively buy a specific brand of high quality
Cold drink	Impulsively buy a specific brand, price and quality is important
Alcohol	Impulsively buy a specific brand at a reasonable price
Clothes	Plan to purchase a specific brand of high quality
Shoes	Plan to purchase a specific brand of high quality
Cell phone	Plan to purchase a specific brand of high quality

Marketers should be aware that Generation Y students tend to be brand loyal and perceive quality as being more important than price. Generation Y students also plan before purchasing most of the products listed in Table 5.12. These consumer behaviour patterns may be used to guide marketers in developing a marketing mix that would focus on these specific behaviours in order to win the loyalty of such customers and to encourage planned future sales of high quality products.

5.5 FUTURE RESEARCH OPPORTUNITIES

There are several ways of extending this research study. As mentioned in Chapter 1, this research study only focussed on the hue of colour. Future research should consider investigating the influence of the other two aspects of colour, namely ‘value’ (lightness or darkness of the colour) and ‘chroma’ (saturation of the colour) on marketing efforts. No colour cards were provided, so each respondent had to rely on their memory of the various colours tested in this study. Providing a colour card in future research studies may increase the accuracy of the respondents’ replies. A number of female respondents

stated that the colour pink should also have been included, so future research studies should consider the inclusion of pink as this colour may be highly influential.

This research study only focussed on a certain number of products and product packages. Future research study should consider widening the number of product categories and product packaging types. In addition, this study made use of a cross-sectional research design, which only provides a snapshot in time. Future research studies should consider embarking on a longitudinal study as this might provide greater insight into Generation Y students' colour perceptions and associations.

5.6 CONCLUDING REMARKS

Colour is a pervading aspect of life and is present in every aspect of marketing. If used strategically, colour may be used by marketers to influence their target market's perceptions and preferences. Marketers should therefore investigate their target market to determine their colour preferences, associations and perceptions.

Generation Y students are the new and up-coming consumer force within in the market place. Firms' future market share is likely to consist mostly of members of this cohort, making an understanding of the cohort's consumer behaviour of paramount importance to future growth. Colour is one of the various aspects that might influence consumer behaviour. The findings emanating from this study should be used as a guideline to incorporating colour into the design of the marketing mix (colour) in such a way as to appeal to Generation Y students.

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APPENDIX A

QUESTIONNAIRE BEFORE VALIDITY CHECK

RESEARCH QUESTIONAIRE

"Influence of colour on the consumer behaviour of Generation Y students in the Vaal Triangle."

This research study aims to:

- ✓ Determine the influence colour has on the consumer purchasing behaviour of students residing in the Vaal Triangle.
- ✓ To assess the colour preferences and associations between the different cultures in the Vaal Triangle.

Researcher:

Mr. R. Muller
North West University (Vaal)
Hendrik van Eck Blvd. , Vanderbijlpark
Building 4, Office G16C.
Tel: 016 910 3357
Fax: 016 910 3352
Rean.Muller@nwu.ac.za

SECTION A: DEMOGRAPHICAL INFORMATION
Please circle your relevant response.

Gender	Male	Female

Age	18	19	20	21	22	23	24	< 25

Race	Black	White	Coloured	Indian	Asian	Other:

Monthly income	less than R1000	R1000 – R2000	R2000 – R4000	more than R 4000

Are you colour blind?	No	Partly	Yes

SECTION B: CONSUMER BEHAVIOUR
Please circle your relevant response.

When buying the following products do you plan beforehand or buy on impulse?		
Milk	Plan	Impulse
Soap	Plan	Impulse
Toothpaste	Brand	No name
Chocolate	Plan	Impulse
Cold drink	Plan	Impulse
Alcohol	Plan	Impulse
Clothes	Plan	Impulse
Shoes	Plan	Impulse
Cell phone	Plan	Impulse

When buying the following products do you prefer a brand name or no name?		
Milk	Brand	No name
Soap	Brand	No name
Toothpaste	Brand	No name
Chocolate	Brand	No name
Cold drink	Brand	No name
Alcohol	Brand	No name
Clothes	Brand	No name
Shoes	Brand	No name
Cell phone	Brand	No name

When buying the following products is quality or price more important?		
Milk	Quality	Price
Soap	Quality	Price
Toothpaste	Quality	Price
Chocolate	Quality	Price
Cold drink	Quality	Price
Alcohol	Quality	Price
Clothes	Quality	Price
Shoes	Quality	Price
Cell phone	Quality	Price

SECTION B: COLOUR RANKING

Assign one number to each colour according to your like or dislike of the colour.
1 = favourite colour ; 2 = 2nd favourite colour ; 3 = 3rd favourite colour ;
4= 4th favourite colour; 5 = 5th favourite colour, 6 = 6th favourite colour;
7 = 7th favourite colour 8 = least favourite colour).

Colour	Number (1-8)
Yellow	
Red	
Green	
Blue	
Purple	
Orange	
White	
Black	

SECTION C: COLOUR ASSOCIATIONS

Please circle your relevant response.

Which colour best match each of the following words (Select one colour per word)

Expensive	Yellow	Red	Green	Blue	Purple	Orange	White	Black
Inexpensive	Yellow	Red	Green	Blue	Purple	Orange	White	Black
Good taste	Yellow	Red	Green	Blue	Purple	Orange	White	Black
High quality	Yellow	Red	Green	Blue	Purple	Orange	White	Black
Trustworthy	Yellow	Red	Green	Blue	Purple	Orange	White	Black

SECTION C: COLOUR ASSOCIATIONS (continued)

Please circle your relevant response.

Indicate to which level do you agree or disagree with the association assigned to each of the following colours (Rate every association next to each colour.)

Colour	Association	Strongly disagree	Disagree	Agree	Strongly agree
Yellow	Happiness	1	2	3	4
	Safety	1	2	3	4
	Danger	1	2	3	4
	Hope	1	2	3	4
	Warning	1	2	3	4
Red	Happiness	1	2	3	4
	Love	1	2	3	4
	Anger	1	2	3	4
	Sadness	1	2	3	4
	Danger	1	2	3	4
Green	Nature	1	2	3	4
	Health	1	2	3	4
	Poison	1	2	3	4
	Growth	1	2	3	4
	Jealousy	1	2	3	4
Blue	Calm	1	2	3	4
	Clean	1	2	3	4
	Trust	1	2	3	4
	Cold	1	2	3	4
	Bad luck	1	2	3	4

Colour	Association	Strongly disagree	Disagree	Agree	Strongly agree
Purple	Expensive	1	2	3	4
	Power	1	2	3	4
	Royal	1	2	3	4
	Creative	1	2	3	4
	Mystery	1	2	3	4
Orange	Cheerful	1	2	3	4
	Energetic	1	2	3	4
	Comfort	1	2	3	4
	Warning	1	2	3	4
	Danger	1	2	3	4
White	Pure	1	2	3	4
	Clean	1	2	3	4
	Peace	1	2	3	4
	Cold	1	2	3	4
	Death	1	2	3	4
Black	Powerful	1	2	3	4
	Expensive	1	2	3	4
	Stylish	1	2	3	4
	Death	1	2	3	4
	Unhappiness	1	2	3	4

SECTION C: COLOUR ASSOCIATIONS (continued)

Please circle your relevant response.

Rate each colour on the given scale to indicate how warm/cold, light/heavy, passive/active & soft/hard you perceive each of the colours.

