# AN EXAMINATION INTO COLOUR OF PACKAGE AND

# ITS IMPACT ON CONSUMER RESPONSE:

# A STUDY FROM INDONESIA AND BANGLADESH

by

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# ABSTRACT

This research explored the extent to which consumers' responses varied for the packaging colours of popular local food products from two different regions, Indonesia and Bangladesh. It also examined how different types of buyers (in terms of buying behaviour, gender and age) differed in terms of the impact of the packaging colour with respect to these food products. This investigation was conducted about two indigenous food products, which are distant geographically: *Bakpia* of Indonesia and *Bogra Doi* of Bangladesh. Colour preferences and likeability, consumers' association toward colour, word-of-mouth type of communication, as well as consumers' perception regarding product's quality and their intention to purchase were the responding variables. Two demographic variables of gender and age and one behavioural variable completed the study.

The first research inquiry intended to determine how different package colours vary in terms of consumer responses. The second research inquiry proposed to discover how different groups of buyer respond to different colours of package with two main focuses: (1) the differences in response among light, medium, heavy, and non-buyers, and (2) the differences in response with respect to gender and age.

This investigation employed a quasi-experimental quantitative survey in three stages of a quantitative approach. It began with a preliminary study whose purpose was to find the most recognised colours of the package. The second stage consisted of a pilot study to validate the instrument through factor analysis and reliability analysis. The third and main stage of this investigation analysed the data obtained from the surveys by applying a set of multivariate tests and tests of between-subjects effects.

Yellow, green, red, and blue were found to be the most popular colours of the Bakpia package, while maroon, cream, orange, and yellow were recognised as the most prominent colours of the Bogra Doi package. Further, findings showed that there were no gender differences in terms of responses toward colour of both products. Similarly, there were no differences between middle-aged and old consumers in regard to responses in the case of colour yellow of the Bakpia package and the colour maroon of the Bogra Doi package. Meanwhile, among the heavy buyers of each product, the yellow Bakpia package and the maroon Bogra Doi package had the largest influence on the responses. Multivariate tests suggested that in both cases, there was a significant effect of colour of both the Bakpia and the Bogra Doi packages on consumers' responses when all the response items were joined together. Through the test

of between-subjects effects, it was proved that in both investigations, a non-significant effect on consumers' responses consistently occurred, whether or not gender was joined together with colour of package.

As Bakpia and Bogra Doi are produced by small businesses, both the methodology and findings of this study will assist small business entrepreneurs to improve their marketing processes in terms of packaging. Further, the inclusion of both demographic and behavioural aspects in this examination will encourage businesses to do segmenting and targeting of consumers of these kinds of niche products. Moreover, because this study examined products from two different, geographically distant developing countries using large samples, the generalizability of the findings is assured. Overall, this study contributes to marketers' understanding of the powerful yet complex effects of package colour at the point-of-purchase, an important aspect of packaging, to which SMEs in developing countries have tended to pay insufficient attention in their marketing strategies.

## PUBLICATIONS ARISING DURING CANDIDATURE

Widjayanti, A., & Pare, V. (2016). An examination of package color of a local product in Indonesia on consumer response. *Australian Academy of Business and Economics Review,* 2(4), 310-320.

Widjayanti, A., & Pare, V. (2017). *How do consumers respond to different colours of a package? The case of local food product in Indonesia*. Paper presented at the ANZAM Conference, Brisbane, December 2017. Retrieved from https://www.anzam.org/wp-content/uploads/pdf-manager/2835_ANZAM-2016-369-FILE001.PDF

## STATEMENT OF DECLARATION

I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

Signed: _____

Date: 16/07/2018

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# CHAPTER 1 : INTRODUCTION

## 1.1 Introduction

Packaging colour is a vital component in marketing. The colours of the package create added value during the storage, distribution, and selling processes, and potentially translate into sales for the company. Besides differentiating the product from its competitors, colour is associated with numerous values and interpretations by consumers. Package colours attract consumers' attention, conveying either positive or negative values, and importantly, affect consumers' perceptions at the point of purchase.

This research explored the extent to which consumers' responses varied for the packaging colours of popular local food products from two different regions, Indonesia and Bangladesh. In addition, this research examined how different types of buyers (in terms of buying behaviour, gender and age) differed in terms of the impact of the packaging colour with respect to these food products. This chapter discusses the background of this research, the problem that emerged from the literature, the research questions and objectives, and the scope of the study. A brief outline of the methodology, and the contribution and limitations of the study as well as an outline of the thesis complete this chapter.

## 1.2 Background

A package consists of a number of elements: label, material, colour, design, shape, and size. It enables the product to be "contained, apportioned, unitized, and protected" (Silayoi & Speece, 2004, p. 609). Importantly, a package communicates with consumers and attracts their attention towards the product and is a critical factor in the consumer decision-making process because of its strong cues and associations produced at the time of purchase (Silayoi

& Speece, 2007). Burke and Leykin (2014), in their investigation regarding the driver of shopper's attention and engagement, found that package appearance is involved in the shopper's journey in the store environment, affecting the shopper's goals. All elements of the package including colour and product information capture shopper's attention.

Several studies have established colour as a significant feature of a package (Ampuero & Vila, 2006; Ares & Deliza, 2010; Hutchings, 2003; Marshall, Stuart, & Bell, 2006). Colour creates the image of the product (A. J. Elliot & Maier, 2014), conveying messages that are helpful in consumers' choice of product, as well as acting as an incentive to purchase. Colour plays a strong role in affecting human perception (A. J. Elliot et al., 2007; Piqueras-Fiszman & Spence, 2011). Colour is regarded as critically influencing consumer behaviour (Sable & Akcay, 2011) and can control 60-90% of consumers' purchase decisions (Piqueras-Fiszman, Velasco, & Spence, 2012; S. Singh, 2006). Colour affects consumers' immediate responses to a product (Swientek, 2001), as consumers tend to pick important clues of a product's perceived quality based on the colour of package/label in order to make a quick purchase decision (Piqueras-Fiszman et al., 2012).

Marketers and researchers have always used colour for store atmospherics to grab customers' attention (Schindler, 1986), for advertisements (Gorn et al., 1997; Lohse & Rosen, 2001; Meyers-Levy & Peracchio, 1995), logos (Bottomley & Doyle, 2006), product customization and design (Deng, Hui, & Hutchinson, 2010), and package design (Garber et al., 2000), to offer cues about product attributes, and to differentiate brands from competitors. However, Labrecque, Patrick, and Milne (2013) argued that numerous gaps and research questions remain relatively unaddressed in the scholarly works on colour. Some of these research questions are listed in the next section in categories such as advertising, atmospherics, branding, food perception, and internet marketing.

### 1.2.1 Unanswered Questions across Various Fields

Some of the research questions related to colour in marketing and branding studies that are raised in various areas in marketing researches include:

"How stable and persistent are the effects of colour on consumers' memory?" "Do consumers purchase products in colours to match their personalities?" "Does the display order of a product's sensory attributes impact perceptions?"

Other issues that may require further research are about the impact of black-and-white; environmental influences (e.g. music and layout); the effect of package colour on perceived weight, size, and shape; the effect of two or more colours together on consumers' perceptions. Food studies have raised the phenomenon of learned food product associations with certain colours (e.g. green ketchup or blue tortilla chips), which may also require further research. Lastly, deeper examination would be useful of individual consumer sensitivity to different colours, and generational or gender differences with regard to the role and importance of colour. Categorization of consumers by their colour preference, as well as by their sharing of colour preferences is another area in need of further examination.

The current study addressed some of the above-listed gaps by examining the impact of food package colours according to consumer responses, in particular how the package colour influences consumers' perceptions. This research also explored how the product's sensory attributes (in particular the colour) might create consumers' expectations in terms of taste and smell and thereby influence consumers' responses.

## 1.3 Background of the Study

This study examined the colours of the packaging of two local niche food products, sold in two geographically separate local markets and how they affect various consumers' responses. The products are well known regionally but unknown globally. The consumer responses which were examined are colour preferences and likeability, quality perception, consumers' association of colour, word-of-mouth type of communication, intention to purchase. One behavioural aspect and two demographic factors were explored: consumers were classified according to light, medium, or heavy buyers, as well as by their gender and age. These categories were considered as also having some bearing on the factor of memory in response to colour.

Colour is known as one of the most widely measured product quality attributes (Pathare, Opara, & Al-Said, 2013), which include the eight basic elements of performance, features, reliability, conformance, durability, serviceability, aesthetics, and perceived quality (Garvin, 1984) in postharvest handling and in the food processing researches and industry (Pathare et al., 2013). However, a recent study found that the main direction in food packaging researches is in improvement of food quality and food safety (Valdés, Mellinas, Ramos, Garrigós, & Jiménez, 2014). Another area that has received intensive research attention in the past decade (Vanderroost, Ragaert, Devlieghere, & De Meulenaer, 2014) and has improved packaging greatly, is the environmental impact of packaging (Marsh & Bugusu, 2007). However, colour, as part of the visual quality of a package, has not received much attention (Kauppinen-Räisänen, 2011, 2014; Labrecque & Milne, 2012; Orth et al., 2010). Therefore, in order to address this gap, the present study investigated food package colour rather than the relatively well-researched areas of colour in regard to food processing and the materials of food packaging.

There is some research on food packaging with regard to its relationship with consumer behaviour. However, the limitations of these researches in terms of marketing stimuli and responses are that they examine only one dimension of package appearance, that is colour, and involve only one marketing variable (packaging), and one purchase context in terms of responses (Garber et al., 2000). These researches do not include other purchase contexts such as the physical store, shoppers' time constraints, or perceived quality and consumer association with package colour. Further limitations have been found regarding product categories and marketplace situations (A. Gordon, Finlay, & Watts, 1994), or the study of package colours with reference to size of samples, types of products, geographical area, and specific colours (Kauppinen-Räisänen & Luomala, 2010). While past research contends that colour is a universal issue, it also has a cultural dynamic. Therefore, investigating package colours in various geographical areas is a useful prospect. A comparison of different colours or colour combinations may also enrich future findings regarding the impact of package colour and provide essential understanding of the meaning of product-specific colours.

In food research (Garber et al., 2000; A. Gordon et al., 1994; Kauppinen-Räisänen, 2011, 2014; Kauppinen-Räisänen & Luomala, 2010; Labrecque & Milne, 2012; Schoormans & Robben, 1997), food colour affects product expectations and perceptions, such as food taste (Garber Jr, Hyatt, & Starr Jr, 2000; C. Koch & Koch, 2003). Colours are also an important part of product packaging in the food industry (Deliza, Macfie, & Hedderley, 2003; Hine, 1995; Hutchings, 2003; Piqueras-Fiszman & Spence, 2011). The colour of the food package stimulates consumer expectations (Deliza et al., 2003), particularly sensory and hedonic expectations for food/beverage products that are consumed directly from the container (Piqueras-Fiszman & Spence, 2011). Colour also enables product recognition (Bagchi & Cheema, 2013), such as the representation of food flavour by colours of the package (Piqueras-Fiszman et al., 2012), which can affect memory of products (Davidoff, 1991; Grossman & Wisenblit, 1999; Siple & Springer, 1983). Thus, package colour influences

consumers' perception and purchase decision and the more competitive the market of food products, the more important the package (Silayoi & Speece, 2004; Wells et al., 2007)

## 1.4 Research Problem

The central point of the present research is the role of colour in food packaging. The product categories in this study were regional food products of small geographically distant companies in Indonesia and Bangladesh. A famous food product of Yogyakarta, Indonesia called *Bakpia* is a kind of common round-shaped bean-filled pastry, very popular in the region and supporting local economic growth. Produced by small local companies, Bakpia is familiar to local residents and tourists. However, companies face difficulties in the marketing processes, such as packaging. In Bangladesh, a much-loved food product, named *Bogra Doi* (or *Bogurar Doi* or *Bogra er Doi* or *Yogurt of Bogra*) is a diary product or curd made from cow's milk. It is manufactured in small local companies. The Bogra curd is famous as the most delicious in Bangladesh.

Lack of attention to elements of packaging as a marketing tool is a weakness in small local companies in Indonesia (Wuryaningrat, 2013). The normal way these small companies package their products is based on functional need, neglecting value-adding attractiveness. In Bangladesh, small companies have limited resources in acquiring market information about consumer needs, expectations, and responses (Islam, Khan, Obaidullah, & Alam, 2011). Similar issues exist for Bogra Doi in Bangladesh. Therefore, there is a need in both countries for market information about how package colour can stimulate consumer responses and thereby add value and increase the company's selling performance.

## 1.5 Research Questions and Objectives

Distinctive and trademarked packaging of a high-quality product is one of the established strategies of well-focused branding. Involving packaging in the consumer decision-making process is a critical strategy, as the package communicates directly and immediately to the consumer in the store at the precise time they are making the purchasing decision (Silayoi & Speece, 2007). In regard to the specific locally produced foods, the added value of the originality and local nature of Bakpia and Bogra Doi contributes to their acceptance and features differently in consumers' minds. Importantly, locality seems to be the significant element in the creation of new niche markets, particularly for such local food products with widespread reputations (Loureiro & Hine, 2002).

More understanding about food package colour in the regions under study is necessary, particularly in relation to a local food product that is not globally branded. In terms of the specific food category of the locally produced products and the two different regions, this study proposes the following research questions:

*Research Question 1: How do different package colours vary in terms of consumer responses?*

*Research Question 2: How do different groups of buyers respond to different colours of package?*

*2a: To what extent is there a difference in response among light, medium, heavy and non-buyers?*

*2b: To what extent is there a difference in response with respect to gender and age?*

## 1.6 Research Method and Analysis

A quantitative approach was used to address the research questions. Primary data was collected through survey questionnaires and small experiments embedded in the survey. Samples were general public buyers and/or consumers of local food products and numbered 458 participants for the Bakpia and the 220 participants for Bogra Doi.

The study divided the independent variable “colour” into groups: blue, yellow, green, and red for the case in Indonesia; and red/maroon, orange, cream, and yellow for the case in Bangladesh. These choices of colours for each product resulted from a preliminary study of participants’ responses to the question of which colour is likely to be the most popular colour in the packaging of Bakpia and Bogra Doi respectively.

Various consumer responses acted as dependent variables: colour preferences and likeability, consumer associations of colour, word-of-mouth communication, quality perception, and purchase intention. The next step was a pilot study to test the validity and reliability of the instruments, which were in the form of 7-point Likert scales.

The final study implemented multivariate tests. It examined responses individually and in combination to strengthen the validity of the findings. Additionally, the responses related to between-subjects effects were analysed separately.

## 1.7 Focus and Scope of the Study

This study aimed to further develop the study of package colour in the food industry (as suggested by (Garber et al., 2000) in terms of responses to specific product categories and marketplace situations (A. Gordon et al., 1994), and in terms of samples (Kauppinen-Räisänen & Luomala, 2010). The main focus of this study was an investigation of the relationship

between food package colour and various consumers' responses, specifically in relation to two locally produced niche foodstuffs in geographically distant regions.

### 1.7.1 Local Food Product of Indonesia

The local Indonesian food product examined in this study is Bakpia, a small round sweet roll, usually stuffed with mung beans or green beans, but the latest products have other fillings such as cheese, chocolate, and even the strong-smelling fruit 'durian'. The pastry wrap encases the sugar mixture of the filling, recently with added milk, and is baked. This product is one of Yogyakarta's special local foods, manufactured by small local companies, commercially packaged in small boxes with different coloured packaging based on the different companies and flavours, and sold at many local food shops in Yogyakarta. Tourists visiting Yogyakarta favour these cakes and purchase them as gifts. Bakpia has become a typical culinary souvenir from Yogyakarta and can be found in souvenir stores or shops. Originally and popularly it is covered with yellow package, especially for the original flavour of "green bean." Tables 1.1 and 1.2 show the distribution of food and beverages of these companies in Indonesia.