Colour	Cold						Warm
Yellow	1	2	3	4	5	6	7
Red	1	2	3	4	5	6	7
Green	1	2	3	4	5	6	7
Blue	1	2	3	4	5	6	7
Purple	1	2	3	4	5	6	7
Orange	1	2	3	4	5	6	7
White	1	2	3	4	5	6	7
Black	1	2	3	4	5	6	7

Colour	Light						Heavy
Yellow	1	2	3	4	5	6	7
Red	1	2	3	4	5	6	7
Green	1	2	3	4	5	6	7
Blue	1	2	3	4	5	6	7
Purple	1	2	3	4	5	6	7
Orange	1	2	3	4	5	6	7
White	1	2	3	4	5	6	7
Black	1	2	3	4	5	6	7

Colour	Passive						Active
Yellow	1	2	3	4	5	6	7
Red	1	2	3	4	5	6	7
Green	1	2	3	4	5	6	7
Blue	1	2	3	4	5	6	7
Purple	1	2	3	4	5	6	7
Orange	1	2	3	4	5	6	7
White	1	2	3	4	5	6	7
Black	1	2	3	4	5	6	7

Colour	Soft						Hard
Yellow	1	2	3	4	5	6	7
Red	1	2	3	4	5	6	7
Green	1	2	3	4	5	6	7
Blue	1	2	3	4	5	6	7
Purple	1	2	3	4	5	6	7
Orange	1	2	3	4	5	6	7
White	1	2	3	4	5	6	7
Black	1	2	3	4	5	6	7

SECTION D: PRODUCT COLOUR PREFERENCES

Please circle your relevant response.

What is the probability of buying the following products if the product or product packaging were to be the colours mentioned in the table

Product	Colour	Almost never	Not likely	Likely	Highly likely
Milk carton	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Bar of hand soap	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Toothpaste tube	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4

Product	Colour	Almost never	Not likely	Likely	Highly likely
Chocolate bar wrapper	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Can of cold drink	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Alcoholic drink (bottle label)	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4

SECTION D: PRODUCT COLOUR PREFERENCES

Please circle your relevant response.

What is the probability of buying the following products if the product or product packaging were to be the colours mentioned in the table

Product	Colour	Almost never	Not likely	Likely	Highly likely
Formal shirt	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Informal T-shirt	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Formal shoes	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4

Product	Colour	Almost never	Not likely	Likely	Highly likely
Informal shoes	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Cell phone	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Motorcar	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4

APPENDIX B

FINAL QUESTIONNAIRE

RESEARCH QUESTIONAIRE

"Influence of colour on the consumer behaviour of Generation Y students in the Vaal Triangle."

This research study aims to:

- ✓ Determine the influence colour has on the consumer purchasing behaviour of students residing in the Vaal Triangle.
- ✓ To assess the colour preferences and associations between the different cultures in the Vaal Triangle.

Researcher:

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Tel: 016 910 3357
Fax: 016 910 3352
Rean.Muller@nwu.ac.za

SECTION A: DEMOGRAPHICAL INFORMATION
Please circle your relevant response.

1. Gender	Male	Female

2. Age	18	19	20	21	22	23	24	< 25

3. Race	Black	White	Coloured	Indian	Asian	Other:

4. Monthly expenses (Rent, groceries, clothes, entertainment, etc.)	less than R1000	R1000 – R2000	R2000 – R4000	more than R 4000

5. Can you distinguish between different colours? (Yellow, red, green, blue, purple, orange, white, black)	No	Partly	Yes

SECTION B: COLOUR RANKING

Listed below are eight colours. Please rate the colours on a scale from 1-8.

Allocate one number to each colour using the following ranking:

(1=favourite colour; 2=2nd favourite colour; 3=3rd favourite colour ; 4=4th favourite colour;

5=5th favourite colour, 6=6th favourite colour; 7=7th favourite colour, 8=least favourite colour).

Colour	Number (1-8)
Yellow	
Red	
Green	
Blue	
Purple	
Orange	
White	
Black	

SECTION C: COLOUR ASSOCIATIONS

Please circle your relevant response.

Indicate to which level do you agree or disagree with the association assigned to each of the following colours (Rate every association next to each colour.)

Colour	Association	Strongly disagree	Disagree	Agree	Strongly agree
Yellow	Happiness	1	2	3	4
	Safety	1	2	3	4
	Danger	1	2	3	4
	Hope	1	2	3	4
	Warning	1	2	3	4
Red	Happiness	1	2	3	4
	Love	1	2	3	4
	Anger	1	2	3	4
	Sadness	1	2	3	4
	Danger	1	2	3	4
Green	Nature	1	2	3	4
	Health	1	2	3	4
	Poison	1	2	3	4
	Growth	1	2	3	4
	Jealousy	1	2	3	4
Blue	Calm	1	2	3	4
	Clean	1	2	3	4
	Trust	1	2	3	4
	Cold	1	2	3	4
	Bad luck	1	2	3	4

Colour	Association	Strongly disagree	Disagree	Agree	Strongly agree
Purple	Expensive	1	2	3	4
	Power	1	2	3	4
	Royal	1	2	3	4
	Creative	1	2	3	4
	Mystery	1	2	3	4
Orange	Cheerful	1	2	3	4
	Energetic	1	2	3	4
	Comfort	1	2	3	4
	Warning	1	2	3	4
	Danger	1	2	3	4
White	Pure	1	2	3	4
	Clean	1	2	3	4
	Peace	1	2	3	4
	Cold	1	2	3	4
	Death	1	2	3	4
Black	Powerful	1	2	3	4
	Expensive	1	2	3	4
	Stylish	1	2	3	4
	Death	1	2	3	4
	Unhappiness	1	2	3	4

SECTION D: COLOUR PERCEPTIONS

Please circle your relevant response.

Rate each colour on the given scale from 1 - 7 to indicate how inexpensive/expensive, low quality/ high quality, cold/warm, light/heavy, passive/active and soft/hard you perceive each colour.

Colour	Inexpensive						Expensive
Yellow	1	2	3	4	5	6	7
Red	1	2	3	4	5	6	7
Green	1	2	3	4	5	6	7
Blue	1	2	3	4	5	6	7
Purple	1	2	3	4	5	6	7
Orange	1	2	3	4	5	6	7
White	1	2	3	4	5	6	7
Black	1	2	3	4	5	6	7

Colour	Light						Heavy
Yellow	1	2	3	4	5	6	7
Red	1	2	3	4	5	6	7
Green	1	2	3	4	5	6	7
Blue	1	2	3	4	5	6	7
Purple	1	2	3	4	5	6	7
Orange	1	2	3	4	5	6	7
White	1	2	3	4	5	6	7
Black	1	2	3	4	5	6	7

Colour	Low quality						High quality
Yellow	1	2	3	4	5	6	7
Red	1	2	3	4	5	6	7
Green	1	2	3	4	5	6	7
Blue	1	2	3	4	5	6	7
Purple	1	2	3	4	5	6	7
Orange	1	2	3	4	5	6	7
White	1	2	3	4	5	6	7
Black	1	2	3	4	5	6	7

Colour	Soft						Hard
Yellow	1	2	3	4	5	6	7
Red	1	2	3	4	5	6	7
Green	1	2	3	4	5	6	7
Blue	1	2	3	4	5	6	7
Purple	1	2	3	4	5	6	7
Orange	1	2	3	4	5	6	7
White	1	2	3	4	5	6	7
Black	1	2	3	4	5	6	7

Colour	Cold						Warm
Yellow	1	2	3	4	5	6	7
Red	1	2	3	4	5	6	7
Green	1	2	3	4	5	6	7
Blue	1	2	3	4	5	6	7
Purple	1	2	3	4	5	6	7
Orange	1	2	3	4	5	6	7
White	1	2	3	4	5	6	7
Black	1	2	3	4	5	6	7

Colour	Passive						Active
Yellow	1	2	3	4	5	6	7
Red	1	2	3	4	5	6	7
Green	1	2	3	4	5	6	7
Blue	1	2	3	4	5	6	7
Purple	1	2	3	4	5	6	7
Orange	1	2	3	4	5	6	7
White	1	2	3	4	5	6	7
Black	1	2	3	4	5	6	7

SECTION E: PRODUCT PACKAGE COLOUR PREFERENCES

Please circle your relevant response.

What is the probability of buying the following products if the <u>product packaging</u> were to be the colours mentioned in the table?

Product	Colour	Almost never	Not likely	Likely	Highly likely
Milk carton	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Bar of hand soap	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Toothpaste tube	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4

Product	Colour	Almost never	Not likely	Likely	Highly likely
Chocolate bar wrapper	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Can of cold drink	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Alcoholic drink (bottle label)	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4

SECTION F: PRODUCT COLOUR PREFERENCES

Please circle your relevant response.

What is the probability of buying the following products if the <u>product</u> were to be the colours mentioned in the table?

Product	Colour	Almost never	Not likely	Likely	Highly likely
Formal shirt	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Informal T-shirt	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Formal shoes	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4

Product	Colour	Almost never	Not likely	Likely	Highly likely
Informal shoes	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Cell phone	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4
Motorcar	Yellow	1	2	3	4
	Red	1	2	3	4
	Green	1	2	3	4
	Blue	1	2	3	4
	Purple	1	2	3	4
	Orange	1	2	3	4
	White	1	2	3	4
	Black	1	2	3	4

SECTION G: CONSUMER BEHAVIOUR

Please circle your relevant response.

	When buying the listed products:					
	1. Do you plan beforehand or buy on impulse?		2. Do you prefer a specific brand or any brand?		3. Is quality or price more important?	
a) Milk	Plan	Impulse	Specific	Any	Quality	Price
b) Hand Soap	Plan	Impulse	Specific	Any	Quality	Price
c) Toothpaste	Plan	Impulse	Specific	Any	Quality	Price
d) Chocolate	Plan	Impulse	Specific	Any	Quality	Price
e) Cold drink	Plan	Impulse	Specific	Any	Quality	Price
f) Alcohol	Plan	Impulse	Specific	Any	Quality	Price
g) Clothes	Plan	Impulse	Specific	Any	Quality	Price
h) Shoes	Plan	Impulse	Specific	Any	Quality	Price
i) Cellphone	Plan	Impulse	Specific	Any	Quality	Price

THANK YOU FOR YOUR TIME

APPENDIX C

CODING

Table C1 Coding

Section A: Demographical data			
Question	**Code**	**Variable**	**Value assigned to responses**
1	A1	Gender	Male (1) , Female (2)
2	A2	Age	18 (1), 19 (2), 20 (3), 21 (4), 22 (5), 23 (6), 24 (7), >25 (8)
3	A3	Designated group	Black (1), White (2), Coloured (3), Indian (4), Asian (5)
4	A4	Monthly expenses	< R1000 (1), R1000 – R2000 (2), R2000 – R4000 (3) > R4000 (4)
5	A5	Distinguish colours	Yes (1), Partly (2), No (3)

Section B: Colour ranking			
Question	**Code**	**Construct measured**	**Value assigned to responses**
1	R_Yellow	Ranking	(1) – (8) ranking
	R_Red	Ranking	(1) – (8) ranking
	R_Green	Ranking	(1) – (8) ranking
	R_Blue	Ranking	(1) – (8) ranking
	R_Purple	Ranking	(1) – (8) ranking
	R_Orange	Ranking	(1) – (8) ranking
	R_White	Ranking	(1) – (8) ranking
	R_Black	Ranking	(1) – (8) ranking

Section C: Colour associations			
Question	**Code**	**Colour association**	**Value assigned to responses**
1	**C1**	**Yellow**	
	C1_A	Happiness	Strongly disagree (1)
	C1_B	Safety	Disagree (2)
	C1_C	Danger	Agree (3)
	C1_D	Hope	Strongly agree (4)
	C1_E	Warning	

Section C: Colour associations			
Question	**Code**	**Colour association**	**Value assigned to responses**
2	**C2**	**Red**	
	C2_A	Happiness	Strongly disagree (1)
	C2_B	Love	Disagree (2)
	C2_C	Anger	Agree (3)
	C2_D	Sadness	Strongly agree (4)
	C2_E	Danger	
3	**C3**	**Green**	
	C3_A	Nature	Strongly disagree (1)
	C3_B	Health	Disagree (2)
	C3_C	Poison	Agree (3)
	C3_D	Growth	Strongly agree (4)
	C3_E	Jealousy	
4	**C4**	**Blue**	
	C4_A	Calm	Strongly disagree (1)
	C4_B	Clean	Disagree (2)
	C4_C	Trust	Agree (3)
	C4_D	Cold	Strongly agree (4)
	C4_E	Bad luck	
5	**C5**	**Purple**	
	C5_A	Expensive	Strongly disagree (1)
	C5_B	Power	Disagree (2)
	C5_C	Royal	Agree (3)
	C5_D	Creative	Strongly agree (4)
	C5_E	Mystery	

Section C: Colour associations			
Question	**Code**	**Colour association**	**Value assigned to responses**
6	**C6**	**Orange**	
	C6_A	Cheerful	Strongly disagree (1)
	C6_B	Energetic	Disagree (2)
	C6_C	Comfort	Agree (3)
	C6_D	Warning	Strongly agree (4)
	C6_E	Danger	
7	**C7**	**White**	
	C7_A	Pure	Strongly disagree (1)
	C7_B	Clean	Disagree (2)
	C7_C	Peace	Agree (3)
	C7_D	Cold	Strongly agree (4)
	C7_E	Death	
8	**C8**	**Black**	
	C8_A	Powerful	Strongly disagree (1)
	C8_B	Expensive	Disagree (2)
	C8_C	Stylish	Agree (3)
	C8_E	Death	Strongly agree (4)
	C8_D	Unhappiness	

Section D: Colour perception			
Question	**Code**	**Colour**	**Value assigned to responses**
1	D1	Yellow	(1) – (7), 1 more inexpensive, 7 more expensive
2	D2	Red	(1) – (7), 1 more inexpensive, 7 more expensive
3	D3	Green	(1) – (7), 1 more inexpensive, 7 more expensive
4	D4	Blue	(1) – (7), 1 more inexpensive, 7 more expensive
5	D5	Purple	(1) – (7), 1 more inexpensive, 7 more expensive
6	D6	Orange	(1) – (7), 1 more inexpensive, 7 more expensive

Section D: Colour perception			
Question	**Code**	**Colour**	**Value assigned to responses**
7	D7	White	(1) – (7), 1 more inexpensive, 7 more expensive
8	D8	Black	(1) – (7), 1 more inexpensive, 7 more expensive
9	D9	Yellow	(1) – (7), 1 lower quality, 7 more higher quality
10	D10	Red	(1) – (7), 1 lower quality, 7 more higher quality
11	D11	Green	(1) – (7), 1 lower quality, 7 more higher quality
12	D12	Blue	(1) – (7), 1 lower quality, 7 more higher quality
13	D13	Purple	(1) – (7), 1 lower quality, 7 more higher quality
14	D14	Orange	(1) – (7), 1 lower quality, 7 more higher quality
15	D15	White	(1) – (7), 1 lower quality, 7 more higher quality
16	D16	Black	(1) – (7), 1 lower quality, 7 more higher quality
17	D17	Yellow	(1) – (7), 1 colder, 7 warmer
18	D18	Red	(1) – (7), 1 colder, 7 warmer
19	D19	Green	(1) – (7), 1 colder, 7 warmer
20	D20	Blue	(1) – (7), 1 colder, 7 warmer
21	D21	Purple	(1) – (7), 1 colder, 7 warmer
22	D22	Orange	(1) – (7), 1 colder, 7 warmer
23	D23	White	(1) – (7), 1 colder, 7 warmer
24	D24	Black	(1) – (7), 1 colder, 7 warmer
25	D25	Yellow	(1) – (7), 1 lighter, 7 heavier
26	D26	Red	(1) – (7), 1 lighter, 7 heavier
27	D27	Green	(1) – (7), 1 lighter, 7 heavier
28	D28	Blue	(1) – (7), 1 lighter, 7 heavier
29	D29	Purple	(1) – (7), 1 lighter, 7 heavier
30	D30	Orange	(1) – (7), 1 lighter, 7 heavier
31	D31	White	(1) – (7), 1 lighter, 7 heavier
32	D32	Black	(1) – (7), 1 lighter, 7 heavier