**Table 1.1: Numbers of Small and Micro Companies in the Food and Beverages Industry Indonesia, 2012-2015**

| | 2012 | | | 2013 | | | 2014 | | | 2015 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Micro Companies | Small Companies | Total | Micro Companies | Small Companies | Total | Micro Companies | Small Companies | Total | Micro Companies | Small Companies | Total |
| Food | 871,898 | 70,712 | 942,610 | 1,008,890 | 158,651 | 1,167,541 | 1,125,425 | 73,066 | 1,198,491 | 1,473,205 | 93,814 | 1,567,019 |
| Beverages | 51,069 | 2,605 | 53,674 | 45,508 | 1,962 | 47,470 | 43,293 | 1,401 | 44,694 | 45,922 | 1,208 | 47,130 |

Source: Indonesian Statistic Agency[1]

Table 1.1 displays the number of small and micro companies producing food and beverages in Indonesia during 2012 - 2015. It is evident that there was an increase in the establishment

[1] Badan Pusat Statistik (BPS-Statistics Indonesia) is a Non-Ministry Government Agency, for further details see: https://www.bps.go.id/menu/1/informasi-umum.html#masterMenuTab1

of companies every year. Food processing comprised the largest number of companies in the four-year period compared to other sectors of small and micro companies. The other sectors, which do not appear in the Table, are tobacco processing, textile, garment, leather processing, wood and bamboo processing, paper and its processing, printing, coal and crude oil, chemical products, pharmacy, rubber, metal, computer and electronic products, vehicles and spare parts, as well as furniture.

**Table 1.2: Production Growth (in Percent) of Food and Beverages Companies in Indonesia 2016-2017 per Quarter**

| | 2016 | | | | 2017 |
|---|---|---|---|---|---|
| | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Quarter 1 |
| Food | 6.16 | 6.49 | 9.70 | 7.73 | 11.05 |
| Beverages | 7.49 | 14.42 | 13.71 | 10.87 | 11.95 |

Source: Indonesian Statistic Agency

Table 1.2 shows the food and beverages production growth in small and micro companies in Indonesia during quarter 1- 2016 to quarter 1- 2017. Clearly, food manufacture grew steadily compared to the performance of beverages. The growth of food production during quarter four of 2016 until the first quarter of 2017 jumped from 7.73 to 11.05 percent, which was a bigger increase than the growth of beverage production. These numbers demonstrate the importance of the industry and the need to examine it in greater detail.

### 1.7.2 Local Food Product of Bangladesh

A well-liked local food product of Bangladesh, Bogra Doi*,* is the second product investigated in this study. It is a dairy product and is a common food in Bangladesh. *Doi* from Bogra City is popularly recognised as the most delicious and is remembered by consumers as “feeding the thirsty man.” This food is normally packaged in maroon coloured containers and has developed a high reputation because of its unique flavours. There is a possibility for Bogra Doi to be internationally recognised if supported by the government. Bogra Doi is typically named

a SME industry product. Table 1.3 presents data of two of the major industries in Bangladesh during period of 2013-2017.

**Table 1.3: Number and Growth Rate of Small and Medium Industries in Bangladesh 2013-2017 (Base: 2005-2006)**

| Industry | 2013-2014 | 2014-2015 | 2015-2016 | July-December | | |
|---|---|---|---|---|---|---|
| | | | | 2015-2016 | 2016-2017 | Growth Rate (Percent) (Base 2005-2006) |
| Food Products | 241,52 | 333,07 | 385,10 | 386,89 | 360,82 | -6.74 |
| Beverages | 243,19 | 230,06 | 269,75 | 250,34 | 261,03 | 4.27 |

Source: Bangladesh Bureau of Statistics[2]

Table 1.3 shows that regardless of the growth of production of processed food by small and medium industries, there was negative growth of -6.74% in the latest fiscal year. Food production occupied the biggest number of operation units in each year and was 360,82 units in 2016-2017, compared to the other major industries calculated by the Bangladesh Bureau of Statistics (beverages, tobacco products, textile, leather, paper, printing, chemical products, rubber, metals, computer, electrical, vehicles, furniture). Further statistical information was provided by the Bangladesh Bureau of Statistics that small scale manufacturing industries like grain milling, food products, garments etc. experienced higher growth in the first six months of the latest fiscal year. In summary, food products in this region have good future prospects despite the negative growth in the past year. Research on SMEs particularly related to food products is justifiable by the essential contribution that these industries make to the economies of the two countries under discussion.

## 1.8 Significance of the Study

This study has significance theoretically due to its focus on local foods and the impact of packaging colour, while earlier local food studies concentrated on market, tourism, or

[2] Bangladesh Bureau of Statistics, for further details see: http://www.bbs.gov.bd/site/page/ba56fb8b-c37c-4d7c-9ad2-7d79d1b7da0c/Director-General

contribution to the society (Buller & Morris, 2004; Ilbery & Kneafsey, 1999, 2000; Ilbery & Maye, 2005; Sims, 2009). More recently, studies on local food have mainly focused on consumers' attitude and purchase behaviour (Feldmann & Hamm, 2015; Hu, Batte, Woods, & Ernst, 2012; Little, Maye, & Ilbery, 2010; Loureiro & Hine, 2002; Roininen, Arvola, & Lähteenmäki, 2006; Tellström, Gustafsson, & Mossberg, 2006) but have not connected the impact of packaging colour with consumer responses.

The second theoretical significance of this study is the inclusion of the behavioural aspect in the investigation, which provides categorisation of light, medium, and heavy buyers of Bakpia and Bogra Doi. Since the foods examined in this study are unique regional products of local companies, identifiable as niche foods (Kvam, Magnus, & Petter Stræte, 2014), examining the consumers' purchasing behaviour in those specific local markets is important.

While most previous researches have examined individually the relationship between package colour and responses such as consumers' perception of quality, consumers' expectation, association of the product inside the box (especially for food and beverage products), or consumers' willingness to buy, this study examined these factors aggregately as well. The two different ways of analysis (individually and aggregately) determine whether the effect of variables included in the responses are the same when they are considered together as when they are considered separately. Significantly, this study reveals the extent of the effect of the responses when they are analysed together.

The inclusion of "gender" and "age" as variables related to the impact of colour packaging is another contribution in this study. Bakpia and Bogra Doi are produced and processed in particular places by small companies whose product strategy must be based on special issues relating the local consumers (Kvam et al., 2014). The addition of gender and age in the investigation allowed us to determine whether male or female, and old or young consumers had similar or different opinions regarding local food package colour in the local market.

Finally, while many studies have discussed the connection between package colour and response such as shaping image, perception, or choice of product (A. J. Elliot & Maier, 2014), shopper attention (Burke & Leykin, 2014), or consumers' willingness to purchase (Ares & Deliza, 2010), very few have considered the impact of word-of-mouth (WOM) type of communication in relation to the food package colour. This study makes a significant theoretical contribution by its investigation of the relationship between the colour of food packaging and WOM together with other responses (preference and likeability, quality perception, association of colour, and purchase intention).

## 1.9 Contribution

The present study makes several major contributions both to theory, as described in the previous section, and practice as described below. The methodology and findings of this study assist small business entrepreneurs with strategies for packaging as marketing tools that could improve the companies' performance in market competition.

The information provided in this study about consumers' responses to food package colours, especially for products that are locally branded and unknown globally, is useful to small companies in Indonesia and Bangladesh. The consumer targeting and segmenting by age, gender, and type of buyer based on their purchase behaviour, as undertaken in this study, are useful guides for marketing strategies of local businesses producing niche foodstuffs.

The extent and depth of this investigation of two local products from geographically very distant areas could render findings generalizable to most local food products, which would be a major contribution to the business development of SMEs producing local niche foods. Furthermore, the large samples (458 participants for the Bakpia case and the 220 participants for Bogra Doi) also render the findings generalizable.

The findings of this study could contribute to marketers' understanding of the powerful yet complex effects of colour at the point-of-purchase. The implementation of the findings could address some of the weaknesses in marketing strategies of SMEs and improve these companies' sales performance in the future.

## 1.10 Thesis Outline

This thesis is organised in the following manner:

Chapter 1, the Introduction, briefly presents the basic concepts, as well as areas for future studies, the research background and problem, research questions, the objectives of the research, and the focus and scope of the study. A brief summary of research methodology and analysis, and a description of the local food products of Indonesia and Bangladesh, which are the subjects of the study, follow. The chapter ends with sections on the significance and areas of contribution of the study, and a brief thesis outline.

Chapter 2 presents the background of the specific industry, product, and buyer and covers all relevant information regarding the subjects of the study, the specific local food products in Indonesia and Bangladesh. The chapter provides an in-depth understanding concerning the problems of marketing Bakpia as a unique product of Yogyakarta City of Indonesia and Bogra Doi as a unique product of Bogra City of Bangladesh.

Chapter 3 provides the literature review on colour of packaging. It focuses on six major discussions on the theory of colour, colour in marketing, packaging, colour of package, and packaging specifically of food products, together with a detailed treatment of food package colour. Many different theoretical perspectives of the research literature on colour in packaging support this study. Further, this chapter reviews literature on consumer responses in relation to colour preferences, colour likeability, colour association, word of mouth, perceived quality,

and purchase intention. The chapter details in depth theories concerning consumers preference and likeability toward colour, by colour-product association, colour association in food and product package, and global versus local theories about colour in marketing. Theories on word of mouth, in particular the development and application in marketing are detailed. The perception of quality is defined and its relationship with emotional perspectives and colour studies is outlined, followed by a brief discussion on the link between perceived quality and purchase intention. The chapter ends with an explanation of the factors that influence purchase intention and its application to colour studies.

Chapter 4 describes the methodology of this study and brings together all the issues of the study's quantitative research approach. This chapter includes reviews of methods used in previous studies, particularly colours studies, the methods in studies of colour in marketing, and the methods in studies of food package colour. A description of the population and samples of the study, and definitions of the unit of analysis and measurements follow. The chapter ends with the data collection methods and the analysis of the data.

Chapters 5 and 6 present the findings through sets of analyses of the data and explore the findings in detail. All the possible interpretations regarding the findings are discussed at length in Chapter.

Chapter 7 provides the conclusion and implications of the study as well as the answers to the research questions and the objectives of the research. The overall findings are reviewed and the implications for researchers and practitioners are detailed, including contributions to the theory and to the body of knowledge. The chapter ends with recommendations for future research.

The next chapter describes the background of the industry in Indonesia and Bangladesh, the specific products of Bakpia and Bogra Doi, and the buyers.

# CHAPTER 2 : BACKGROUND OF INDUSTRY, PRODUCT, AND BUYER

## 2.1 Overview

This chapter introduces the local food products of Indonesia (Bakpia) and Bangladesh (Bogra Doi) that are the focus of this research. These foods, like many other traditional foods in Indonesia and Bangladesh, are produced in small and medium enterprises (SMEs) but poorly marketed (Widjayanti & Pare, 2016). This chapter also covers reports and past studies on consumer buying behaviour as well as previous works on gender and age, to support the current investigation.

SMEs are the backbone of the economies of developing countries (Anuar & Yusuff, 2011; Khandker, 2014) but their traditional individualistic attitude, such as involving family members as employees, leaves each enterprise to facing marketing, purchasing, or technological innovation challenges without expert advice (Najib & Kiminami, 2011). Although they have inherent production and pricing flexibility, they generally lack strong brand names and market power (Chen & Hambrick, 1995; Mc Cartan-Quinn & Carson, 2003), due to their restricted access to market, knowledge, financial and institutional support (Bakht & Basher, 2015; Islam et al., 2011; Mead & Liedholm, 1998). Thus, they suffer from little market information and lack production skills (M. Field & Knopp, 2003) and tend not to engage in marketing or innovative practices (Matthews & Scott, 1995; Mc Cartan-Quinn & Carson, 2003). SME manufacturers must improve their productivity and competitiveness if they are to survive and grow in a globalized market with consumers demanding better and better quality (Anuar & Yusuff, 2011; Najib & Kiminami, 2011).

The focus on packaging of this research project is in response to the poor attention to and lack of innovation in packaging of SMEs. This has been recognized as one of SMEs marketing weaknesses. Thus this critical examination of the packaging, specifically their colour, of the two well-known but poorly branded and packaged products can be useful for future marketing decisions by the relevant SMEs.

This chapter focuses on the various marketing issues of Bakpia and Bogra Doi. The chapter begins (Section 2.2 and 2.3) with a discussion of Bakpia and Bogra Doi and their marketing as well as packaging problems. Section 2.4 presents theories of classification of buyer behaviour into heavy and light in relation to brand loyalty and other variables such as advertising and demography. The remainder of the chapter (Section 2.5) reviews theories related to gender and age as two demographic items involved in this study.

## 2.2 Bakpia, a Local Food Product of Indonesia

This section introduces Bakpia, the particular regional food product from Indonesia that is one of the two main subjects of the research reported in this thesis. The section provides a summary of the history of the product and its significance in the local market, as well as the problems of marketing, particularly packaging and packaging colour.

### 2.2.1 Bakpia

Bakpia is an Indonesian small, round sweet pastry roll, made from green beans or mung beans, blended with sugar, and wrapped in flour and baked until quite brown on each side. Nowadays, Bakpia is also stuffed with cheese, chocolate, cappuccino, durian, pineapple, or purple sweet potato. Bakpia is packed with different fillings and flavours in a box and sold as a mixed product.

Bakpia is well known as a unique product in the regional area of Yogyakarta City Historically, Bakpia developed out of acculturation between the Javanese and Chinese cultures in the 1990s. The Chinese food similar to this product, named *tou luk pia,* was brought to Indonesia by Chinese immigrants and was originally filled with meat as the main ingredient, consistent with its name, *bak* meaning meat and *pia* meaning cake. Following cultural interaction in the twentieth century, it became a kind of *pia* filled with green bean or mung bean, and became Yogyakarta's authentic local food. These sweet pastries were originally generally mass-produced in Pathuk, a suburb of Yogyakarta famous for its Bakpia. Bakpia is now baked across the region around Yogyakarta by many small companies under different brands. It is popularly known as a hand-gift product, produced with the local wisdom, and contributes to the local tourism industry (Ushada, Okayama, Khuriyati, & Suyantohadi, 2015). It is identified as an obligatory Yogyakarta souvenir to be bought by travellers for friends and family.

In the early days of its production, Bakpia were packaged in a *besek*, a round box made from bamboo. Nowadays, Bakpia products are commercially packaged in a small cardboard box and sold in food shops and souvenir shops around Yogyakarta. Because of its popularity Bakpia can now be found in other cities, though sometimes quite different in taste and texture from the original Yogyakarta Bakpia.

### 2.2.2 The Contribution of Bakpia to the Indonesian Economy

Manufactured by small companies across Yogyakarta, and some from outside the city, Bakpia is regionally popular but not internationally recognized. However, this product and the other small business products contribute significantly to local economic development. For example, the Bakpia industry impacts household labour arrangements, and keeps a number of micro, small and medium businesses running, which in turn strengthens the local economy by the circulation of labour and money. Based on data from Yogyakarta local government in 2012, the non-agricultural sector was the biggest sector of small companies in this region, with locally

processed food products as one of the main offerings. Specifically, food processing companies in Yogyakarta were reported by the Indonesia Statistic Agency (2012) as established in quite large numbers at 46 of a total of 391 companies, as Table 2.1 shows. Table 2.2 shows the number of micro and small food and beverage industries during 2012-2015 throughout the country.

**Table 2.1: Number of Manufacturing Establishments by Indonesian Standard Industrial Classification in Yogyakarta, 2012-2013**

| Standard Industry Classification | Number of Companies |
|---|---|
| Food and beverage manufacturing | 46 |
| Tobacco manufacturing | 8 |
| Textiles | 29 |
| Wearing apparels manufacturing | 43 |
| Leather and foot wear | 11 |
| Manufacture of wood, bamboo, etc. | 49 |
| Printing | 20 |
| Coal, oil, chemical products | 13 |
| Rubber and plastics manufacturing | 9 |
| Non-metallic products | 54 |
| Manufacture of fabricated metal products | 10 |
| Manufacture of computers and electronic products & Manufacture of electrical, machinery, and motor vehicle | 7 |
| Furniture | 62 |
| Other manufacturing | 30 |
| **Total** | **391** |

Source: Indonesia Statistic Agency[3]

**Table 2.2: Number of Small Industries of Food and Beverages in Indonesia 2012-2015**

| | 2012 | | | 2013 | | | 2014 | | | 2015 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Micro Industry | Small Industry | Total | Micro Industry | Small Industry | Total | Micro Industry | Small Industry | Total | Micro Industry | Small Industry | Total |
| Food | 871,898 | 70,712 | 942,610 | 1,008,890 | 158,651 | 1,167,541 | 1,125,425 | 73,066 | 1,198,491 | 1,473,205 | 93,814 | 1,567,019 |
| Beverages | 51,069 | 2,605 | 53,674 | 45,508 | 1,962 | 47,470 | 43,293 | 1,401 | 44,694 | 45,922 | 1,208 | 47,130 |

Source: Indonesian Statistic Agency

Small companies have been playing significant roles for many years in the acceleration of economic growth, development, and stability. Traditionally, they have individualistic attitudes, such as employing family members and relatives. Despite the benefits of these businesses

[3] Badan Pusat Statistik (BPS-Statistics Indonesia) is a Non-Ministry Government Agency, for further details see: https://www.bps.go.id/menu/1/informasi-umum.html#masterMenuTab1

to the economy, these attitude makes them vulnerable in terms of marketing, purchasing, or technological innovation (Najib & Kiminami, 2011).