Section D: Colour perception

Question	Code	Colour	Value assigned to responses
33	D33	Yellow	(1) – (7), 1 softer, 7 harder
34	D34	Red	(1) – (7), 1 softer, 7 harder
35	D35	Green	(1) – (7), 1 softer, 7 harder
36	D36	Blue	(1) – (7), 1 softer, 7 harder
37	D37	Purple	(1) – (7), 1 softer, 7 harder
38	D38	Orange	(1) – (7), 1 softer, 7 harder
39	D39	White	(1) – (7), 1 softer, 7 harder
40	D40	Black	(1) – (7), 1 softer, 7 harder
41	D41	Yellow	(1) – (7), 1 more passive, 7 more active
42	D42	Red	(1) – (7), 1 more passive, 7 more active
43	D43	Green	(1) – (7), 1 more passive, 7 more active
44	D44	Blue	(1) – (7), 1 more passive, 7 more active
45	D45	Purple	(1) – (7), 1 more passive, 7 more active
46	D46	Orange	(1) – (7), 1 more passive, 7 more active
47	D47	White	(1) – (7), 1 more passive, 7 more active
48	D48	Black	(1) – (7), 1 more passive, 7 more active

Section E: Product package colour preference

Question	Code	Package Colour	Value assigned to responses
1	**E1**	**Milk carton**	
	E1_A	Yellow	Almost never (1)
	E1_B	Red	Not likely (2)
	E1_C	Green	Likely (3)
	E1_D	Blue	Highly likely (4)
	E1_E	Purple	
	E1_F	Orange	

Section E: Product package colour preference			
Question	**Code**	**Package Colour**	**Value assigned to responses**
	E1_G	White	
	E1_H	Black	
2	**E2**	**Bar of hand soap**	
	E2_A	Yellow	Almost never (1)
	E2_B	Red	Not likely (2)
	E2_C	Green	Likely (3)
	E2_D	Blue	Highly likely (4)
	E2_E	Purple	
	E2_F	Orange	
	E2_G	White	
	E2_H	Black	
3	**E3**	**Toothpaste tube**	
	E3_A	Yellow	Almost never (1)
	E3_B	Red	Not likely (2)
	E3_C	Green	Likely (3)
	E3_D	Blue	Highly likely (4)
	E3_E	Purple	
	E3_F	Orange	
	E3_G	White	
	E3_H	Black	
4	**E4**	**Chocolate bar wrapper**	
	E4_A	Yellow	Almost never (1)
	E4_B	Red	Not likely (2)
	E4_C	Green	Likely (3)
	E4_D	Blue	Highly likely (4)
	E4_E	Purple	

Section E: Product package colour preference			
Question	**Code**	**Package Colour**	**Value assigned to responses**
	E4_F	Orange	
	E4_G	White	
	E4_H	Black	
5	**E5**	**Can of cold drink**	
	E5_A	Yellow	Almost never (1)
	E5_B	Red	Not likely (2)
	E5_C	Green	Likely (3)
	E5_D	Blue	Highly likely (4)
	E5_E	Purple	
	E5_F	Orange	
	E5_G	White	
	E5_H	Black	
6	**E6**	**Alcoholic drink (bottle label)**	
	E6_A	Yellow	Almost never (1)
	E6_B	Red	Not likely (2)
	E6_C	Green	Likely (3)
	E6_D	Blue	Highly likely (4)
	E6_E	Purple	
	E6_F	Orange	
	E6_G	White	
	E6_H	Black	

Section F: Product colour preference			
Question	**Code**	**Product Colour**	**Value assigned to responses**
1	**F1**	**Formal shirt**	
	F1_A	Yellow	Almost never (1)

Section F: Product colour preference			
Question	**Code**	**Product Colour**	**Value assigned to responses**
	F1_B	Red	Not likely (2) Likely (3) Highly likely (4)
	F1_C	Green	
	F1_D	Blue	
	F1_E	Purple	
	F1_F	Orange	
	F1_G	White	
	F1_H	Black	
2	**F2**	**T-shirt**	
	F2_A	Yellow	Almost never (1)
	F2_B	Red	Not likely (2)
	F2_C	Green	Likely (3)
	F2_D	Blue	Highly likely (4)
	F2_E	Purple	
	F2_F	Orange	
	F2_G	White	
	F2_H	Black	
3	**F3**	**Formal shoes**	
	F3_A	Yellow	Almost never (1)
	F3_B	Red	Not likely (2)
	F3_C	Green	Likely (3)
	F3_D	Blue	Highly likely (4)
	F3_E	Purple	
	F3_F	Orange	
	F3_G	White	
	F3_H	Black	

Section F: Product colour preference			
Question	**Code**	**Product Colour**	**Value assigned to responses**
4	**F4**	**Informal shoes**	
	F4_A	Yellow	Almost never (1)
	F4_B	Red	Not likely (2)
	F4_C	Green	Likely (3)
	F4_D	Blue	Highly likely (4)
	F4_E	Purple	
	F4_F	Orange	
	F4_G	White	
	F4_H	Black	
5	**F5**	**Cellphone**	
	F5_A	Yellow	Almost never (1)
	F5_B	Red	Not likely (2)
	F5_C	Green	Likely (3)
	F5_D	Blue	Highly likely (4)
	F5_E	Purple	
	F5_F	Orange	
	F5_G	White	
	F5_H	Black	
6	**F6**	**Motorcar**	
	F6_A	Yellow	Almost never (1)
	F6_B	Red	Not likely (2)
	F6_C	Green	Likely (3)
	F6_D	Blue	Highly likely (4)
	F6_E	Purple	
	F6_F	Orange	
	F6_G	White	
	F6_H	Black	

Section G: Consumer behaviour			
Question	**Code**	**Product**	**Value assigned to responses**
1	G1_A	Milk	Planned (1), Impulsive (2)
	G1_B	Hand soap	Planned (1), Impulsive (2)
	G1_C	Toothpaste	Planned (1), Impulsive (2)
	G1_D	Chocolate	Planned (1), Impulsive (2)
	G1_E	Cold drink	Planned (1), Impulsive (2)
	G1_F	Alcohol	Planned (1), Impulsive (2)
	G1_G	Clothes	Planned (1), Impulsive (2)
	G1_H	Shoes	Planned (1), Impulsive (2)
	G1_I	Cellphone	Planned (1), Impulsive (2)
2	G2_A	Milk	Specific (1), Any (2)
	G2_B	Hand soap	Specific (1), Any (2)
	G2_C	Toothpaste	Specific (1), Any (2)
	G2_D	Chocolate	Specific (1), Any (2)
	G2_E	Cold drink	Specific (1), Any (2)
	G2_F	Alcohol	Specific (1), Any (2)
	G2_G	Clothes	Specific (1), Any (2)
	G2_H	Shoes	Specific (1), Any (2)
	G2_I	Cellphone	Specific (1), Any (2)
3	G3_A	Milk	Quality (1), Price (2)
	G3_B	Hand soap	Quality (1), Price (2)
	G3_C	Toothpaste	Quality (1), Price (2)
	G3_D	Chocolate	Quality (1), Price (2)
	G3_E	Cold drink	Quality (1), Price (2)
	G3_F	Alcohol	Quality (1), Price (2)
	G3_G	Clothes	Quality (1), Price (2)
	G3_H	Shoes	Quality (1), Price (2)
	G3_I	Cellphone	Quality (1), Price (2)

APPENDIX D

FREQUENCY TABLES

Table D1 Frequency table of responses for Section B

	Scale items							
Ranking	**Yellow**	**Red**	**Green**	**Blue**	**Purple**	**Orange**	**White**	**Black**
1	35	60	38	110	91	31	42	72
2	33	51	48	77	63	21	45	64
3	31	56	52	58	48	24	65	55
4	47	80	60	53	31	34	62	34
5	54	47	50	29	48	44	52	47
6	37	43	57	30	33	71	50	40
7	69	38	58	25	42	71	47	39
8	97	29	40	22	47	107	40	53
Missing	6	5	6	6	6	6	6	5

Table D2 Frequency table of responses for Section C, Question 1 (Yellow)

	Happiness	**Safety**	**Danger**	**Hope**	**Warning**
Strongly disagree	41	73	276	40	164
Disagree	50	130	88	79	106
Agree	171	168	30	228	81
Strongly agree	147	38	15	62	58