As Bakpia has become recognized as an icon food of Yogyakarta City, the local government supports its development by converting the suburb Pathuk, where Bakpia is mass-produced, into a culinary tourism village, thereby highlighting both the product and the area as an integral tourist attraction. The local government has expended considerable effort to publicize information about Bakpia production for tourists visiting this suburb. Furthermore, the local government encourages Bakpia companies across the city to improve their capacity through various government run training sessions and workshops, which mainly focus on quality maintenance, product design, and technology. These small companies are continuously supported by the local government with regard to their production capacity and related facilities around the areas.

Despite the support for Bakpia by the local government of Yogyakarta City, the level of marketing capacity of these small businesses is far from satisfying. As a result of their small size and limited financial and marketing resources, these businesses still face significant challenges in product innovation (Mohammed, Ismail, & Ghafoorrian, 2012).

Companies neglect to pay attention to packaging and seem to pack the product for protection (functional need), which leaves the product unattractive or without providing any additional value to attract consumers. As Wuryaningrat (2013) pointed out, packaging, as one of the marketing tools, has been a particular weakness of small companies in Indonesia.

Attractive packaging enhances the value of the product and is critical to increasing sales and improving company performance. Since package colour is a crucial component of packaging (Farhana, 2012), and packaging interaction experiences have an effect on consumers' intention to buy (Joutsela, Latvala, & Roto, 2016), undoubtedly, the package colour of local

food product would influence the behaviour of consumers and the sales performance of companies. This study focuses on the issue of Bakpia packaging, particularly on the complexities of choice of colour on packaging.

## 2.3 Bogra Doi, a Local Food Product of Bangladesh

The other local food product of this study is Bogra Doi, a unique food item of Bogra City, Bangladesh. This section introduces the product and discusses its significance in the local market as well as marketing issues related to its package colour.

### 2.3.1 Bogra Doi

Bogra Doi is widely recognised in Bangladesh as a type of yoghurt, and is a sweet and thick mixture, usually consumed as a dessert. With various names, *Bogra Doi, Bogurar Doi*, *Bogra er Doi* or *Yogurt of Bogra,* it is a well-known yoghurt or curd (*doi* or *dai/dahi*) made of buffalo or cow milk (Van Schendel, 2009), a common food in South Asian countries such as Bangladesh, India, Pakistan, Nepal, and Sri Lanka. Bogra Doi began to be produced almost two hundred years ago, during the reign of the Nawab, and was popularly known as *Nawabbarir Doi*. For this reason, this yoghurt is occasionally thought of as Nawabi food.

As the most popular fermented milk product in South Asia countries, Bogra Doi is produced by lactic acid fermentation of cow or buffalo milk, and is well-known for its palatability and nutritive value (Hui & Evranuz, 2012). Bangladesh Bogra Doi is considered the best in terms of taste and quality. Normally, this food is produced in five different options: Sweet Yoghurt, White Yoghurt, Sour Yoghurt, Yoghurt of Ghole and Shahi Yoghurt. The most popular type in the market is Sweet Yoghurt, as it is particularly favoured by the notoriously sweet-toothed Bangladeshis. White Yoghurt, which is produced without sugar is seen as a health food and a cure for people suffering from diabetes while Sour Yoghurt is also made without sugar and

preferred for its sour taste. The Yoghurt of Ghole is used only for certain yoghurt drinks while Shahi yoghurt (Royal Yogurt) is manufactured with less added sugar, but mixed with nuts as the base flavour. It is a bright white in colour and is acknowledged as the most delicious of all the yoghurts. Another sweet yoghurt is Shokti Doi, "Yoghurt for Power", sold by the Danone Group. All these varieties of Bogra Doi are available in rural and urban areas, and packaged in clay-pots or in plastic containers mainly for sale in cities (Chowdhury, Hussain, & Hussain, 2012). There are also many the local (rural) yoghurt sellers with their own outlets in the cities.

### 2.3.2 The Contribution of Bogra Doi to the Bangladeshi Economy

The production of the many variations of Bogra Doi contributes substantially to the local economies by providing employment, and some regional economic growth and stability. However, without government or external support, the marketing of Bogra Doi cannot expand internationally, since the companies cannot face the corresponding high risks. In a USAID report, M. Field and Knopp (2003) posited that most small companies in Bangladesh were trapped in a condition of "lack of market access" which is frequently identified as one of the main constraints in growing, or entering new markets. Other major constraints are lack of innovative development and marketing expertise.

The Bogra Doi variety, Shokti Doi, is a case that demonstrates the importance of outside support and development and marketing expertise. Muhammad Yunus, the revered founder of the Grameen Bank, took up a very sweet Bogra Doi in a joint venture as a social business enterprise with the Danone Group and developed the product as a contribution to the health of local village children, The Danone Group tested the product concept as well as the packaging, and launched the product as "Yoghurt Shokti Doi" which means "Yoghurt for Power" (Yunus, 2008; Yunus & Grameen Bank, 2009). Due to Shokti Doi's good reputation and the knowhow of Grameen Danone, the business expanded from distribution to only a

number of small retail stores located in and around Bogra to distribution to a large number of stores in neighbouring cities (Yunus, 2011).

However, there are still many unnamed rural stores that make and sell sweet yoghurts, which are traditionally purchased on a family basis or in big size packages (1 kg or ½ kg). Table 2.3 shows the competition between those products in terms of offered package size and price.

**Table 2.3: Yoghurt Competitors and Package Size**

| Name of Competitors | Price (US$/Kg) |
|---|---|
| Premium sweet | 3.50 |
| Rosh | 2.80 |
| Exclusive sweet | 2.80 |
| Vikrampur mistanna vandar | 2.24 |
| Tangail mistanna vandar | 2.24 |
| Alauddin sweet | 1.96 |
| Muslim sweet | 1.96 |
| Baneful sweet | 2.24 |
| Modhubon sweet | 1.68 |
| Vagyakul mistanna vandar | 1.96 |
| Moron chad | 1.96 |

Source: Chowdhury et al. (2012)

Usually, consumers are more concerned about the taste and thickness of this product than for its nutritional value. Based on this consumer preference, the clay-pot packaging of these rural yoghurts positively influences the yoghurt appearance. The pot soaks up the water of the yoghurt and keeps it thick and cold, as well as looking nice. However, for sale in the big cities, these pots are covered with thin plastic, tied with a rope, and put in a cardboard box (Chowdhury et al., 2012). Table 2.4 presents the percentage of Bangladeshi food consumption in 2005. Bangladeshis spend only 3.46% of their food purchases on milk/milk products including yoghurt, compared to all major food items. However, yoghurts are very popular, especially for special occasions with large gatherings or after dinner as dessert (Chowdhury et al., 2012).

**Table 2.4: Percentage Share of Food Expenditure by Major Food Items in Bangladesh (2005)**

| % of Total | Cereal | Pulses | Fish | Meat & Eggs | Vegetables | Milk/ Milk Products | Edible Oil | Spices | Fruits | Sugar | Beverages |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rural | 42.25 | 2.39 | 11.46 | 7.64 | 8.34 | 3.46 | 4.07 | 7.18 | 2.97 | 1.54 | 0.45 |

Source: Bangladesh Bureau of Statistics May 2007[4]

With its unique flavours and fame in Bangladesh, Bogra Doi could potentially be extended to the international market. Yet, this will not happen without government assistance in terms of reasonable assurance of profit and in terms of support of a production cycle that offers opportunities for specialization, innovation, scooping larger market, and achieving economies of scale. The market position of Bogra Doi can be expanded by improving the quality and variety of the types of products available in order to satisfy the demand of many different kinds of buyers. In terms of the focus of this thesis, the appearance of the packaging needs to be substantially developed to attract the attention of international markets.

## 2.4 Buyer Classification

This section explores in detail the theories and past studies regarding patterns of purchase rationales. Classification of buyers according to various variables such as buying proportion and demography is complex and various theories have been developed to ensure validity. Buyer classification is particularly relevant to the focus of this study, which is on the marketing, particularly the packaging, of locally produced niche products to a wider consumer target. Since consumers vary based on their purpose in buying the products (Bakpia and Bogra Doi), whether they buy as a gift or to consume themselves, the insertion of buyer classification (light, medium, and heavy) as well as non-buyer is expected to interpret the relationship between product attribute (package colour), responses, and the reason behind product purchase. Using this information, marketers could expand their businesses to attract a greater variety of

[4] Bangladesh Bureau of Statistics, for further details see:
http://www.bbs.gov.bd/site/page/ba56fb8b-c37c-4d7c-9ad2-7d79d1b7da0c/Director-General

consumers. Supporting this statement, demographic changes can cause the target market to expand or shrink, while changes in social or economic trends can influence underlying needs such as safety of the product and can become an increasing factor of repeat buying (Day, 1981).

In the present investigation, shoppers were classified according to certain criteria of purchase proportion: light, medium, heavy, and non-buyer (see Chapter 4). This classification requires careful definition, as the abundant literature demonstrates. Twedt (1964), for example, specified that heavy buyers usually account for 7-10 times the volume of purchases of light buyers. Heavy buyers buy the product more often and buy a greater variety of brands (Bass, Tigert, & Lonsdale, 1968). The time as a factor can also be used to define heavy and light buyers. A longer the time frame allows a greater distinction to be made between heavy buyers and light buyers, as heavy buyers have more opportunity to reveal their stronger preferences. Alternatively, if the time frame is too short, there emerges the risk that the purchases will not represent the long-run propensity of the customer to buy the brand (Goodhardt, Ehrenberg, & Chatfield, 1984; Schmittlein, Bemmaor, & Morrison, 1985).

Romaniuk and Wight (2015) proposed two different ways of identifying a heavy buyer on the basis of purchasing frequency. First, they suggested that buyers be classified proportionally as in the Pareto share (R. Koch, 2011) by investigating, for instance, the brand's 20% heaviest buyers on the basis of purchase frequency. Second, they suggested the use of absolute purchase frequency as the threshold for classification as heavy buyer, for example, the purchase of ten or more packs of toothpaste in a year. Another classification of heavy buyers from Romaniuk and Wight (2015) suggested using three different approaches (1) the highest or top 20%, (2) the highest or top 10% of total purchases relative to other buyers, (3) absolute category purchase frequency or buying more than five times if the average annual category purchase frequency is $\leq$20, or ten or more times if the average annual category purchase

frequency is >20. These three different approaches aim to ensure that findings are generalizable across various heavy-buyer classifications and that any instability of the top 20% categorization is not simply due to a too broad concept of heavy buyer. It also avoids too much heterogeneity in terms of number of purchases that define the heavy buyer, particularly when comparing across categories.

The comparison of classifications of buyers as defined by product category and by product brand in Romaniuk and Wight (2015) study is also relevant. Their findings revealed that when buyers buy less in the product category, there is also less opportunity for heavy brand purchase. For example, income and the number of family members significantly influence the heavy buyer status. The greater the number of family members, the more goods (household consumables such as food and personal care) have to be purchased. Therefore, any changes in size of household, such as children leaving home, marriage/divorce, or the death of a family member may impact the buyer classification (Romaniuk & Wight, 2015).

Therefore, the qualification as heavy brand buyers is also less likely to be fulfilled by these customers. Hence, instability of heavy buying of category of products produces instability of heavy brand purchase. Therefore, using product category to classify buyers is more reliable rather than using product brand.

### 2.4.1 Buyer Proportion and Brand Loyalty

The market share of the brand conveys the number of buyers (Uncles, Ehrenberg, & Hammond, 1995). In a recent brand study, Romaniuk and Wight (2015) explained that the more times a brand is bought, the greater the stability of heavy brand buyers. They found that across brands, categories and classification methods, approximately 50 percent of brands show a consistent annual stability for heavy brand buyers, which is mainly influenced by the brand's average purchase frequency.

Regarding store brands, Benito, Román, and Guillén (2015) found significant differences between heavy and light buyers, while the perceived quality of a store brand is significantly more important for light buyers. Further, light buyers placed more importance on perceived quality of the store brand than heavy buyers (Benito et al., 2015). In similar study, Rubio, Oubiña, and Gómez-Suárez (2015) argued that there is a positive and significant price and value consciousness in regard to value for money, although here, weight of price is much higher than weight of quality and much higher for heavy buyers than for medium and light buyers. Furthermore, light buyers who are more price-conscious perceive greater value in store brand, whereas light buyers who are more quality-conscious perceive less quality in store brand. Hence, there is negative relationship between quality consciousness and store brand value for money for light buyers. Low prices act as the main reason for light buyers of store brands when they become more price-conscious. A finding in an earlier study indicated that the light buyer has stronger preference for price discount over product (Ong, Ho, & Tripp, 1997). Finally, due to greater value that heavy buyers perceive on store brands compared to light buyers, heavy buyers are more loyal to store brand (Rubio et al., 2015; Rubio, Villasenor, & Oubina, 2014), as store brand identification of value-conscious heavy buyers is proportionally higher than that of value-conscious light buyers.

In terms of the relationship between groups of users/buyers of certain products with one popular, simple, but effective marketing communication, “word-of-mouth”, Holmes and Lett (1977) determined that heavy buyers tend to be committed to more word-of-mouth activity than light buyers. In relation to other elements of consumer behaviour, including consumers’ perception and intention to purchase, it is said that buyer proportion (heavy versus light) of food products (especially organic foods) is linked with consumers’ choice of product in terms of the effect of taste, freshness, health, environmental issues, animal welfare (Millock, Wier, & Andersen, 2004), support for local economy, intention to purchase or price or willingness to pay, product knowledge, income level, socio-demographic characteristics, local origin of

organic food, logo and labeling system (Durham & Andrade, 2005; Hemmerling, Hamm, & Spiller, 2015; Hughner, McDonagh, Prothero, Shultz, & Stanton, 2007; Irandoust, 2016; Schleenbecker & Hamm, 2013; Torjusen, Lieblein, Wandel, & Francis, 2001; Verhoef, 2005; Yiridoe, Bonti-Ankomah, & Martin, 2005).Similarly, Eisinger-Watzl, Wittig, Heuer, and Hoffmann (2015) stated that buyers of organic food make healthier food choices than non-buyers. This means that consumers' perception regarding healthy food influences their buying behaviour, and further affects how they will be classified as heavy, medium, light buyers or even non-buyers.

Further, past studies have found that there is a correlation between purchase incidence and brand loyalty. The less frequently a buyer buys a category product the more loyal the buyer is to a particular brand. Therefore infrequent buyers of a category would tend to be more brand loyal compared to infrequent buyers of a brand since infrequent category buyers have fewer occasions to buy competitive brands (Dowling & Uncles, 1997; Stern & Hammond, 2004). Infrequent cigarette buyers, for example, tend to be more brand-loyal compared to heavy cigarette buyers who are less loyal to specific brands. It is evident that the purchase weight of light, medium, or heavy buyers influences the share-based measures of loyalty (Deighton, Henderson, & Neslin, 1994; Krishnamurthi & Raj, 1991; Stern & Hammond, 2004).

Ehrenberg, Uncles, and Goodhardt (2004) also reported that light buyers tend to exhibit high loyalty behavior, since they make fewer purchases (perhaps 100% loyal), but only if the comparison of light and heavy buyers is over the same time period. However, Stern and Hammond (2004) pointed out that when comparing brand loyalty across an equal or predetermined number of purchases, heavy buyers show more loyalty than lighter buyers. They also raised the question of why heavier buyers were more brand loyal than lighter buyers at low levels of purchasing. The answer may be that light buyers may have less opportunity to remember their brand experience and convert that learning into purchase decisions. They may forget their brand experience more readily than frequent buyers.

A longer time frame may also be a significant factor in the characterization of heavy, medium and light buyers. The loyalty of very frequent category buyers may be different from that of the average buyer in a six-month to two-year period (Bhattacharya, Fader, Lodish, & DeSarbo, 1996; Fader & Schmittlein, 1993; Stern & Hammond, 2004; Tellis, 1988).