Table D3 Frequency table of responses for Section C, Question 2 (Red)

	Happiness	**Love**	**Anger**	**Sadness**	**Danger**
Strongly disagree	101	11	45	163	22
Disagree	119	12	62	148	20
Agree	116	87	106	65	73
Strongly agree	73	299	196	33	294

Table D4 Frequency table of responses for Section C, Question 3 (Green)

	Nature	Health	Poison	Growth	Jealousy
Strongly disagree	8	20	115	21	121
Disagree	6	52	153	78	131
Agree	30	141	87	137	74
Strongly agree	365	196	54	173	83

Table D5 Frequency table of responses for Section C, Question 4 (Blue)

	Calm	Clean	Trust	Cold	Bad luck
Strongly disagree	13	11	25	42	300
Disagree	35	59	111	57	83
Agree	154	149	163	128	13
Strongly agree	207	190	110	182	13

Table D6 Frequency table of responses for Section C, Question 5 (Purple)

	Expensive	Power	Royal	Creative	Mystery
Strongly disagree	66	48	32	23	50
Disagree	120	134	83	84	111
Agree	105	135	132	177	141
Strongly agree	118	92	162	125	107

Table D7 Frequency table of responses for Section C, Question 6 (Orange)

	Cheerful	Energetic	Comfort	Warning	Danger
Strongly disagree	35	18	38	112	212
Disagree	70	93	157	140	128
Agree	179	179	157	103	49
Strongly agree	125	119	57	54	20

Table D8 Frequency table of responses for Section C, Question 7 (White)

	Pure	Clean	Peace	Cold	Death
Strongly disagree	9	6	4	130	285
Disagree	8	8	8	137	56
Agree	44	53	67	76	36
Strongly agree	348	342	330	66	32

Table D9 Frequency table of responses for Section C, Question 8 (Black)

	Powerful	Expensive	Stylish	Death	Unhappiness
Strongly disagree	51	53	40	34	46
Disagree	46	125	82	30	55
Agree	103	99	130	67	91
Strongly agree	209	132	157	278	217

Table D10 Mean values for Section D

	Inexpensive / Expensive	Low quality / High quality	Cold / Warm	Light / Heavy	Soft / Hard	Passive / Active
Yellow	3.32	3.35	4.44	2.14	2.18	3.96
Red	4.77	5.09	5.56	4.85	4.74	5.24
Green	3.99	4.32	4.16	3.83	3.78	4.27
Blue	4.73	5.09	3.56	4.04	3.65	4.51
Purple	5.12	5.21	4.31	4.85	4.34	4.41
Orange	3.51	3.8	4.6	3.46	3.46	4.32
White	4.93	5.46	3.7	2.34	2.06	4.63

Table D11 Frequency table of responses for Section E, Question 1 (Milk carton)

	Almost never	Not likely	Likely	Highly likely
Yellow	150	125	100	34
Red	155	114	103	37
Green	100	105	145	59
Blue	43	62	171	133
Purple	181	111	65	52
Orange	180	135	75	19
White	9	17	88	295
Black	254	61	43	51

Table D12 Frequency table of responses for Section E, Question 2 (Bar of hand soap)

	Almost never	Not likely	Likely	Highly likely
Yellow	46	46	170	147
Red	107	107	126	66
Green	40	51	133	185
Blue	21	50	139	199
Purple	106	111	92	100
Orange	112	107	118	72
White	16	31	87	275
Black	312	45	27	25

Table D13 Frequency table of responses for Section E, Question 3 (Toothpaste tube)

	Almost never	Not likely	Likely	Highly likely
Yellow	135	121	106	47
Red	77	89	149	94
Green	56	76	157	120
Blue	34	39	146	190
Purple	169	141	64	35
Orange	158	125	91	35
White	28	27	73	281
Black	314	43	24	28

Table D14 Frequency table of responses for Section E, Question 4 (Chocolate bar wrapper)

	Almost never	Not likely	Likely	Highly likely
Yellow	124	103	118	64
Red	62	71	151	125
Green	98	130	120	61
Blue	50	86	147	126
Purple	58	91	115	145
Orange	116	141	103	49
White	90	80	116	123
Black	127	69	94	119

Table D15 Frequency table of responses for Section E, Question 5 (Can of cold drink)

	Almost never	Not likely	Likely	Highly likely
Yellow	129	89	123	68
Red	18	46	125	220
Green	39	90	157	123
Blue	47	114	130	118
Purple	91	111	104	103
Orange	55	74	155	125
White	169	110	71	59
Black	142	77	91	99

Table D16 Frequency table of responses for Section E, Question 6 (Alcoholic drink)

	Almost never	Not likely	Likely	Highly likely
Yellow	221	109	50	29
Red	78	61	137	133
Green	105	86	100	118
Blue	103	84	123	99
Purple	142	100	73	94
Orange	186	121	63	39
White	180	85	63	81
Black	104	40	83	182

Table D17 Frequency table of responses for Section F, Question 1 (Formal shirt)

	Almost never	Not likely	Likely	Highly likely
Yellow	202	109	61	37
Red	84	82	139	104
Green	124	126	112	47
Blue	22	49	156	182
Purple	69	60	125	155
Orange	215	126	34	34
White	12	12	44	341
Black	7	18	46	338

Table D18 Frequency table of responses for Section F, Question 2 (T-shirt)

	Almost never	Not likely	Likely	Highly likely
Yellow	90	82	120	117
Red	27	40	158	184
Green	49	73	143	144
Blue	17	25	123	244
Purple	34	60	108	207
Orange	103	122	83	101
White	20	33	80	276
Black	18	29	67	295

Table D19 Frequency table of responses for Section F, Question 3 (Formal shoes)

	Almost never	Not likely	Likely	Highly likely
Yellow	322	53	23	11
Red	221	68	66	54
Green	291	84	27	7
Blue	207	78	73	51
Purple	207	75	61	66
Orange	305	76	25	3
White	83	49	82	195
Black	9	4	17	379

Table D20 Frequency table of responses for Section F, Question 4 (Informal shoes)

	Almost never	Not likely	Likely	Highly likely
Yellow	152	83	113	61
Red	76	79	146	108
Green	116	117	114	62
Blue	52	46	165	146
Purple	84	79	120	126
Orange	172	113	78	46
White	35	43	105	226
Black	16	23	61	309

Table D21 Frequency table of responses for Section F, Question 5 (Cellphone)

	Almost never	Not likely	Likely	Highly likely
Yellow	252	83	43	31
Red	89	62	131	127
Green	180	113	66	50
Blue	74	70	134	131
Purple	90	74	91	154
Orange	215	110	52	32
White	51	51	87	220
Black	13	5	34	357

Table D22 Frequency table of responses for Section F, Question 6 (Motorcar)

	Almost never	Not likely	Likely	Highly likely
Yellow	236	67	62	44
Red	39	21	120	229
Green	170	98	88	53
Blue	37	45	151	176
Purple	175	106	70	58
Orange	223	85	46	55
White	32	27	76	274
Black	12	13	19	365

Table D23 Frequency table of responses for Section G

	Plan	Impulse	Specific	Any	Quality	Price
Milk	228	188	296	120	314	102
Hand soap	249	167	292	124	261	155
Toothpaste	283	133	344	72	306	110
Chocolate	109	307	249	167	235	181
Cold drink	108	308	257	159	218	198
Alcohol	197	219	329	87	194	222
Clothes	318	98	276	140	318	98
Shoes	326	90	273	143	327	89

APPENDIX E

T-TEST RESULTS

Table E1: Colour ranking T-test (Male/Female comparison)

	Male			Female					
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Yellow	156	3.53	2.23	250	3.83	2.372	-1.295	.196	
Red	157	5.41	2.07	250	4.63	2.094	3.652	.000*	0.372
Green	156	4.67	2.10	250	4.31	2.213	1.649	.100	
Blue	156	5.97	2.20	251	5.57	2.135	1.856	.064	
Purple	156	3.84	2.35	250	5.80	2.193	-8.537	.000*	0.834
Orange	156	3.59	2.21	250	3.20	2.209	1.747	.081	
White	156	4.63	2.23	250	4.58	2.110	.219	.827	
Black	156	5.13	2.43	251	4.70	2.412	1.747	.081	