Thus, the number of purchases and the time frame within which they occurred need to be considered when determining customer brand loyalty. These considerations are important for marketers examining buyer behaviour. In brief, buyer classification requires consideration of the following points: (1) There are various methods for differentiating between consumers based on their purchase weight into heavy and light or frequent and infrequent buyers status; (2) Category purchase is more reliable than brand purchase as a measure to characterize heavy buyer status; and (3) demographic variables also impact buyer status.

Figure 2.1 presents an outline of the literature on buyer classification and summarizes the three major points of discussion: buying pattern categorization, types of buying, and other items related to the classification of heavy and light buyers.

| | | |
|---|---|---|
| **Buyers Proportion** | Buying pattern categorization | Heavy users usually account for 7-10 times the volume of light users (Twedt, 1964) |
| | | Two common ways (Romaniuk & Wight, 2015):<br>(1) Classify proportionally as in the Pareto share (e.g.(R. Koch, 2011))<br>(2) Use absolute purchase frequency |
| | | Study of stability and sales contribution of heavy-buying households (Romaniuk & Wight, 2015):<br>(1) Highest/top 20 percent<br>(2) Highest/top 10 percent by purchase weight relative to other buyers<br>(3) Absolute purchase frequency |
| | | A longer the time frame allows a greater distinction to be made between heavy buyers and light buyers, as heavy buyers have more opportunity to reveal their stronger preferences (Goodhardt et al., 1984; Schmittlein et al., 1985) |
| | In terms of two different types of buying | Categories buyer:<br>- Heavy-category-buyer<br>- Light-category-buyer |
| | | Brand buyer:<br>- Heavy-brand-buyer<br>- Light-brand-buyer |
| | In terms of other items | Consumer response:<br>- Consumer perceived quality (Benito et al. (2015)<br>- Consumer loyalty (Bhattacharya et al., 1996; Dawes, 2014; Deighton et al., 1994; Dowling & Uncles, 1997; Fader & Schmittlein, 1993; Krishnamurthi & Raj, 1991; Stern & Hammond, 2004; Tellis, 1988) |
| | | Various demographic variables such as income, household size (Kuruvilla & Joshi, 2010; Romaniuk & Wight, 2015) |

**Figure 2.1: Literature related to Theories of Buyer Proportion**

Figure 2.1 shows that the literature reviewed in this chapter proposed three different ways of identifying buyers proportion: buying pattern categorization, two different types of buying, and other items. The buying pattern categorization shows that heavy buyers have more opportunity to reveal stronger preferences compared to light buyers This group would be expected to be

more responsive to the colour questions in the current study which focused on the relationship between consumers' preferences toward colour and the colour of food package.

The second distinction between light and heavy buyers made by the literature is between category buyers and brand buyers. The third distinction consists of the other items that identify buyers proportion: consumers' responses regarding perceived quality and loyalty. Finally, the Figure provides the various demographic variables related to buyers proportion such as income and household size which are predicted to impact on whether buyers are classified into light, medium or heavy buyers.

This literature provided the underlying information on buyer proportion on which this investigation is based. The next section explores the importance of buyer proportion in this current investigation.

### 2.4.3 Significance of Buyer Proportion to this Study

The buyer proportion of the two regionally produced products, Bakpia and Bogra Doi that are the subjects of this research, is crucial to our examination of the packaging and marketing of these products, as buyers classification affects sales performance. Twedt (1964) stressed the importance of the purchase concentration phenomenon in the United States where a disproportionately large share of sales across 18 major product categories was dominated by a minority of consumers. Twedt's findings, confirmed by other researchers (Cook Jr & Mindak, 1984; Goldsmith & Litvin, 1999; Hallberg, 1995), show that marketers should understand the attitudinal and behavioral differences between heavy and light buyers, and this is confirmed by other researchers. Volume segmentation is an important segmenting variable for consideration by marketing practitioners and researchers (Chiou & Pan, 2009; Goldsmith & Litvin, 1999). The heavier the buyers, the more loyal (Nelson-Field, Riebe, and Sharp (2012),

since the heavy buyers are easier to reach than light buyers, as they are more readily targeted and have a greater tendency to process advertising messages mentally (Sharp, 2010).

In regard to food packaging, which is the focus of this investigation, consumer classification by purchase weight into heavy, medium, or light buyers is influenced by the packaging. Sharp (2010) found that heavy buyers receive reinforcement from brand marketing efforts, including packaging because they have a greater tendency to analyze price, value, information and trustworthiness, as shown in the earlier findings of Yavas and Riecken (1981) regarding heavy internet shoppers.

## 2.5 Gender and Age

The demographic factors of gender and age are two additional variables included in this investigation. Earlier studies found that age influences the response qualities (Groves & Magilavy, 1986; Webster, 1996). Another study concluded that age and gender affect buyers classification of a certain product (lotion) by showing that heavy buyers (of a lotion) were composed of females rather than males, as well as older consumers rather than younger consumers (Ong, 1999). This was because older consumers were more value-conscious or had more money and were more willing to store the product.

In the case of store brands, age influences how consumers will be distinguished into heavy or light buyers of store brands. Dick, Jain, and Richardson (1995) argued that older households are inclined to avoid store brands compared to the younger ones. Further, consumers under 45 years old tend to be heavier store brands buyers. Demographic characteristics (e.g. age, gender, income, marital status) affect consumer demand, choice and consumption of organic foods (Blend & Van Ravenswaay, 1999; Hemmerling et al., 2015; Irandoust, 2016; Loureiro, McCluskey, & Mittelhammer, 2001; Millock et al., 2004; Schleenbecker & Hamm, 2013; Thompson, 1998; Thompson & Kidwell, 1998; Wessells, Johnston, & Donath, 1999; Yiridoe et

al., 2005), together with health (Hemmerling et al., 2015; Millock et al., 2004; Schleenbecker & Hamm, 2013; Torjusen et al., 2001; Yiridoe et al., 2005), quality (e.g. taste and freshness) (Hemmerling et al., 2015; Millock et al., 2004; Schleenbecker & Hamm, 2013; Yiridoe et al., 2005), food safety (Loureiro et al., 2001), environmental issues (Blend & Van Ravenswaay, 1999; Hemmerling et al., 2015; Loureiro et al., 2001; Millock et al., 2004; Schleenbecker & Hamm, 2013; Wessells et al., 1999; Yiridoe et al., 2005), originality of organic food (Hemmerling et al., 2015; Schleenbecker & Hamm, 2013; Yiridoe et al., 2005), willingness to pay (Hemmerling et al., 2015; Schleenbecker & Hamm, 2013; Yiridoe et al., 2005), price level (Thompson & Kidwell, 1998), and store choice (Thompson & Kidwell, 1998).

With respect to colour, there are differences in colour preferences and perceptions in terms of gender, age, and culture (Crozier, 1996; Westland & Shin, 2015). However, Dwivedi and Mehrotra (2015) revealed that there is no significant relationship of colour preference either with gender or age. Yet, the relationship exists when it comes to choice of a specific colour. Another demographic indication in recent study (Puccinelli, Chandrashekaran, Grewal, & Suri, 2013) found that younger consumers are more concerned about product colour compare to older consumers.

## 2.6 Summary

This chapter has shown that distinguishing buyers proportion into different purchase weights of heavy, medium, or light buyers requires a number of approaches. The issue is complex, influenced by numerous variables such as purchase frequency, the time frame, demographic conditions and advertising exposure. This classification of buying behaviour impacts other aspects of consumer response such as consumers' perceived product quality and consumers' brand loyalty.

Accurate buyer classification is important in terms of marketing, particularly of the kind of locally produced products that are the subject of this study. This chapter has introduced these two products in terms of the marketing issues that need development for their sales expansion beyond their regions. The next chapter reviews the literature on colour in marketing.

# CHAPTER 3 : LITERATURE REVIEW – COLOUR IN MARKETING

## 3.1 Overview

This chapter reviews the literature on colour, specifically the colour on product packaging that forms the theoretical basis for this current study. The aim of the chapter is to review the relevant theories and literatures, and bring them together in order to clarify the context of the study. Section 3.2 briefly outlines some theories of colour, specifically, from the psychological and semiotic perspective. Section 3.3 focuses on colour in marketing, particularly colour association and consumer behaviour, consumer colour preference and consumer colour experience of food. Section 3.4 discusses packaging in general, while Section 3.5 focuses on colour of package, package colour and brand information, the semiotic approach of packaging colour, and package comprehension. Section 3.6 gives a general overview of food packaging and consumer expectations while Section 3.7 discusses colour of food package, sensory science, and health perceptions, of food packaging colour. Sections 3.8 and 3.9 deal with other variables in marketing: word of mouth and perceived quality, the emotional perspective, purchase intentions, and colour studies related to perceived quality. The final section, Section 3.10 focuses on purchase intention. The wide theoretical approach in this chapter reflects the scope of this study's approach to the examination of colour in the marketing of the two locally produced niche food products of Bangladesh and Indonesia.

## 3.2 Theories of Colour

In this chapter, a necessarily selective approach is adopted in reviewing the vast literature on colour. A. J. Elliot and Maier (2014) found that earlier colour studies focused on: (1) colour physics, or how colour is defined and modelled; (2) colour linguistics and categorization, or how colour is represented in language; (3) various practical issues such as colour

reproduction, colour deficiency, and colour appearance phenomena, such as illusions; (4) colour physiology and neuroscience, or how the human eye and brain process colour stimuli. Many studies link colours to health (Kido, 2000), emotions (Bellizzi, Crowley, & Hasty, 1983; Cimbalo, Beck, & Sendziak, 1978; K. W. Jacobs & Suess, 1975; Kotler, 1973; Piqueras-Fiszman & Spence, 2011) gender (Khouw, 2002), and culture (Sable & Akcay, 2010; Wiegersma & Van der Elst, 1988).

As the current study explored how people react toward the colour of packaging, recent colour studies regarding how the human eye and brain process colour stimuli, are reviewed in this chapter also. Since the human brain processes the stimuli gained from the colour of the product package, the colour will affect consumers' perceptions and expectations about the product they aim to buy and consume. Theories regarding this phenomenon are the focus of this chapter.

### 3.2.1 Psychology of Colour

Colour is an omnipresent stimulus and perceived on every object that humans view in their daily life, even in dreams (A. J. Elliot & Maier, 2014; Rechtschaffen & Buchignani, 1992). Most human-made objects are coloured, and colour choices significantly affect human perception and action. Consideration of colour emerges regularly in human decision making and conversation and influence of colour on human feelings, aesthetic judgments, and colour associations is generally recognized. For example, we discuss which colour clothes to wear, pick a colour for new car or bicycle, and comment on the colour of a friend's handbag or shoes. Crozier (1996), in his study about the emotional impact of colour, noted that the study of the psychology of colour has produced a number of questions, such as: Why are some colours aesthetically more pleasing than others? Do specific colours evoke particular moods – and if so, why? Does a preference for a specific colour reveal something about a person's personality?

The study of colour was developed scientifically since the 19th century within the field of psychology. The influence of colour perception on emotional experience was early argued by Goethe in his *Theory of Colours* (1810) as mentioned by A. J. Elliot and Maier (2014). In the twentieth century, Goldstein (1942) developed Goethe's ideas using clinical observation, proposing that colour perception produces physiological reactions in the body, which are manifested in emotions, cognitive focus, and motor behaviour. Ott (1979) also showed that colour generates physical reactions in the body. In Goldstein's and Ott's investigations, red and yellow are posited to stimulate or prompt an outward focus, and to produce forceful action. Green and blue are conceived as relaxing, encouraging an inward focus, and producing calm as well as stable actions. Pink and light orange are recognized as exerting an endocrine-based weakening effect on muscle function, whereas blue is acknowledged as having an endocrine-based strengthening effect on muscle function. Humphrey (cited in Crozier, 1996) argued that colour affects the parts of the nervous system related to emotional reactions. Colours possess the capacity to affect an organisms' arousal. For example, when people suddenly face red traffic lights, their heart rate, brain activity, and skin responses increase.

Colour affects human activity. For example, the colour red negatively influences performance in challenging tasks that require mental manipulation and flexibility. Here, red is associated with failure and danger, which arouses avoidance motivation and impedes the attainment of peak performance (A. J. Elliot et al., 2007). Another example that these researchers provided showed that individuals who viewed red before or during tasks involving anagrams, analogies, or math, performed worse than individuals who viewed green. Lakens et al. (2012) produced preliminary evidence regarding the positive impact of the colours green and blue on the performance of a task. Yellow, which commonly indicates caution in signage, was linked with the colour red, as having negative implications in performance outcomes.

While the impact of colours on human psychology is complex and often conflicting, the research literature agrees that colours affect information processing, emotions and behaviour. Figure 3.1 depicts the role of colour in human affect, cognition and behaviour in numerous contexts including decision making, conversation, aesthetic judgement, colour association, colour perception.

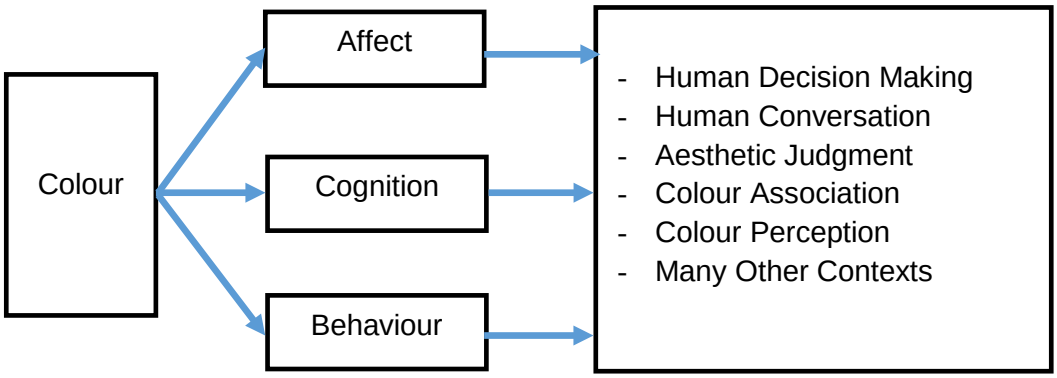



**Figure 3.1: Psychological Role of Colour**

Figure 3.1 regarding psychology of colour shows the relationship between colour and three different human reactions in daily life. Colour is related to affect, cognition and behaviour, all of which affect human decision-making, conversation, aesthetic judgments, colour association, colour perception, and many areas of human action. The present investigation examined colour's influence on decision making, as consumers' perceptions and associations of colour affect their decision to make a purchase based on the elements of the product that attracts their attention.

In summary, theoretical development describing colour as an omnipresent catalyst in human daily life provides impetus for investigating the effect of colour in human experience of their everyday routines. Further, among the influences of colour on people's affect, cognition, and behavior, the current research focused on the behavioural aspect of consumers, as arguably, colour research is critical for the advancement of marketing theory, and presents a highly promising area of growth for marketing practice (Labrecque et al., 2013).

The next subsection discusses colour association, an important aspect of the psychology of colour, in terms of the semiotics of colour.

### 3.2.2 Semiotics of Colour

Colour association is an important concept in this current study. Osgood et al. (1975, cited in Chan & Courtney, 2001, p. 165) divided colour associations into four categories: (1) concrete identification with things normally having a given colour (e.g., blue sky, green cabbage); (2) concrete associations with things culturally associated with a colour (e.g., black bow tie); (3) abstract association which is metaphorical (e.g., blue Monday, yellow-bellied, pink film); and (4) abstract symbolism which is based on culturally significant concepts and not obviously metaphorical (e.g., red for communism).

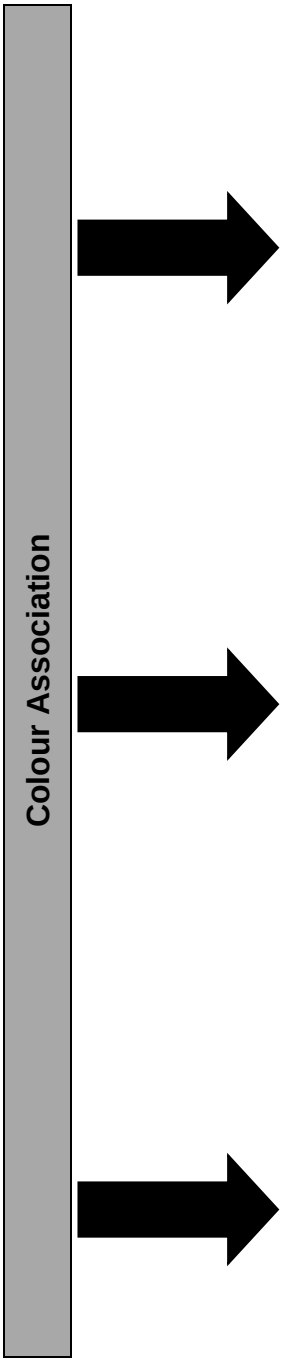
Colours are associated with certain images (Lane, 1991; Madden, Hewett, & Roth, 2000). For example, Frank and Gilovich (1988) proposed that black is associated with negative concepts such as evil and death, and prompts people to react aggressively. Using wider concepts, Bergum and Bergum (1981) investigated popular metaphoric stereotypes related to colour. The primary colours (red, green, blue) appeared most associated with the concepts of safe, danger, cold, hot, go, stop, near, far, caution, on, and off. Meanwhile Lane (1991) associated blue with wealth, trust, and security; grey represents strength, exclusivity, and success; and orange denotes cheapness. Differently, Soldat, Sinclair, and Mark (1997) proposed that blue is associated with sadness, and red is associated with happiness.

More recently, Hutchings (2015) argued that colours represent specific objects and events. For example green is associated with springtime growth, new life, happiness, and the innocence of new life (Clarke & Costall, 2008; Moller, A. J. Elliot, & Maier, 2009). However, green is also associated with the colour of decaying flesh, death, and misery. Red is

associated with blood, fire, victory as well as defeat. Blue is associated with a clear blue sky, peace, and tranquillity (Kaya & Epps, 2004; Mehta & Zhu, 2009). Purple is associated with royalty and power because of the expensive colorants used in dress worn by kings. Nevertheless, purple is also associated with colour of bruising, battle, and injury. Yellow is associated with sunshine, warmth, and life. While brown is positively related to cooking, both black and white are identified with both positive and negative associations. Black, white and grey are considered as three achromatic (neutral) colours (Lakens et al., 2012).

In relation to colour association in different cultures, some researchers believe a universal association exists. For example, red represents warmth and passion and white is associated with cleanliness. However, cross-cultural differences are also noticeable (L. Jacobs, Keown, Worthley, & Ghymn, 1991). Culture appears to be an influential factor in colour associations (Viková, Vik, & Kania, 2015). People in different cultures are exposed to different colour associations and develop their own colour preferences based on their own culture's associations (Grossman & Wisenblit, 1999; Madden et al., 2000; Silayoi & Speece, 2004). For example, red, white, and blue are often associated with patriotic feelings in the United States (S. P. Singh, Singh, Grewal, & Chonhenchob, 2012).

Figure 3.2 provides the summary of literatures about colour association. The three major streams are shown: categories of colour association, colours associated with certain images, as well as previous studies on colour in various fields.




| | |
|---|---|
| Categories of colour association (Osgood et al., 1975, in Chan and Courtney (2001) | (1) concrete identification – names of things normally having a given colour (e.g., blue sky, green cabbage)<br>(2) concrete associations – names of things culturally associated with a colour (e.g., black bow tie)<br>(3) abstract association – metaphorical, (e.g., blue Monday, yellow-bellied, pink film)<br>(4) abstract symbolism – culturally significant concepts and not obviously metaphorical (e.g., red communism) |
| Colours associated with certain images (Lane, 1991) | ▪ Black (achromatic colour (A. J. Elliot et al., 2007))→ evil, death ((Frank & Gilovich, 1988)<br>▪ Blue→ wealth, trust, security (Lane, 1991), sadness (Soldat et al., 1997)<br>▪ Brown→ positive cooking (Hutchings, 2015)<br>▪ Gray (achromatic colour (A. J. Elliot et al., 2007))→ strength, exclusivity, and success (Lane, 1991)<br>▪ Green→ springtime growth, new life, happiness, the innocence, decaying flesh, death, misery (Hutchings, 2015), go (Bergum & Bergum, 1981)<br>▪ Orange→ cheapness (Lane, 1991)<br>▪ Purple→ royalty, power, battle, injury (Hutchings, 2015)<br>▪ Red→ happiness, blood, fire (Hutchings, 2015), stop (Bergum & Bergum, 1981)<br>▪ White (achromatic colour (A. J. Elliot et al., 2007))<br>▪ Yellow→ sunshine, warm, life (Hutchings, 2015) |
| Studies linked to colour | ▪ Health (Kido, 2000)<br>▪ Culture (Sable & Akcay, 2010; Wiegersma & Van der Elst, 1988)<br>▪ Emotions (Bellizzi et al., 1983; Cimbalo et al., 1978; K. W. Jacobs & Suess, 1975; Kotler, 1973; Piqueras-Fiszman & Spence, 2011)<br>▪ Gender (Khouw, 2002) |

**Figure 3.2: Colour Association in the Literature**

Figure 3.2 displays the literature distinguishing colour association into three main streams: the first stream consists of four categories (1) concrete identification, (2) concrete association, (3) abstract association-metaphorical, and (4) abstract symbolism; the second stream refers to colour association with certain images, which is an important distinction for this investigation on package colours.

The third category of colour association shown in the Figure refers to the various fields that include literature on colour, such as health science, cultural studies, human emotion studies and gender studies. The inclusion of colours in these various studies proves that colour is significant in the daily routines of human life. The findings of some of these studies became the basis of some of the questions in this current study.

In summary, the close relationship between colour, affect, cognition and behaviour has attracted enormous interest from researchers in different disciplines with a variety of focuses, such as “colour meaning”, “colour image”, “colour emotion”, and “colour expectations”. Undoubtedly, colour research contributes significantly to marketing theory, and has productive implications for marketing practice (Labrecque et al., 2013). The following section concentrates on colour in the area of marketing. This present research focused on marketing perspectives and consumer behaviour in relation to human responses to colour as it influences affect, cognition and behaviour.

### 3.3 Colour in Marketing

Colour plays significant roles in marketing communication, enhances brand recognition, and translates intended visual impressions into product. Its influence on consumer behaviour is recognised as significant. The impact of colour can be attributed to a wide range of colour associations in which colour is seen as either a symbol or a sign of emotion. Colour as an emotion messenger has attracted enormous interest from researchers in different disciplines, who have given various names to work in this area such as “colour meaning”, “colour image”, “colour emotion”, and “colour expectations”.

Cavassilas (2007, cited in Gollety & Guichard, 2011) examined the capacity of colour in marketing from the perspective of the sensory and emotional force of the image. Colour emotional responses can be classified into independent, orthogonal dimensions, and

correlated closely with the three colour appearance attributes: hue (corresponding to the warm/cool response), lightness (heavy/light response), and chroma (active/passive response). It has been shown that the third attribute is related to liking and has been called by some researchers colour preference. Specifically, Crozier (1996) mentioned stimuli in terms of three basic dimensions of appearance: hue, brightness (value), and saturation (chroma), relating perceptual experience in an approximate way to the physical properties of light waves. Hue refers to what we have so far been calling colour (red, green, yellow, etc.) and corresponds to the wavelength of light. Brightness is a function of the energy of the light source and corresponds to the amplitude or height of the wave, although it is also related to hue, since some hues appear brighter than others even when they have equal amplitudes. Saturation refers to the apparent purity of the colour, and is associated with the complexity of the light wave, so that a light wave composed of only a few different wavelengths will appear most saturated and least diluted. This three-dimensional nature of colour leads to inevitable complications when we study these criteria in marketing. Small variations at one of these levels may lead to differing perceptions of colour (Divard & Urien, 2001 and Roullet et al., 2003, cited in Gollety & Guichard, 2011).

Gorn et al. (1997) maintained that empirical research on colour in marketing can be separated into three streams: (1) colour in magazine advertisements, for example, Schindler (1986); (2) colour as opposed to back and white in magazine ads. For example, Sparkman Jr and Austin (1980, p. 39) found that around “41% of sales volume may be realized by using one-colour, single-exposure newspaper ads instead of otherwise identical black-and-white ads, for price-reduced items.” In another study, Sparkman Jr and Austin (1980) reported that the use of colour in ads and the extent to which the claims in the ads are substantiated can jointly influence consumers’ attitudes. (3) The third stream of colour in marketing tested the effects of specific colours on consumer responses. This third stream is relevant to the research goals of this current study. A. J. Elliot et al. (2007) noted that twenty-first century works on colour and psychological function raised questions regarding the relationship between colour of office

walls and workers' productivity; or, what is the most fashionable colour, or which colour influences the taste of the food.

The wide range of associations that account for the impact of colour in marketing demonstrates that colour is used in marketing as a symbol or sign, as a metaphor and a metonym. This section reviews the research on colour association and consumer behaviour, consumer colour preference, and colour and consumer experience of food and drink.

### 3.3.1 Colour Association and Consumer Behaviour

There is considerable marketing research on the psychological effect of colour on buyers' behaviour. Colour association is one of the most important factors in the emotional impact of colour, personal preference being another. Colours arouse different emotional reactions (Viková et al., 2015), which, although subjective, have common characteristics across individuals.

Colour words do not have specific emotional meanings, yet they do have specific associations and symbolic uses. This phenomenon, in which to one individual colour is permitted one meaning at a time and is not unique to the same person at different times and contexts, or to the same person in different emotional contexts, can be termed the principle singularity. Personal preferences, memories or associations affect colour perception. Similarly, Viková et al. (2015) argued that colours arouse different emotional reactions. Although colours can have different psychological effects on the behaviour of buyers, colours have common characteristics, which coincide with most people. This can also be seen at work in the supermarket where shoppers seem happy that package colours mean what the marketing man say they mean (Hutchings, 2015).

Furthermore, Hutchings (2015) said that colour association brings us back to the start, which is the emotional aspect of colour. Vital to design are the feelings we get from the colour and the total appearance of the space. Or, as more eloquently expressed by Pablo Picasso, “Why do two colours, put one next to the other, sing? Can one really explain this?” He also said “Colours like features, follow the changes of the emotions.” Similarly, an important development in the understanding of design is that we scale such feelings, or what are now called emotions, for example, how warm, how hard, how comfortable does this space appear to you, how does this colour arrangement make you feel?

Diverse findings have been shown with regard to the cultural difference in colour emotion. Some studies have suggested that colour preference is a universal and consistent psychophysical pattern across cultures (Ou et al., 2012). Other studies said that in different cultures, colours have different concepts that can be have both positive and negative meanings and interpretations from dimension of community culture of consumption. A review of literature related to colour in cross-cultural perspective exhibited a largely western focus. Assuming a narrow western perspective of colours as “universal” and applying this to alien markets has often led to cultural “faux pas” (Aslam, 2006).

Colours evoke powerful product association and product category imagery. For example, in the United States, certain colours are related to certain association (Cheskin & Masten, 1987, cited in Aslam, 2006, p. 29). Blue is associated with toys, health foods, dairy foods, desserts, and financial services. Red is related to toys, pizzas, and meat entrees. Silver is linked to dairy foods. Green represents health foods, vegetable entrees, toys, and financial services. Yellow is associated with dairy foods, health foods, desserts, and toys. Pink is associated with cosmetics and Barbie dolls. Keller (1993) described two ways of how product association is created: (1) Direct experience with the product or service, and (2) Information about the product or service communicated by the company, commercial sources, or word-of-mouth.

Cheng-Hsui Chen (2001, p. 450) argued that colour in product association is part of brand association and can be divided into two different attribute associations; functional (e.g. product attribute, perceived quality, and functional benefits) and non-functional (symbolic association, emotional association, price/value, user/usage situation). For example, as an integral aspect of logos and product packaging (e.g., Coca Cola red, IBM blue, Cadbury purple), colour plays a significant role in shaping image/personality and facilitating reflexive purchasing behaviour (Hynes, 2009). Blue is said to be the most common colour utilized in the logos of major companies (Labrecque et al., 2013), as blue has been linked to perceptions of competence (Labrecque & Milne, 2012).

Researchers have addressed issues such as colour in atmospherics: for example, the influence of the colour of the building, store, or website in attracting consumers, keeping them engaged, and enhancing their shopping experience. Blue appears to be a highly positive colour, as blue stores and websites are rated as more relaxing, less crowded, and more trustworthy (Alberts & van der Geest, 2011; Gorn, Chattopadhyay, Sengupta, & Tripathi, 2004; Lee & Rao, 2010; Yüksel, 2009). Yüksel (2009) argued that a store with a blue-coloured exterior led to perceptions of significantly lower crowding than an orange-coloured exterior. Shoppers exposed to a crowd in a store with a blue-coloured exterior reported more favourable shopping intentions. Similarly, Lee and Rao (2010) found a strong influence of colour on store choice, with 65% of participants choosing the blue store over the green store. Further, there was a significantly different sense of trust expressed between the blue and green stores, and store choice was highly correlated to that difference in trust.

In the website studies, colour not only affects perceived speed of download but also influences users' evaluations of the website and their likelihood of recommending it to others (Gorn et al., 2004). Another study found that the same website using different colour schemes was considered to have different levels of trustworthiness (Alberts & van der Geest, 2011). Bellizzi et al. (1983) and Crowley (1993) examined the effects of hue. For example, red-coloured

backgrounds elicit greater feelings of arousal than blue-coloured backgrounds, whereas products presented against blue-coloured backgrounds are more liked than products presented against red-coloured backgrounds (Bellizzi & Hite, 1992; Middlestadt, 1990).

Colour research in the area of consumer behaviour also pointed to the effect of colour on consumer evaluations of and purchase intentions toward products. Consumers want the product's colour to match its intended use or purpose. For example, they prefer blue for products that are functional or associated with water, and red for products that are recognized as luxury items or associated with status, such as sports cars (Bottomley & Doyle, 2006; Hanss & Böhm, 2012). In many cases, there are already well-established conventions about which colours are appropriate to certain product categories (Piqueras-Fiszman & Spence, 2011; Sacharow, 1970; Wheatley, 1973).

### 3.3.2 Colour – Product Association

It is said that consumers develop preferred colours for particular products because they learn, through association, that certain colours are appropriate for certain product categories. In other word, consumers learn colour associations. There are two applications for this theory: (1) Marketers can identify the associations that consumers have formulated for their product category and attempt to match appropriate colours. This may be more effective for high involvement products, which are accompanied by social risk and may have higher levels of social conformity. Meanwhile, in low involvement products, consumers may be more risky in their colour choice and marketers may have more opportunity to create associations of their own. This aspect of associative learning is of most importance to marketers who can choose the colours they want associated with their products and, by using associative learning mechanisms in promotional activities, can create the desired associations. (2) Marketers can also consider their product's colour, the colour of packaging, and any colours that are associated with the product in advertising, as part of their marketing strategy. These factors

are well within the control of the marketer. Colour meanings can also be created by marketers by pairing colour with images in advertising that represent the qualities of the brand. Using a colour cue can be a potentially strong association, particularly when it is unique to a particular brand (Grossman & Wisenblit, 1999). An example from IBM as a world-wide high-technology company illustrates this point. IBM may want to be perceived as “gentle” and “peaceful” with its blue and white logo, as consumers may prefer a hardware and software vendor that is easy to work with, service-oriented, easy to interpret, and forth. Yet IBM might also want to be associated with high-technology innovation attributions such as “active,” “hot,” and “sharp.” If so, its logo might be supplemented with gold, orange, or red in its advertising, displays, or other communication materials (Madden et al., 2000).

### 3.3.3 Colour Association in Food and Product Package

In relation to colour association and food, people associated each of the basic tastes (e.g., sweet, sour, bitter, and salty) with specific colours (e.g., red, green, black, and white) (Woods & Spence, 2016). Linked to colour-taste associations, there was evidence that pairs of colours could indeed communicate taste information more consistently than single colour (Woods and Spence, 2016). Hence, consumer association regarding food package colour were mainly related to flavour (Hutchings, 2003; Marshall et al., 2006).

Colour is likely to generate a positive association (Hutchings, 2003; Marshall et al., 2006). Another study by Leon et al. (1999) identified the positive influence of colour in the choice of children for biscuits while Lavin and Lawless (1998) demonstrated that the smell and colour of a food product influence the perception children have of its sweetness. There are not many studies that try to understand the influence of colour in the consumer’s choice process due to the complexity of the colour variable, when it is understood by its different characteristics (Gollety and Guichard, 2011).

### 3.3.4 Consumer Colour Preference

The consideration of colour preference is important in design, advertising, and marketing. In marketing, colour preference captures shoppers' desire and attention (Tangkijviwat, Rattanakasamsuk, et al., 2010; Tangkijviwat, Shinoda, et al., 2010) and potentially influences consumers' overall perception of a product (Westland & Shin, 2015). Grossman and Wisenblit (1999) argued that consumers prefer certain colours for various product categories. Therefore, marketers identify the formulated associations of product category by consumers and attempt to match the appropriate colours. Further, marketers consider their product's colour, the colour of packaging, and any colours that are associated with the product in advertising, as part of their marketing strategy.