* $p < 0.05$ (Level of statistical significance)

Table E2: Colour ranking T-test (Black/White comparison)

	Black			White					
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Yellow	315	3.84	2.354	77	2.99	2.003	2.946	.003	
Red	316	4.85	2.145	77	5.08	2.005	-.830	.407	
Green	315	4.21	2.183	77	5.38	1.871	-4.306	.000*	0.536
Blue	316	5.57	2.258	77	6.19	1.725	-2.284	.023	
Purple	315	5.13	2.424	77	4.84	2.540	.909	.364	
Orange	315	3.42	2.283	77	3.19	1.947	.805	.421	
White	315	4.72	2.201	77	4.18	1.931	1.982	.048	
Black	316	5.05	2.402	77	4.18	2.366	2.864	.004*	0.368

* $p < 0.05$ (Level of significance)

Table E3: Colour association T-test (Male/Female comparison)

	Male			Female					
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Yellow									
Happiness	159	2.91	.940	254	3.12	.935	-2.284	.023	
Safety	159	2.43	.911	254	2.42	.880	.185	.854	
Danger	159	1.57	.845	254	1.43	.765	1.826	.069	
Hope	159	2.69	.826	254	2.80	.822	-1.290	.198	
Warning	159	2.25	1.129	254	2.00	1.046	2.212	.028	
Red									
Happiness	159	2.34	1.054	254	2.44	1.034	-.962	.337	
Love	159	3.46	.801	254	3.77	.536	-4.747	.000*	0.387
Anger	159	3.16	1.043	254	3.08	1.028	.774	.440	
Sadness	159	2.01	.997	254	1.86	.890	1.528	.127	
Danger	159	3.60	.796	254	3.54	.813	.742	.459	
Green									
Nature	159	3.79	.599	254	3.86	.496	-1.398	.163	
Health	159	3.22	.839	254	3.29	.871	-.774	.439	
Poison	159	2.18	.973	254	2.19	1.001	-.105	.916	
Growth	159	2.99	.924	254	3.20	.879	-2.327	.020	
Jealousy	159	2.14	1.046	254	2.40	1.123	-2.344	.020	
Blue									
Calm	159	3.35	.787	254	3.37	.762	-.259	.796	
Clean	159	3.28	.789	254	3.24	.827	.474	.636	
Trust	159	2.86	.885	254	2.88	.883	-.253	.800	
Cold	159	3.11	.972	254	3.09	.997	.124	.901	
Bad luck	159	1.38	.673	254	1.36	.723	.356	.722	
Purple									
Expensive	159	2.52	1.030	254	2.77	1.062	-2.314	.021	
Power	159	2.37	.918	254	2.87	.924	-5.397	.000*	0.541
Royal	159	2.68	.983	254	3.27	.862	-6.394	.000*	0.600
Creative	159	2.82	.853	254	3.09	.848	-3.055	.002*	0.317
Mystery	159	2.72	.941	254	2.76	.999	-.370	.711	
Orange									
Cheerful	159	2.84	.899	254	3.05	.901	-2.315	.021	
Energetic	159	2.89	.871	254	3.03	.805	-1.722	.086	
Comfort	159	2.58	.821	254	2.57	.872	.208	.835	
Warming	159	2.27	.979	254	2.23	1.007	.418	.676	
Danger	159	1.84	.892	254	1.63	.846	2.319	.021	

	Male			Female				
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
White									
Pure	159	3.69	.656	254	3.85	.522	-2.649	.008	
Clean	159	3.71	.620	254	3.82	.499	-2.021	.044	
Peace	159	3.65	.676	254	3.83	.416	-3.405	.001*	0.266
Cold	159	2.27	1.065	254	2.13	1.047	1.281	.201	
Death	159	1.55	.905	254	1.55	.976	-.042	.967	
Black									
Powerful	159	3.24	.938	254	3.10	1.111	1.326	.185	
Expensive	159	2.86	.958	254	2.69	1.085	1.607	.109	
Stylish	159	2.91	.964	254	3.05	.993	-1.363	.174	
Death	159	3.33	.972	254	3.52	.910	-1.931	.054	
Unhappiness	159	3.13	1.011	254	3.19	1.069	-.597	.551	

* p < 0.05 (Level of statistical significance)

Table E4: Colour association T-test (Black/White comparison)

	Black			White				
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Yellow									
Happiness	321	3.09	.893	78	2.78	1.077	2.648	.008	
Safety	321	2.50	.870	78	2.14	.879	3.248	.001*	0.41
Danger	321	1.43	.768	78	1.63	.808	-2.025	.044	
Hope	321	2.85	.776	78	2.38	.943	4.549	.000*	0.498
Warning	321	2.09	1.095	78	2.04	1.012	.358	.721	
Red									
Happiness	321	2.39	1.040	78	2.40	1.061	-.061	.951	
Love	321	3.64	.670	78	3.64	.683	.008	.993	
Anger	321	3.05	1.051	78	3.37	.884	-2.499	.013	
Sadness	321	2.02	.935	78	1.49	.769	4.651	.000*	0.567
Danger	321	3.59	.794	78	3.46	.848	1.221	.223	
Green									
Nature	321	3.83	.552	78	3.85	.486	-.257	.798	
Health	321	3.30	.823	78	3.18	.936	1.090	.276	
Poison	321	2.17	.953	78	2.21	1.085	-.298	.766	
Growth	321	3.12	.894	78	3.18	.849	-.547	.585	
Jealousy	321	2.11	1.031	78	3.00	1.093	-6.743	.000*	0.814

	Black			White					
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Blue									
Calm	321	3.30	.765	78	3.62	.707	-3.323	.001*	0.418
Clean	321	3.25	.768	78	3.38	.929	-1.307	.192	
Trust	321	2.87	.855	78	2.90	.961	-.227	.820	
Cold	321	3.05	.992	78	3.36	.897	-2.512	.012	
Bad luck	321	1.39	.703	78	1.22	.617	1.976	.049	
Purple									
Expensive	321	2.72	1.032	78	2.60	1.121	.883	.378	
Power	321	2.66	.918	78	2.82	1.078	-1.307	.192	
Royal	321	3.00	.944	78	3.24	.928	-2.025	.044	
Creative	321	3.02	.827	78	2.91	.942	1.039	.299	
Mystery	321	2.74	.955	78	2.74	1.074	-.043	.966	
Orange									
Cheerful	321	3.04	.826	78	2.72	1.127	2.863	.004*	0.284
Energetic	321	3.00	.783	78	2.85	1.007	1.467	.143	
Comfort	321	2.68	.809	78	2.19	.869	4.726	.000*	0.564
Warming	321	2.22	1.008	78	2.37	.968	-1.192	.234	
Danger	321	1.62	.824	78	2.06	.985	-4.073	.000*	0.447
White									
Pure	321	3.77	.593	78	3.82	.575	-.644	.520	
Clean	321	3.77	.552	78	3.83	.545	-.964	.336	
Peace	321	3.77	.520	78	3.71	.605	.995	.321	
Cold	321	2.17	1.016	78	2.18	1.148	-.038	.970	
Death	321	1.55	.948	78	1.47	.879	.679	.497	
Black									
Powerful	321	3.26	.975	78	2.69	1.199	4.413	.000*	0.475
Expensive	321	2.82	1.012	78	2.54	1.125	2.151	.032	
Stylish	321	2.99	.968	78	3.08	1.029	-.722	.471	
Death	321	3.45	.918	78	3.36	1.057	.776	.438	
Unhappiness	321	3.19	1.012	78	2.94	1.199	1.939	.053	

* $p < 0.05$ (Level of statistical significance)

Table E5: Product package colour preference T-test (Male/Female comparison)

	Male			Female					
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Milk carton									
Yellow	159	1.90	.922	254	2.13	.991	-2.361	.019	
Red	159	2.08	1.010	254	2.04	.989	.358	.721	
Green	159	2.45	.985	254	2.36	1.027	.886	.376	
Blue	159	2.94	.943	254	2.98	.951	-.385	.700	
Purple	159	1.82	.911	254	2.04	1.113	-2.048	.041	
Orange	159	1.77	.843	254	1.86	.900	-1.024	.307	
White	159	3.70	.591	254	3.59	.727	1.719	.086	
Black	159	1.90	1.148	254	1.61	1.007	2.689	.007	
Bar of hand soap									
Yellow	159	2.97	.927	254	3.05	.971	-.791	.429	
Red	159	2.43	1.022	254	2.32	1.055	1.054	.292	
Green	159	3.25	.855	254	3.07	1.033	1.822	.069	
Blue	159	3.25	.877	254	3.28	.852	-.438	.661	
Purple	159	2.38	1.077	254	2.49	1.148	-1.012	.312	
Orange	159	2.47	1.048	254	2.31	1.082	1.486	.138	
White	159	3.47	.753	254	3.56	.821	-1.164	.245	
Black	159	1.62	.998	254	1.30	.737	3.778	.000*	0.321
Toothpaste tube									
Yellow	159	2.07	.988	254	2.21	1.029	-1.361	.174	
Red	159	2.68	.957	254	2.59	1.077	.887	.376	
Green	159	2.77	.948	254	2.86	1.033	-.875	.382	
Blue	159	3.03	.987	254	3.33	.849	-3.341	.001*	0.304
Purple	159	1.84	.863	254	1.96	.995	-1.256	.210	
Orange	159	2.06	.943	254	1.97	.994	.894	.372	
White	159	3.38	.986	254	3.55	.827	-1.859	.064	
Black	159	1.62	.998	254	1.30	.768	3.703	.000*	0.321

	Male			Female					
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Chocolate bar wrapper									
Yellow	159	2.38	1.101	254	2.24	1.045	1.272	.204	
Red	159	2.87	.982	254	2.80	1.061	.659	.510	
Green	159	2.47	1.005	254	2.28	.996	1.839	.067	
Blue	159	2.89	.961	254	2.85	1.018	.361	.718	
Purple	159	2.81	1.052	254	2.86	1.076	-.493	.622	
Orange	159	2.33	.998	254	2.13	.974	2.085	.038	
White	159	2.86	1.064	254	2.53	1.144	2.965	.003*	0.288
Black	159	2.74	1.160	254	2.35	1.206	3.227	.001*	0.323
Can of cold drink									
Yellow	159	2.32	1.104	254	2.32	1.080	.017	.987	
Red	159	3.34	.848	254	3.32	.856	.195	.846	
Green	159	2.99	.868	254	2.83	.984	1.671	.095	
Blue	159	2.91	.973	254	2.71	.991	1.980	.048	
Purple	159	2.35	1.055	254	2.65	1.104	-2.731	.007	
Orange	159	2.91	.953	254	2.83	1.041	.774	.440	
White	159	2.16	1.088	254	1.97	1.063	1.740	.083	
Black	159	2.48	1.141	254	2.27	1.210	1.776	.076	
Alcoholic drink									
Yellow	159	1.65	.900	254	1.78	.962	-1.280	.201	
Red	159	2.64	1.105	254	2.89	1.080	-2.311	.021	
Green	159	2.59	1.170	254	2.56	1.154	.308	.759	
Blue	159	2.53	1.124	254	2.53	1.113	.007	.995	
Purple	159	2.01	1.088	254	2.46	1.178	-3.960	.000*	0.382
Orange	159	1.85	1.001	254	1.91	.990	-.640	.523	
White	159	2.09	1.160	254	2.11	1.186	-.220	.826	
Black	159	2.92	1.204	254	2.78	1.266	1.154	.249	

* $p < 0.05$ (Level of statistical significance)

Table E6: Product package colour preference T-test (Black/White comparison)

	Black			White					
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Milk carton									
Yellow	321	2.13	.971	78	1.67	.892	3.819	.000*	0.474
Red	321	2.07	1.003	78	1.99	.947	.699	.485	
Green	321	2.41	1.000	78	2.37	1.021	.311	.756	
Blue	321	2.95	.939	78	3.05	.924	-.829	.408	
Purple	321	1.99	1.055	78	1.88	1.032	.776	.438	
Orange	321	1.89	.899	78	1.64	.805	2.275	.023	
White	321	3.63	.673	78	3.69	.651	-.783	.434	
Black	321	1.76	1.082	78	1.55	.976	1.558	.120	
Bar of hand soap									
Yellow	321	3.16	.891	78	2.53	1.053	5.396	.000*	0.598
Red	321	2.38	1.018	78	2.24	1.153	1.057	.291	
Green	321	3.24	.932	78	2.69	1.036	4.525	.000*	0.531
Blue	321	3.29	.832	78	3.26	.946	.280	.780	
Purple	321	2.40	1.097	78	2.67	1.213	-1.872	.062	
Orange	321	2.39	1.034	78	2.35	1.204	.320	.749	
White	321	3.50	.807	78	3.63	.775	-1.253	.211	
Black	321	1.41	.855	78	1.44	.891	-.198	.843	
Toothpaste tube									
Yellow	321	2.30	1.008	78	1.59	.874	5.712	.000*	0.704
Red	321	2.67	1.014	78	2.47	1.113	1.497	.135	
Green	321	2.82	1.012	78	2.77	.979	.395	.693	
Blue	321	3.18	.945	78	3.29	.839	-.978	.329	
Purple	321	1.86	.916	78	2.09	1.047	-1.931	.054	
Orange	321	2.03	.953	78	1.87	1.073	1.317	.189	
White	321	3.47	.898	78	3.63	.839	-1.438	.151	
Black	321	1.45	.886	78	1.32	.814	1.163	.246	

	Black			White					
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Chocolate bar wrapper									
Yellow	321	2.31	1.045	78	2.21	1.177	.810	.419	
Red	321	2.75	1.037	78	3.08	.964	-2.525	.012	
Green	321	2.34	1.000	78	2.40	1.024	-.456	.648	
Blue	321	2.81	.992	78	3.12	.993	-2.414	.016	
Purple	321	2.80	1.033	78	2.91	1.186	-.816	.415	
Orange	321	2.20	.954	78	2.17	1.133	.261	.794	
White	321	2.69	1.093	78	2.46	1.256	1.618	.107	
Black	321	2.39	1.173	78	2.91	1.208	-3.518	.000*	0.430
Can of cold drink									
Yellow	321	2.36	1.087	78	2.14	1.090	1.583	.114	
Red	321	3.33	.853	78	3.33	.878	-.058	.954	
Green	321	2.83	.926	78	3.15	.955	-2.792	.005	
Blue	321	2.75	.958	78	2.90	1.064	-1.161	.246	
Purple	321	2.49	1.061	78	2.67	1.202	-1.291	.198	
Orange	321	2.85	.981	78	2.83	1.086	.160	.873	
White	321	2.04	1.051	78	2.06	1.188	-.196	.845	
Black	321	2.30	1.159	78	2.47	1.297	-1.149	.251	
Alcoholic drink									
Yellow	321	1.64	.865	78	2.04	1.110	-3.397	.001*	0.360
Red	321	2.72	1.099	78	3.01	1.099	-2.113	.035	
Green	321	2.60	1.174	78	2.49	1.125	.733	.464	
Blue	321	2.47	1.118	78	2.79	1.085	-2.290	.023	
Purple	321	2.22	1.132	78	2.51	1.277	-1.968	.050	
Orange	321	1.82	.941	78	2.12	1.151	-2.380	.018	
White	321	2.06	1.161	78	2.27	1.245	-1.434	.152	
Black	321	2.82	1.259	78	2.83	1.221	-.089	.929	

* $p < 0.05$ (Level of statistical significance)

Table E7: Product colour preference T-test (Male/Female comparison)