Colour preference or likeability toward colour has been measured by a question such as "How much do you like this colour?" This led to some inquiries such as "Do people have innate colour preferences?" or "Do people agree in their preferences?" Likeability has been accepted as a rating of colour preference, together with pleasantness, beauty, etc. of colour samples (Tsutsui & Ohmi, 2011). Research has also focused on the particular variables such as age, gender, geographical region, culture, attitude, cognition, and circumstances (Tangkijviwat, Rattanakasamsuk, et al., 2010; Tangkijviwat, Shinoda, et al., 2010).

Colour preferences may impact on effective colour design, and be the final persuasive factor in consumer purchase decisions (Westland & Shin, 2015). This may be particularly relevant to high involvement products, which involve social risk and high levels of social conformity. In high involvement products, colour preference features significantly in high recall for decision making (Dwivedi & Mehrotra, 2015). A "highly involving" product is considered when consumers are motivated to purchase the relevant product carefully (Grossman & Wisenblit, 1999; Zaichkowsky, 1986). Conversely, consumers of low involvement products may take risks with colour choice, and marketers may have a chance to create their own associations.

Guilford asserted that colour preference could be considered a function of a linear combination of lightness and saturation and as sine-cosine function of hue. Results of earlier studies suggested that in the ranking of hue preference, blue is the most preferred colour and yellow, the least (Tangkijviwat, Shinoda, et al., 2010). Similarly, a number of studies have examined preferences for a particular hue by presenting people with colour chips with the results suggesting some degree of consistency in preferences, particularly a reliable liking for blue and an aversion to yellow. On the whole, people tend to prefer hues of shorter wavelength (Crozier, 1996). A study about colour preference affected by mode of colour appearance concluded that colour preference was dominated not only by the colour attributes (hue, chroma, lightness, perceived chromaticness, perceived whiteness, and perceived blackness) but also by the colour appearance mode (Tangkijviwat, Rattanakasamsuk, et al., 2010).

In terms of gender, age, and culture, Crozier (1996) proved that there are differences in colour preferences and perceptions. Hence, unlike colour meaning which tends to be consistent across cultures, colour preference is considered to be different across these variables (Westland & Shin, 2015). A recent study indicated that product colour is more important among young adults than older age groups and more important to females than males. For example, male consumers have been shown to perceive greater savings when product prices are presented in red rather than black (Puccinelli et al., 2013, p. 115). This study provides some evidence that consumers make product colour choices that can be predicted based on knowledge of their personal colour preferences. There is also some evidence that consumer product-colour choices differ between males and females and between different cultural groups (Westland & Shin, 2015). In a study by Dwivedi and Mehrotra (2015) about influence of personality dimensions and aesthetic orientation on consumer's colour preference during car purchase, age, like gender did not show much significance in the colour preference but suggested that there is a relationship when tested for age and choice of a specific colour.

Income did not impact the significance of colour preference but revealed the acceptance of a null hypothesis when tested for choice of colour.

Cultural difference has been found to influence people's perception of colour in terms of likeability and mood enhancing qualities (Andonova & Taylor, 2012). Westland and Shin (2015) found evidence of cultural differences in consumer choice of product colour, while (Ou et al., 2012) found that the emotional impact of colour is different in different cultures. Thus, colour preferences are based on the specific culture's associations (Grossman & Wisenblit, 1999; Madden et al., 2000; Silayoi & Speece, 2004).

Colour association and colour preference in marketing are multidimensional areas of research requiring consideration of a wide range of variables. The following subsection provides an overview of general theories on consumer experience of colour in food and drinks.

### 3.3.5 Consumer Colour Experience of Food

An important area of research is the link between perceptions of colour and flavour in food/beverages. Consistently, experiments have found that colour affects colour-flavour expectations (Kappes, Schmidt, & Lee, 2006; Shankar, Levitan, Prescott, & Spence, 2009; Zellner & Durlach, 2003) and people have strong expectations regarding colour-flavour links. For example people expect red drinks to taste like strawberry or cherry and green drinks to taste like lime, mint, or apple (Shankar, Levitan, & Spence, 2010; Zampini, Sanabria, Phillips, & Spence, 2007; Zampini, Wantling, Phillips, & Spence, 2008). Brown M&Ms are perceived to be more chocolaty than green. Much earlier, Lavin and Lawless (1998) found that colour association together with food smell influences children's perception of the taste (sweetness). Thus, food colour affects the consumers' ability to correctly identify flavour and form distinct flavour profiles and preferences.

Research has also focused on the effect of the colour of tableware (cutlery, plateware, glassware, condiment containers, menus, and atmosphere) on both flavour perception and food/beverage consumption (Spence, Harrar, & Piqueras-Fiszman, 2012). For example, coffee was perceived to be warmer when served in a red cup (Guéguen & Jacob, 2014) and red wine was perceived to have a better flavour when it was served in a blue glass (Varela et al., 2009).

In summary, it has been widely agreed by marketers, advertisers and graphic artists that colour significantly influences consumers in their purchased decisions (Grossman & Wisenblit, 1999). Other authors elaborated that shape and colour significantly affects consumers' association, expected liking, and willingness to purchase (Ares & Deliza, 2010). Table 3.1 outlines the literature on colour in marketing. In general, the literatures discuss colour in marketing with respect to advertising and consumer responses, focussing on three major debates: consumer evaluation of product and intention to purchase, company recognition and brand identification, and atmospheric issues.

**Table 3.1: Colour in Marketing Research**

| | Colour in Marketing Research | | | Author |
|---|---|---|---|---|
| Colour in Marketing Study | Advertising | | - Specific colours used in magazine advertising<br>- The efficacy of colour advertising as compared to black and white advertising | Schindler (1986); Sparkman Jr and Austin (1980); Borgräfe, Favre, and November (1979); Gollety and Guichard (2011) |
| | Consumer Responses / Consumer Behaviour | Consumer Evaluation of Product; Purchasing Intention | - Emotional response to colour → colour association<br>- People's experience and intake of food and drink<br>- Food and beverage package colours<br>- Colour on tableware | Miller and Kahn (2005); Puccinelli et al. (2013); Bottomley and Doyle (2006); Hanss and Böhm (2012); Cavassilas (2007, cited in Gollety & Guichard, 2011); (Divard & Urien, 2001, and Roullet et al., 2003 cited in Gollety & Guichard (2011); Spence, Levitan, Shankar, and Zampini (2010); Shankar et al. (2010); Zampini et al. (2007); Zampini et al. (2008); Kappes et al. (2006); Shankar et al. (2009); Zellner and Durlach (2003); Garber Jr et al. (2000); Wei, Ou, Ronnier Luo, and Hutchings (2015); Spence et al. (2012); Guéguen and Jacob (2014); Genschow, Reutner, and Wänke (2012); Geier, Wansink, and Rozin (2012); Piqueras-Fiszman and Spence (2012); Varela et al. (2009); Van Ittersum and Wansink (2012) |
| | | Company; Brand Identify; Recognition | - Shaping image/personality<br>- Linking to rough perceptions of competence | Hynes (2009); Labrecque et al. (2013); Labrecque and Milne (2012) |
| | | Atmospheric | The influence of building, store, and website colour on:<br>- drawing consumers in<br>- keeping consumers engaged<br>- enhancing consumers' shopping experience | Alberts and van der Geest (2011); Gorn et al. (2004); Lee and Rao (2010); Yüksel (2009) |

Table 3.1 shows two main streams in marketing research on colour. The two overarching streams are advertising and consumer behaviour/responses. Advertising studies focus on specific colours used in the magazine advertising and the efficacy of colour advertising. Consumer behaviour/responses studies focus on consumer evaluation of product and

purchase intention, company brand identification, and atmospheric studies. Studies on consumer evaluation of products and food and beverages colours of package as well as emotional responses to colour were particularly relevant to this current investigation. Studies on atmospherics were also important, as the products under investigation in this current study were local niche products dependent on attracting the tourist market as well as local buyers.

As marketing includes numerous significant components such as branding and packaging, it is essential to review the literature on these. The next section explores the literature on packaging in terms of types, elements, and roles, followed by the section dealing specifically with the colour of packaging (3.5).

## 3.4 Packaging

In marketing literatures, packaging is believed to be part of the product (Ampuero & Vila, 2006; Rundh, 2005) and the brand (Ampuero & Vila, 2006; Rundh, 2005). As a brand element, it is "trademarkable" visual or verbal information that identifies and differentiates a product or service (Keller, 1998, 2005, 2009). According to Cai (2002), a brand element comes in the form of name, term, logo, sign, design, symbol, slogan, package, or a combination of these, of which the name is the first and foremost reference.

Packaging is considered product property or characteristic in some studies (Ampuero & Vila, 2006; Evans & Berman, 1992), whereas Jacoby, Olson, and Haddock (1971) posited that packaging is an extrinsic element of the product, an attribute that is related to the product but does not form a part of the physical product itself. Underwood (2003) noted that packaging is presented as part of the buying and consuming process, but often not directly related to the ingredients that are essential for the product. A recent study by Joutsela et al. (2016) found that the packaging experience can influence consumers' willingness to pay. In summary, the

literature in relation to the examination of packaging includes extrinsic as well as intrinsic factors. This section examines the literature on types, elements and roles of packaging.

### 3.4.1 Types of Packaging

There are three types of packaging (Ampuero & Vila, 2006): primary, secondary and tertiary. Primary packaging has direct contact with the product, such as perfume bottles. Secondary packaging contains one or more primary packages that serve to protect and identify products, to communicate the qualities of product, and is normally discarded before the product is used or consumed (e.g. cardboard box that contains perfume bottles). Tertiary packaging contains the two previous packages and has the function to distribute, unify and protect products throughout the commercial chain (for example the plastic or paper bag with the brand name and logo of the store to carry the products purchased there).

In the current study, the focus is on the first type of packaging because the containers in which the products (Bakpia and Bogra Doi) are packed come in direct contact with the product. The next section regarding elements of packaging discusses colour as part of a package.

### 3.4.2 Elements of Packaging

Packaging consists of two different elements, namely visual and informational. Visual elements cover graphics and colour, with the graphics comprising layout, colour combinations, typography, and product photography, all of which create an image (Silayoi & Speece, 2004, 2007). Past packaging research has documented shape (Bloch, 1995; Schoormans & Robben, 1997), pictures (Underwood et al., 2001), and colours as elements which can attract consumers' attention (Gorn et al., 1997; Grimes & Doole, 1998; Kauppinen-Räisänen & Luomala, 2010). For purchase decisions with low involvement, such as regular purchases or purchase of inexpensive products, the impact of image on customer decision-making is usually

considered to be strong and graphics and colour become critical as the evaluation of other attributes is of less importance (Grossman & Wisenblit, 1999). Packaging size and shape and other visual elements that emerge as crucial dimensions, appear to be used by consumers as a means of simplifying visual heuristics in order to make volume judgments.

The informational element of a package contains product information and packaging technology. Written information can assist consumers in making their decisions carefully as they consider product characteristics (Silayoi & Speece, 2004, 2007). Here, the behaviour of consumers toward products is characterized by high involvement, that is, they need more information and are less influenced by image matters and visual response (Kupiec & Revell, 2001). The technology embodied in the packaging of such products plays a big role in matters such as the "development of new products that are more efficiently produced, packaged for a longer shelf life, environmentally friendly, nutritionally responsive to each of the emerging segments of society, and compliant with maximum food safety requirements" (Silayoi & Speece, 2004, p. 612).

According to Ampuero and Vila (2006), research has shown that class and wealth affect consumer perception regarding colour, typography, graphics and illustrations in product packaging. With respect to package colour, products that are directed to the upper classes, with a high price and based on the aesthetics of elegance and refinement require cold, dark coloured (mainly black) packaging. Packages for elegant products usually feature bold, large, Roman, upper case letters with expanded characters. Graphic forms for non-selective products directed to the middle classes use horizontal and oblique straight lines, circles, curves, wavy outlines, asymmetrical compositions and several elements. Finally, with respect to illustrations, guaranteed safe products and upper classes products are associated with pictures showing the product. In these ways colour, typography, form, and illustration are combined in different ways to transmit the desired perception in consumers' minds.

Packaging plays a crucial role in attracting consumer attention and influencing consumer purchase decision (McDaniel & Baker, 1977) through its symbolic or aesthetic qualities (Creusen & Schoormans, 2005; S. P. Singh et al., 2012; Van Rompay, Pruyn, & Tieke, 2009). This function of packaging has become more important with the arrival and popularization of self-service systems which have caused packaging to move to the foreground in attracting attention and causing a purchase (Ampuero & Vila, 2006). All the packaging elements, including text, colours, structure, images and people/personalities are combined to provide messages to the consumers, and act as a salesperson (McNeal and Ji (2003). Conolly and Davidson (2006, cited in Silayoi & Speece, 2007) found that an estimated 73 percent of purchase decisions are made at the point of sale.

### 3.4.3 Roles of Packaging

An early study noted that roles of packaging are protection/preservation, containment and food waste reduction, marketing and information, traceability, convenience, tamper indication, and other functions such as a carrier for premiums (for example, inclusion of a gift, additional product, or coupon) or containers for household use (Marsh & Bugusu, 2007). Package communication can occur across a considerable distance inside retail stores based on brand identity (brand name or corporate logo) and the colour used to identify the brand and therefore the package (S. P. Singh et al., 2012).

In terms of communication, Garber et al. (2000) mentioned that a package can communicate through explicit claims and illustrations that describe a product's attributes, benefits, ingredients, and promotional offers. Velasco, Salgado-Montejo, et al. (2014) found that various attributes of a package can be used to help communicate specific product attributes. For example sweet tastes are better expressed by means of rounded shapes, typefaces, and names, and low-pitched sounds, whereas sour tastes are better conveyed by means of angular shapes, typefaces, and names, and high-pitched sounds. Thus, the package can be

used to prepare the consumer for a particular consumption experience (Spence, 2012). A package also communicates implicitly by triggering associations in consumer memory. Visual, verbal, and tactile elements of the package (e.g., brand name and logo, package size, shape, colour, texture, and graphics) can bring to mind images of product quality, performance characteristics, usage situations, and past consumption experiences.

Packaging is a common vehicle for transmitting symbolism and its own symbolic contribution to the total understanding of the brand and corporation (Raphael & Olsson, 1976; Underwood, 2003). Symbolism generated and/or communicated by the package may include convenience, environmental consciousness, ethnicity, family, health consciousness, national and/or regional authenticity, nostalgia, prestige, value and variations in quality, among others (Underwood, 2003). Packaging also performs the function of a communication interface between manufacturer/company and consumer through two mechanisms: structure and shape, and the exterior graphic elements (colour, typography, and decoration) (Grossman & Wisenblit, 1999). A recent study of the impact of packaging on consumer buying behaviour by Ghosh (2016) revealed that packaging should be treated as one of the most valuable marketing weapons with respect to ensuring proper communication between an organization and its consumers.

Figure 3.3 provides a summary of the main points of the discussion on packaging literature: the types of packaging, the attributes of packaging and the roles of packaging.