	Male			Female					
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Formal shirt									
Yellow	159	1.70	.875	254	1.91	1.033	-2.118	.035	
Red	159	2.51	1.030	254	2.73	1.089	-2.066	.039	
Green	159	2.30	1.047	254	2.15	.958	1.454	.147	
Blue	159	3.19	.846	254	3.23	.873	-.383	.702	
Purple	159	2.54	1.112	254	3.11	1.018	-5.299	.000*	0.513
Orange	159	1.69	.900	254	1.77	.964	-.798	.425	
White	159	3.72	.667	254	3.77	.626	-.781	.435	
Black	159	3.73	.633	254	3.76	.602	-.551	.582	
T-shirt									
Yellow	159	2.36	1.070	254	2.84	1.103	-4.333	.000*	0.435
Red	159	3.25	.825	254	3.20	.904	.503	.615	
Green	159	2.99	1.031	254	2.91	.986	.729	.466	
Blue	159	3.49	.728	254	3.44	.821	.673	.501	
Purple	159	2.81	1.076	254	3.43	.825	-6.679	.000*	0.576
Orange	159	2.36	1.087	254	2.49	1.127	-1.189	.235	
White	159	3.46	.855	254	3.52	.828	-.761	.447	
Black	159	3.69	.665	254	3.48	.874	2.564	.011	
Formal shoes									
Yellow	159	1.23	.628	254	1.39	.745	-2.211	.028	
Red	159	1.52	.878	254	2.13	1.165	-5.746	.000*	0.524
Green	159	1.32	.669	254	1.43	.695	-1.621	.106	
Blue	159	1.81	1.092	254	2.00	1.076	-1.688	.092	
Purple	159	1.58	.937	254	2.20	1.186	-5.571	.000*	0.523
Orange	159	1.31	.646	254	1.36	.636	-.774	.439	
White	159	2.74	1.280	254	3.07	1.113	-2.840	.005	
Black	159	3.84	.572	254	3.89	.471	-1.104	.270	

	Male			Female				
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Informal shoes									
Yellow	159	1.86	.931	254	2.41	1.138	-5.096	.000*	0.483
Red	159	2.48	1.042	254	2.83	1.038	-3.258	.001*	0.336
Green	159	2.14	1.005	254	2.40	1.046	-2.427	.016	
Blue	159	2.85	1.045	254	3.08	.944	-2.349	.019	
Purple	159	2.22	1.151	254	3.02	.966	-7.559	.000*	0.695
Orange	159	1.79	.935	254	2.12	1.073	-3.189	.002*	0.308
White	159	3.32	.937	254	3.24	.986	.864	.388	
Black	159	3.67	.662	254	3.58	.834	1.126	.261	
Cellphone									
Yellow	159	1.57	.917	254	1.69	.963	-1.220	.223	
Red	159	2.64	1.127	254	2.77	1.112	-1.152	.250	
Green	159	1.98	1.046	254	1.97	1.040	.120	.905	
Blue	159	2.70	1.082	254	2.83	1.084	-1.189	.235	
Purple	159	2.12	1.116	254	3.15	1.036	-9.506	.000*	0.923
Orange	159	1.75	.946	254	1.75	.957	.069	.945	
White	159	3.14	1.072	254	3.19	1.069	-.410	.682	
Black	159	3.81	.576	254	3.79	.637	.385	.700	
Motorcar									
Yellow	159	1.67	.984	254	1.86	1.091	-1.744	.082	
Red	159	3.21	1.032	254	3.36	.891	-1.614	.107	
Green	159	2.04	1.039	254	2.06	1.091	-.175	.861	
Blue	159	3.05	.992	254	3.20	.897	-1.634	.103	
Purple	159	1.79	.970	254	2.18	1.128	-3.651	.000*	0.346
Orange	159	1.98	1.155	254	1.73	1.010	2.340	.020	
White	159	3.53	.817	254	3.40	.976	1.475	.141	
Black	159	3.77	.677	254	3.83	.575	-1.017	.310	

* $p < 0.05$ (Level of statistical significance)

Table E8: Product colour preference T-test (Black/White comparison)

	Black			White					
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Formal shirt									
Yellow	321	1.91	.996	78	1.54	.863	3.002	.003*	0.371
Red	321	2.66	1.052	78	2.60	1.188	.425	.671	
Green	321	2.24	.980	78	2.10	1.052	1.119	.264	
Blue	321	3.26	.808	78	3.09	1.034	1.532	.126	
Purple	321	2.96	1.075	78	2.64	1.128	2.348	.019	
Orange	321	1.79	.958	78	1.54	.848	2.110	.036	
White	321	3.76	.629	78	3.68	.747	.978	.329	
Black	321	3.70	.669	78	3.92	.268	-2.874	.004*	0.329
T-shirt									
Yellow	321	2.81	1.076	78	2.04	1.098	5.678	.000*	0.701
Red	321	3.26	.834	78	3.09	1.009	1.593	.112	
Green	321	2.98	1.000	78	2.94	1.024	.309	.757	
Blue	321	3.45	.773	78	3.59	.746	-1.488	.138	
Purple	321	3.26	.915	78	2.96	1.156	2.460	.014	
Orange	321	2.53	1.104	78	2.15	1.117	2.712	.007	
White	321	3.53	.821	78	3.37	.899	1.523	.129	
Black	321	3.54	.817	78	3.73	.638	-1.934	.054	
Formal shoes									
Yellow	321	1.36	.719	78	1.22	.617	1.551	.122	
Red	321	1.91	1.101	78	1.79	1.121	.846	.398	
Green	321	1.42	.708	78	1.23	.579	2.231	.026	
Blue	321	2.02	1.085	78	1.58	1.013	3.242	.001*	0.406
Purple	321	2.07	1.156	78	1.59	.999	3.387	.001*	0.415
Orange	321	1.36	.656	78	1.24	.539	1.392	.165	
White	321	2.84	1.183	78	3.29	1.186	-3.015	.003*	0.379
Black	321	3.86	.538	78	3.95	.274	-1.414	.158	

	Black			White				
Colour	**n**	$\bar{x}$	**s**	**n**	$\bar{x}$	**s**	**t**	**p**	**D**
Informal shoes									
Yellow	321	2.31	1.093	78	1.72	.952	4.382	.000*	0.540
Red	321	2.73	1.033	78	2.56	1.088	1.251	.212	
Green	321	2.34	1.031	78	2.13	1.061	1.615	.107	
Blue	321	3.04	.971	78	2.79	1.049	1.948	.052	
Purple	321	2.82	1.077	78	2.29	1.106	3.836	.000*	0.479
Orange	321	2.02	1.021	78	1.82	1.041	1.579	.115	
White	321	3.22	.969	78	3.50	.908	-2.332	.020	
Black	321	3.59	.798	78	3.77	.601	-1.872	.062	
Cellphone									
Yellow	321	1.68	.945	78	1.50	.908	1.512	.131	
Red	321	2.75	1.082	78	2.50	1.246	1.759	.079	
Green	321	1.94	.987	78	2.10	1.180	-1.247	.213	
Blue	321	2.78	1.066	78	2.76	1.130	.142	.887	
Purple	321	2.83	1.134	78	2.58	1.274	1.715	.087	
Orange	321	1.78	.956	78	1.72	.979	.527	.598	
White	321	3.09	1.101	78	3.45	.907	-2.687	.008	
Black	321	3.80	.621	78	3.76	.668	.556	.579	
Motorcar									
Yellow	321	1.84	1.074	78	1.63	.982	1.596	.111	
Red	321	3.36	.887	78	3.14	1.125	1.809	.071	
Green	321	2.10	1.065	78	1.94	1.109	1.209	.228	
Blue	321	3.17	.911	78	3.05	1.031	1.017	.310	
Purple	321	2.13	1.087	78	1.62	.957	3.820	.000*	0.469
Orange	321	1.88	1.076	78	1.67	1.124	1.591	.112	
White	321	3.40	.930	78	3.65	.850	-2.208	.028	
Black	321	3.84	.558	78	3.65	.835	2.348	.019	

* $p < 0.05$ (Level of statistical significance)