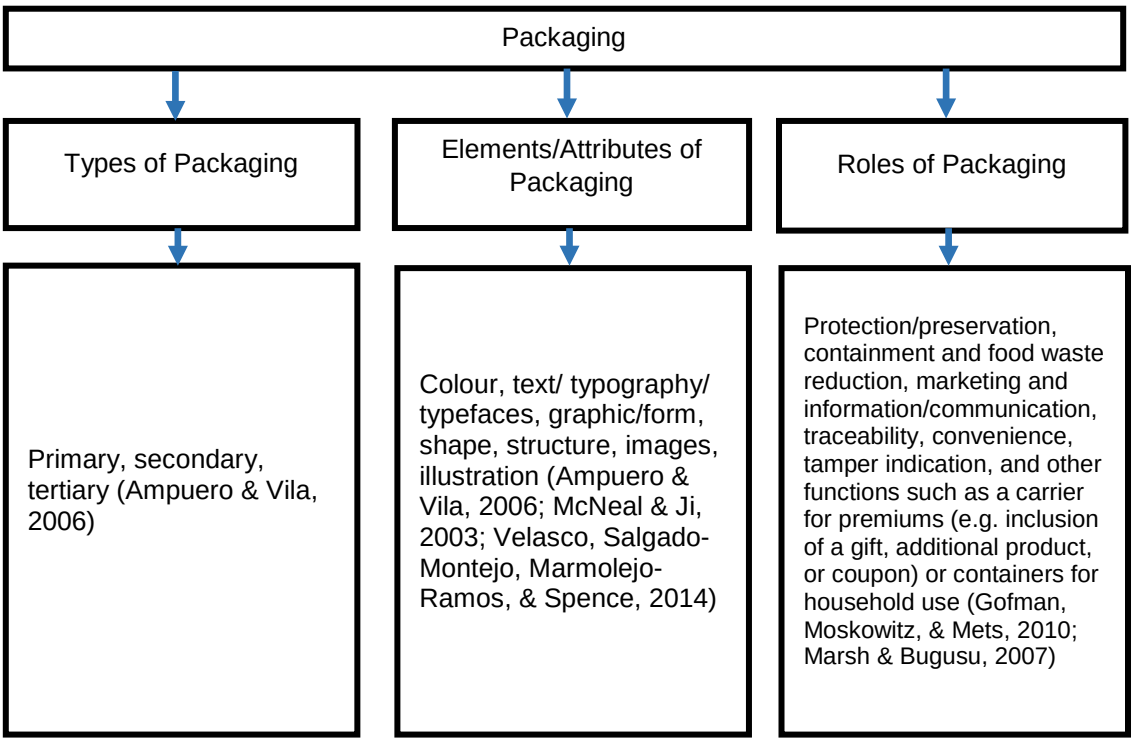



**Figure 3.3: Types, Elements and Roles of Packaging Derived from Research Literature**

Figure 3.3 divides the literature into three main topics: types of packaging, elements/attributes of packaging, and roles of packaging. Types of packaging are identified as primary, secondary, tertiary packaging. Primary packaging refers to the package that has direct contact with the product. Secondary and tertiary packaging refers to packages that have further internal packaging and do not have direct contact with the product. This type of packaging was not related to the present investigation because both the packaging of Bakpia and Bogra Doi have direct contact with the product. The elements or attributes of packaging are also listed in Figure 3.3, of which colour is the most relevant to this current investigation. The relevant aspects of the roles of packaging to this current investigation are its function as information and communication medium.

The next section reviews the literature on the colour of packaging and how it influences consumer perceptions and expectations regarding the product inside the package.

## 3.5 Colour of Package

As noted earlier, a package has the four main attributes of “containment”, “protection”, “utility-filling and dispensing” and “communication” (Singh et al., 2012; Soroka, 2009). A fifth attribute that has gained recognition during tough economic times is the environmental burden resulting from package waste. In the past decade “sustainable packaging” has gained popularity over analogous terms from the 1980s, such as “green packaging” or “packaging and the environment”. Colour can be associated with all five attributes of packaging.

Packaging research has documented shape (Bloch, 1995; Schoormans and Robben, 1997), pictures (Underwood et al., 2001), and colours as elements which can attract consumers’ attention (Gorn et al., 1997; Grimes and Doole, 1998; Kauppinen-Räisänen and Luomala, 2010). Colour is an integral element of corporate and marketing communications. It influences consumers’ perceptions and preferences, purchase and consumption behaviour, and helps companies establish their position and differentiate from the competition. Sometimes, company fail simply because of inappropriate choice of product or package colour (Aslam, 2006; Ricks, 1983).

Colour is one of the most influential elements of package appearance (Funk & Oly Ndubisi, 2006; A. Gordon et al., 1994; Kauppinen-Räisänen & Luomala, 2010; McDaniel & Baker, 1977; Schoormans & Robben, 1997), and one of the most important visual design elements of a package (Farhana, 2012). Based on an analysis of hundreds of brand equity studies, Elliot Young, chairman of Perception Research Services, confirmed that consumers recall the colour of package first, the shape of package second, and the style of brand logo third (Wallace, 2001). Similarly, Gollety and Guichard (2011) noted that perception is different

depending on the distance away from the product. At ten metres, colour is the first element seen by the consumer. At four metres, the shape becomes as important as the colour to the consumer. At just one metre away from a product, the consumer sees the brand. Here, once a product is in the consumer's hand, the relationship between the product and the consumer changes and the perception is different. This could explain the fact that colour has a larger influence than shape in consumer decision making (Ares & Deliza, 2010).

A right choice of packaging colour, background image, wrapper design, innovative ideas when applied to a product's packaging create a happy feeling in consumers' minds. All these elements constitute an important effort to catch consumer's attention and interest (Ghosh, 2016). Specifically, colour has the ability to maintain the attention of consumers (Schoormans & Robben, 1997). Previous studies showed that package colour attracts attention, especially when consumers seek variety in their brand choices (Garber et al., 2000; Schoormans & Robben, 1997).

In recognition and recalling brands, McNeal and Ji (2003) conducted a study about colour of package that focused on children and used warmer colours. The study found that there is little suggestion that pre-schoolers have begun to associate colours with specific products or brands such as leading cereals. This may reflect pre-schoolers' limited experiences with packaging, either in their domestic environment or in the retail store (as was the scenario depicted in the study). The finding may also be related to pre-schoolers exposure to the colour of the foods, but not necessarily the colour of packaging. It may be that the colours children associate with the products are related to the colour of the actual product rather than of the packaging, which they may not necessarily see when they eat or drink the product because it is served in glass, bowl, or on a plate. This is particularly important given their preference for the warmer, brighter colours in packaging that may bear little resemblance to the actual products, for example, cereals in bright yellow packaging containing brown chocolate flavoured cereal.

Consumers use colours to search and to identify brands. Garber et al. (2000) predicted that the shopper's likelihood of picking up and purchasing a product depends on three things. First, it depends on his or her ability to identify the brand, then on the meaning communicated by the package and finally on the package's novelty and contrast. All of these are affected by package colour. The results suggest that for shoppers who are not loyal to a particular brand, a change in package colour can enhance brand consideration. In relatively small and stable categories like raisins flour and spaghetti, the revised package was more likely to be picked up and purchased when the meaning it conveyed was consistent with the brand's original positioning. In highly competitive categories like cereal (where it is more difficult to attract shoppers' attention), having a strikingly different package was more important than consistency of meaning for attracting customers' interest. On the other hand, the results suggested that if the brand has a large base of loyal customers, it may be better to retain the original package or a minor variation, as large changes may reduce brand identification and confuse existing customers. A change in package colour can increase the total amount of search in the category. Garber et al.'s study concluded first, that colour is a major element of a product's package and is particularly salient because it is vivid, affect-loaded, and memorable (Cheskin, 1957); second, a package's colour can have a substantial effect on consumers' ability to recognize the brand, the meaning conveyed by the package, and its novelty and contrast relative to other brands and consumers' expectations. Finally, package colour can be altered without changing the cost, handling characteristics, and functionality of the product (unlike other package attributes, such as size and shape).

Package colour attracts attention, especially when consumers seek variety in their brand choices (Garber et al., 2000; Schoormans & Robben, 1997). In a recent study about package colour by tobacco companies, it was found that the colour of the cigarette pack is used to manipulate consumers' brand choice (Lempert & Glantz, 2017). These cases of visual search and recognition refer broadly to habitual choices where the consumer is influenced by attitudes

based on information processing that has taken place before the current choices are made (Houston & Fazio, 1989). In essence, this refers to re-buy situations, which means that the consumer recall brands information from memory, such as the colours of a chocolate bar (Lynch, Marmorstein, & Weigold, 1988).

Isolating background colour from the other elements of the package allows us to examine the influence of colour alone (Marshall et al., 2006; Vernon, 1962). However, research has rarely examined package colours, not to mention the relationship between package colour and consumers' product experiences (Garber et al., 2000; A. Gordon et al., 1994; Kauppinen-Räisänen & Luomala, 2010; Schoormans & Robben, 1997).

### 3.5.1 Semiotic Approach of Packaging Colour

Packaging colour is a visual signifier with strong evocative power. Colour involves three different modes of significance. Firstly, the colour can be based on metonymic logic, i.e. continuity between colour and what it represents: for example, red packaging for tomato concentrate, since red is the natural colour of a tomato. Secondly, the colour can be based on metaphoric logic, depicting the linking between the colour and what it evokes: for example, red signifies the strength of a flavour. Lastly, the colour can be based on symbolic logic, expressing a conventional link between the colour and its meaning: for example, in the French market red symbolically expresses the idea of whole milk. In packaging, the semiotics of the colour pink, that is, the three different modes of significance of pink as metaphor, symbol and metonym are for the "soft to touch" product (as a metaphor of a rose petal), for packaging baby products (as a symbol of the user), and as a metonym to evoke a strawberry aroma (Cavassilas, 2007, cited in Gollety & Guichard, 2011).

Over the years, norms of colour packaging that are specific to product categories have developed. For example, in the category of bar soap, pink has come to mean that a product

has cosmetic and conditioning benefits while suggests deodorizing qualities; in liquid soap, an orange-pink colour communicates antibacterial properties; in dishwashing liquid, yellow suggest a lemon scent, green means gentleness, and blue conveys grease-cutting benefits (Garber et al., 2000). However, there is little agreement on package colours cigarettes and headache remedies (Aslam, 2006; Jacobs, L. et al., 1991).

### 3.5.2 Package Comprehension

Package comprehension refers to the meaning that a product's package conveys to the customer, while package novelty and contrast refer to the package's ability to stand out visually from its surroundings, and to draw attention to itself through its novel appearance. Novelty and contrast are defined in relative rather than absolute terms. They are a function of both a package's distinctiveness relative to the other brands on the store shelf (Garber et al., 2000; Veryzer & Hutchinson, 1998), and its departure from consumer expectations based on past shopping and consumption experience. For example, the bright red package of Lifebuoy soap may not attract attention because of its colour (if it has been viewed many times before), or its position (if it is placed with other red packages, such as Lava soap) even though, in absolute terms, the colour red may be more visible to the human eye. It may attract attention if it is placed on a shelf with green packages both because of the contrast in colour and because it is different from the adjacent competitive products (Garber et al., 2000).

Reports have highlighted the tendency of consumers to blindly rely on package colour. However, introducing novel packaging colours will not necessarily translate into increased purchase intention unless the new colour happens to evoke a meaning that is consistent with favourable product performance for that particular category (Garber Jr, Hyatt, & Boya, 2008a). According to the product categories, packaging of a strong colour will be better at attracting consumer attention than lighter coloured packaging, although light colours are used to influence children's choice in stores (Gollety & Guichard, 2011). More clearly, in another study,

it was found that black is visually prominent, which makes dark package elements stand out more on a contrasting light background. Black text on a white background is more prominent than white text on any colour background (Lempert & Glantz, 2016). Some colours like yellow, red and blue are extremely visible on shelves and are often used to counteract the neutral flavour of the products. On the other hand, a recent study about consumer experience following the implementation of plain packaging of tobacco products in Australia found that the plain packaging has not hampered the launch of new product or diminished tobacco's extensive, highly differentiated brand variants but it has reduced smoking and brand appeal (Greenland, 2016).

A recent study found that time pressure (speed of recognition) influences the effect of the colour scheme of packaging on customers' purchasing preferences (Javed & Javed, 2015). Early psychophysical experiments indicated that when the target is defined by a single feature or unique set of features, the visual display can be searched at a high rate of speed (Garber et al., 2000; Treisman & Gelade, 1980). That is, when a target has one or more unique features, it can be correctly identified in approximately the same amount of time regardless of the number of distracters. When the target consists of a conjunctive feature set (i.e., the specific combination of features is unique to the target, but the individual features are not), then the visual field is searched using a slower, serial process. Therefore, one would predict that the consumers would be fastest at identifying packages that are uniquely identified by a single unique feature (such as a distinctive colour or shape), rather than by a conjunctive set of features.

### 3.6 Food Package

Packaging is critical in the handling, storage, and commercialization process of food and beverages (Rodriguez Tarango, 2003, cited in Ares & Deliza, 2010). This section focuses on

various aspects of food packaging, and the expectations that food packaging arouses in consumers.

### 3.6.1 Food Packaging Aspects

For many consumers in low involvement purchases, the package is the product, particularly because the impression formed during initial contact can have lasting impact (Nancarrow, Wright, & Brace, 1998). In food purchases, packaging provides food companies the last chance to persuade consumers to buy the product before the brand selection stage (McDaniel & Baker, 1977) and all packaging elements have to combine to attract consumers in their decision making (McNeal & Ji, 2003). Eldesouky, Pulido, and Mesias (2015) found that there are diverse aspects regarding packaging which affect consumers purchase decisions. When buying cheese, for example, ease of opening, resealability, package size and package material transparency are among the features most appreciated by consumers.

### 3.6.2 Consumer Expectations

Food packaging may also create consumers' expectation (Deliza et al., 2003; Lange, Issanchou, & Combris, 2000). For example, high hedonic expectations created by the package arouse consumers' interest and intention to buy the product (Ares & Deliza, 2010; Tuorila, Meiselman, Cardello, & Lesher, 1998). Judgments of the sensory and hedonic properties of food can be influenced by a variety of factors: factors intrinsic to the product and factors that are related to the human perceptual and cognitive mechanism.

The concept of "expectation" is a cognitive one, and has been frequently mentioned as a factor in sensory studies (Cardello, Maller, Masor, Dubose, & Edelman, 1985; Szczesniak & Kahn, 1971; Vickers, 1991; Zellner, Stewart, Rozin, & Brown, 1988). Within the context of sensory analysis and food acceptance research, the cognitive construct of "expectations" can be

applied to both sensory and hedonic experiences. That is, expectations can be of two types: (1) sensory-based expectation: belief that the stimulus/ food product will possess certain sensory attributes, and (2) hedonic-based expectations: belief that the product will be liked/disliked. A mismatch between the expected and actual attributes of the product produces "disconfirmation." In the case of hedonic expectations, this disconfirmation can be either positive (product characteristics are better than expected) or negative (product characteristics are worse than expected) (Cardello & Sawyer, 1992).

It is a commonplace that taste can influence expectations and perceptions of food products (Garber Jr et al., 2000; C. Koch & Koch, 2003). When the product is tasted, the expected sensory characteristic of the product is compared to the product's real characteristics, leading to a confirmation or disconfirmation (Ares & Deliza, 2010; Deliza & MacFie, 1996). Therefore, manufacturers should use food package to attract consumers' attention in order to increase their interest in buying the product, and to generate sensory and hedonic expectations that match the product's real characteristics (Ares & Deliza, 2010).

To summarise, consumers have strong expectations regarding the link between food colour, flavour (Shankar et al., 2010; Zampini et al., 2007; Zampini et al., 2008) and food package (Deliza et al., 2003; Lange et al., 2000). The reality is that people are affected by packaging, specifically by its colour, in ways that they do not necessarily understand at a conscious level (Cheskin, 1957; Piqueras-Fiszman & Spence, 2011). Researchers have demonstrated that shoppers often do not read the information that is presented on the package (Charters, Lockshin, & Unwin, 1999; Piqueras-Fiszman & Spence, 2011); they mainly recognize what they want or need in order to make a quick purchasing decision. Since colour is perhaps the one feature of the packaging that triggers the fastest response (Swientek, 2001), it is essential to consider in the design process the colour associations and expectations that consumers have in order to ensure effective and successful communication.

## 3.7 Colour of Food Package

Piqueras-Fiszman and Spence (2011) found that colour in food packaging is an important source of sensory and hedonic expectations, especially for products that are consumed directly from the package. This section explores the sensory science of colour in food packaging and the health perceptions that consumers have about colour on the packages.

### 3.7.1 Sensory Science of Colour of Food/Beverages Package

Colour is related to a sensory perception (Gollety & Guichard, 2011). Sensory scientists have been interested in the way in which the brain integrates visual inputs (such as colour), not only from the food itself, but also from the container, packaging, or plateware from which it is being consumed. Because people associate the basic food tastes with specific colours (Woods & Spence, 2016) such as red for sweet or spicy, green for sour, black for bitter, and white for salty, these association also apply to the colour of food packaging (Hutchings, 2003; Marshall et al., 2006). In the case of saltiness, for example, while ordinary salt is often packaged in predominantly white containers, other colours are also used, because people have fewer associations of colour with salt, since significantly different concentrations of saltiness do not affect the colour of the food (Maga, 1974). Hence, different packaging colours represent a salty taste, for example yellow for potato chips, white for popcorn, green or black for olives, and green for pickles.

A recent study revealed that pairs of colour communicate the taste more consistently than a single colour (Woods & Spence, 2016). These aspects stimulate chefs, restaurants, and those working in the food and beverage packaging sectors to think more carefully about the colour of their plateware/packaging and its potential effects on their customers' perception of the flavour/taste of the products that they happen to be serving/ delivering to the market. Piqueras-Fiszman and Spence (2012) found that chocolate drinks served in orange (with a white interior) or dark-cream coloured cups enhance the chocolate flavour and consequently

improve people's acceptance of the beverage. By contrast, sweetness and chocolate aroma are less influenced by dark-cream cup. They also found that the colour of a vending cup (and perhaps specifically the colour of the inside of the cup) may have more of an impact than the colour of a plate, since one normally sees the inside surface of the cup up close when bringing the drink to one's mouth. In the same study (Piqueras-Fiszman and Spence (2012), people who were given strawberry mousse on a white plate (rather than black) rated it as sweeter, more intense, and tastier. Van Ittersum and Wansink (2012) found that people served themselves less food when putting red-sauced pasta on a white plate and white sauced pasta on a red plate (relative to colour-match conditions). These latter effects are likely due to a perceptual effect of colour contrast, independent of colour associations.

Culture is another important factor in colour and food association. For example, most consumers in United States, Japan, South Korea, and China associated green with canned and yellow with boxed candies (Aslam, 2006; L. Jacobs et al., 1991). However, more research is necessary on the different associations between food tastes and colour of packaging in various cultures (Mirzaei, 2011, cited in Gilaninia et al., 2013), and this current study contributes to this field.

### 3.7.2 Health Perceptions of Colour of Food/Beverages Package

A recent study (Huang & Lu, 2015) investigated the impact of package colour on the perception of whether a food was healthy or not and on the purchase intention of hedonic versus utilitarian food. It was found that the perception of the health value of food was sensitive to the package colour. For example, food in a blue package with health claims in the Nutritional Content Claim was perceived as healthier than food in a red package with regular labels. Another study of consumers' expectations of beverages was conducted by Wei et al. (2015). These researchers predicted the influence of package colours on consumers' psychological responses to fruit juices, such as visually perceived expectations of freshness, quality, liking,

and colour harmony. The results show that expectations of liking and quality of the juice were predictable using a colour harmony model, while the expectation of freshness can be predicted using a freshness model.

In terms of harm, Lempert and Glantz (2017) found that the cigarette package colours change smokers' perceptions of the taste and as well as strength of the cigarettes. For example, consumers perceive the taste of cigarettes in packages with red and darker colours to be fuller flavoured and stronger (more harmful), while yellow most quickly and effectively seizes and holds consumers' attention and signals warning or danger. Cigarettes in packs with white and lighter colours taste lighter and seem less harmful, as white connotes health and safety.

In the case of utilitarian products, another recent study found that while consumers appear somewhat indifferent to colours in bottled water packaging, there is a greater preference for neutral colours as opposed to cold and warm colours (Beneke, Mathews, Munthree, & Pillay, 2015). Piqueras-Fiszman and Spence (2012) raised the issue of whether colour association occurs with containers of hot beverages. It could be argued that, as there is potential danger of burning/oral damage, something hot in the mouth simply captures the attention more and the colour of the container may be less important. If the food itself has a significant feature (e.g. a hot beverage), it may be less likely that the colour of the container will impact perception (Piqueras-Fiszman & Spence, 2012; Zampini & Spence, 2005).

It is undeniable that colour association in food packaging is one of the most impactful sensory informational techniques about the quality, taste, healthiness, trendiness and utilitarian value of the food in the package. Another important messaging technique about the purchase merit of food is word-of-mouth, which is the focus of the following section.

## 3.8 Word-of-Mouth (WOM)

Foods, sporting goods, and videotaped movies all have one thing in common: these products are often consumed in groups. When products are consumed in groups, word-of-mouth may work with them (Bone, 1992). Word-of-mouth is particularly significant in spreading information about brand attributes, as packaging in most cases does not inform about actual product performance. In the food industry, the assistance of word-of-mouth is particularly helpful in informing about and sharing the actual experience of consuming the food to the consumers. This section examines the literature on word-of-mouth and its marketing application.

### 3.8.1 Development of Word of Mouth in Marketing

Consumers learn about products through both direct and indirect experience. Direct experience is derived from actual product contact, whereas indirect experience is generated from various sources such as word-of-mouth, brochures, and advertising (H. Li, et al., 2003). Marketing methods are developed from generation to generation. Traditionally, ordinary, every-day products were sold by relying on word-of-mouth only (Bloom & Pailin, 1995). In marketing specifically, word-of-mouth is defined as oral, informal, person-to-person communication between a perceived non-commercial communicator and a receiver about a brand, a product, an organization, or a service (Higie, Feick, & Price, 1987). Word-of-mouth spreads the information about products, services, stores, companies, sales, or customer managers among the consumers (T. J. Brown, Barry, Dacin, & Gunst, 2005; Ramani & Kumar, 2008).

Word-of-mouth has been called the world's most effective, yet least understood marketing strategy (Misner, 1994; Trusov, Bucklin, & Pauwels, 2009), and a pervasive and intriguing phenomenon (Anderson, 1998). It is one of the most powerful communication channels in the marketplace, and appears more credible than marketer-initiated communications, because of

having passed through the unbiased filter of “people like me” (Allsop, Bassett, & Hoskins, 2007). Marketers are interested in better understanding of word-of-mouth since traditional communication by the middleman between the traditional seller and consumer has lost its effectiveness (Nail, 2005; Trusov et al., 2009).

Through word-of-mouth, both satisfied and dissatisfied consumers are equipped to spread positive and negative information regarding products or services (Anderson, 1998). Herr, Kardes and Kim (1991) argued that word-of-mouth may exert a stronger positive influence rather than a negative one and positive word-of-mouth referrals from consumers generate many benefits for a company (Bloom & Pailin, 1995; V. Kumar, Petersen, & Leone, 2006; Ramani & Kumar, 2008; Reichheld, 2006).

Creating an interesting consumption experience can spark word-of-mouth (Bone, 1992), which should therefore be viewed as a “promotional tool” to attract consumers. Managers need to be aware of conversations about a product/service, as these not only affect choice behaviour, but also influence the experience evaluation (Bone, 1995).

### 3.8.2 Word of Mouth in Marketing Application

Word-of-mouth impacts product judgments, attitude formation, and decision making more powerfully than formal marketing communications (Bone, 1995; Herr et al., 1991). There are a lot of benefits of word-of-mouth in marketing application. It is similar to consumer co-creation which uses social media to create marketer-consumer relationships (Wilkie & Moore, 2011). Online consumers’ reviews are a good proxy for word-of-mouth to influence consumers’ decisions (Zhu & Zhang, 2010). However, consumers are found to be less willing to engage in word-of-mouth on social websites than in face-to-face word-of-mouth, due to social risks associated with these different modes of communication (Eisingerich, Chun, Liu, Jia, & Bell, 2015). In the case of a store’s image, word of mouth and the store’s promotional activity

enhance brand association (Yoo, Donthu, & Lee, 2000). In tourism, high quality service that results in satisfaction attracts positive word-of-mouth referrals, and this will ultimately affect the financial performance of suppliers associated with the tourism industry (Žabkar, Brenčič, & Dmitrović, 2010). In the food and pharmacy industries, word-of-mouth and recommendations from friends/family/people at work/school are found very influential for fast food, influenza medicine, and breakfast cereal (Allsop et al., 2007).

Word-of-mouth might be important for quality judgments in certain regions. In a study based in Turkey, people used word-of-mouth more than price to evaluate the quality of products (Raju, 1995; Yucelt, 2015). In East German in early 1990s, the people relied more on the opinions of others, such as friends and relatives, compared to the people in West Germany for judging quality of products (Johnson & Johnson, 1993, cited in Raju, 1995). In developing countries, word-of-mouth of communication is significant element of the marketing process. In Owusu-Frimpong's (1999) study about the Ghanaian Bank, personal service/personal interaction was found to be relatively unimportant in that developing country context (while it is significant in developed countries). However, the study finally suggested that actually, people in developing countries tend to acquire information from newspapers, TV, radio, brochures, posters, or even word-of-mouth communication/personal communication.

Figure 3.4 provides a summary of the literature regarding word-of-mouth as a significant communication tool in marketing, including both its positive and negative power.

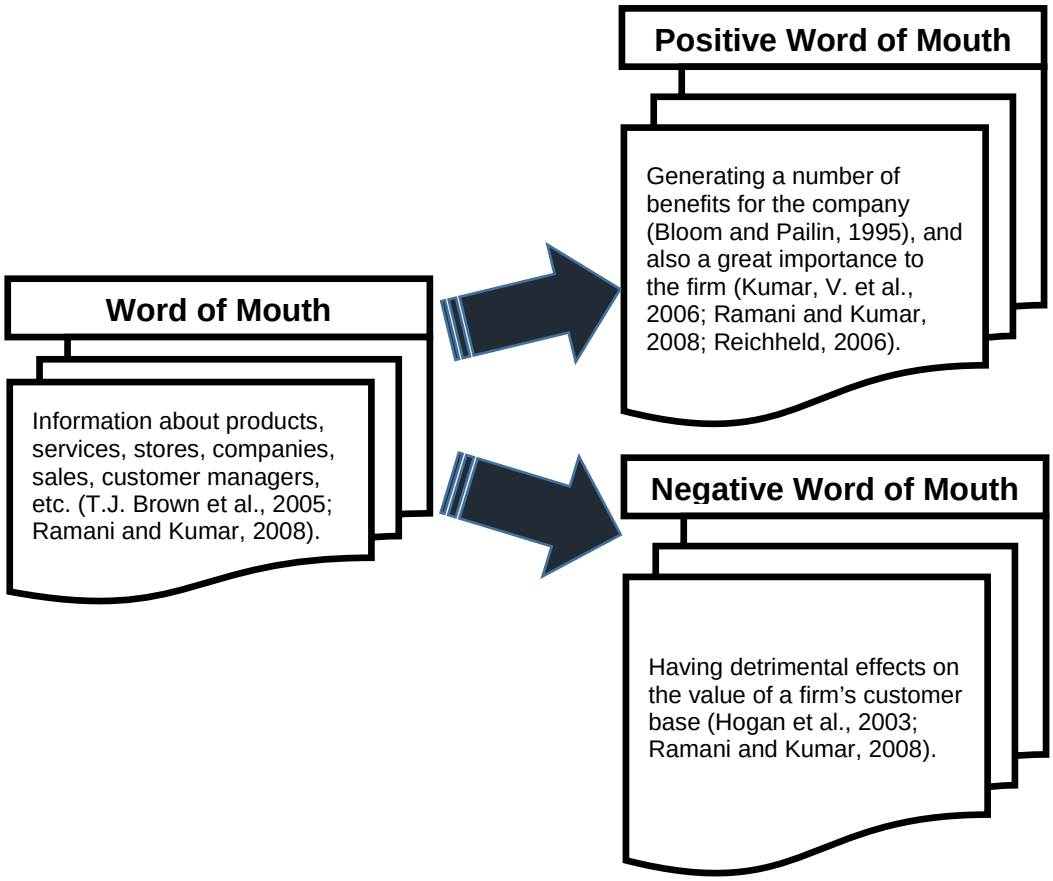



**Figure 3.4: Word of Mouth in Marketing**

Figure 3.4 summarises the literature on word-of-mouth, which was one of the variables examined in this current study especially in reference to the package colour of two different local food products from two developing countries. This study investigated whether word-of-mouth positively or negatively influenced consumers' responses toward colour of the Bakpia or Bogra Doi packages.

Another important variable measured in the current study was consumer perception of quality. The next section reviews literatures with respect to perceived quality.

## 3.9 Perceived Quality

Bhuian (1997) considered perceived quality as a consistent judgment of product specification or an added value evaluation of a product. Perceived quality helps consumers to form a subjective judgment of overall product quality (Aaker, 1991; (Chi, Yeh, & Yang, 2009). Though there may be an abundance of product information, consumers may have insufficient time and motivation to revise their judgment or investigate further. They therefore select only immediately relevant information to make a quality evaluation (Aaker, 1996; Chi et al., 2009). Hence, consumers are the most appropriate source of quality judgments, and quality relative to competitors is the most relevant measure of perceived quality (Babakus, Bienstock, & Van Scotter, 2004; Olsen, 2002).

There is a difference between quality and perceived quality (Bix et al., 2013). Perceived quality differs from objective quality, because it is a form of attitude, related but not equivalent to satisfaction, and results from a comparison of expectations with perceptions of performance (Parasuraman, Zeithaml, & Berry et al., 1988). Perceived quality is defined on the basis of users' recognition while objective quality is defined on the basis of product or manufacturing orientation (Chi et al., 2009; Garvin, 1983). The differences between objective quality and perceived quality lie in that objective quality has a pre-design standard to a product, while perceived quality is influenced by internal and external product attributes which is an evaluation basis for consumers (Chi et al., 2009; Olshavsky, 1985; Zeithaml, 1988). Perceived product quality has been defined as a global assessment characterized by a high abstraction level and refers to a specific consumption setting (Tsiotsou, 2006; Zeithaml, 1988), whereas objective quality refers to the actual technical excellence of the product that can be verified and measured (Monroe & Krishnan, 1985; Tsiotsou, 2006). Further, manufacturers and consumers have different views on the judgment of the quality dimensions (Aaker, D., 1996; Morgan, L. A., 1985), while consumers seldom hold enough information to evaluate a product objectively (Chi et al., 2009).

Perceptions of quality are affected by factors such as previous experience, education level, and perceived risk as well as situational variables such as purpose of purchase, purchase situation, time pressure, and consumers' social background (Chi et al., 2009; Holbrook & Corfman, 1985). For example, even if the quality of the product has improved, consumers do not automatically trust it because of previous unpleasant brand experiences (Aaker, 1996; Chi et al., 2009).). This supports the argument that perception of quality is a consumer's subjective judgment, and the product will be evaluated by previous experiences and feelings. This section provides definitions of perceived quality, and examines the emotional perspective of perceived quality as well as the impact on purchase intention.

### 3.9.1 Perceived Quality and the Emotional Perspective

Perceived quality is an attitude (Bitner, 1990; Gotlieb, Grewal, & Brown, 1994; Zeithaml, 1988) that may affect behavioural intentions (Gotlieb et al., 1994; Monroe & Krishnan, 1985; Steenkamp, 1989). The concepts of perceived quality and attitude can be seen as the cognitive aspect of consumer behaviour (Hansen, 2005), while emotions represent the affective aspect and are aroused by consumer exposure to specific stimuli such as surprise when receiving an unexpected present (Derbaix & Pham, 1991; Hansen, 2005). Since perceived quality is defined as a consumer's appraisal of a product's overall excellence or superiority (Zeithaml, 1988), it should be included in models explaining consumer behavioural intentions.

Emotions are based on appraisals such as conscious or unconscious judgment and interpretation of stimuli in the environment (Bagozzi, Gopinath, & Nyer, 1999). Individuals in positive-mood states evaluate stimuli more positively than individuals in neutral-mood or negative-mood states (Isen, Shalker, Clark, & Karp, 1978; Srull, 1983). Specifically, a consumer who perceives a good quality product may be influenced by an affective response

to this appraisal. Further, since consumers prefer good to poor quality (Hansen, 2002, 2005; Hansen & Solgaard, 2001; Steenkamp, 1989), good quality perception will arouse positive emotional responses. Such positive feelings make consumers take a kinder, more generous approach to products, and more willing to delay self-rewards (Hansen, 2005; Swinyard, 1993).

### 3.9.2 Perceived Quality and Purchase Intention

In the cognitive-affective model, perceived quality is recognised as a cognitive response to a product, which influences product purchase (A. Kumar, Lee, & Kim, 2009; W.-K. Li, Monroe, & Chan, 1994; Zajonc, 1984). The rational and emotional understanding of consumers (Hirschman, 1984; A. Kumar et al., 2009; Zajonc & Markus, 1982) is extended to the cognitive-affective model of purchase intention, in which both cognitive response (perceived quality) and affective response (liking) have an impact on purchase intention (A. Kumar et al., 2009; W.-K. Li et al., 1994).

There is a significant relationship between perceived quality and emotional value (Labrecque et al., 2013) and both influence purchase intention (A. Kumar et al., 2009). Several studies found that perceived quality and purchase intention are positively related (Bou-Llusar, Camisón-Zornoza, & Escrig-Tena, 2001; Chi et al., 2009; A. Kumar et al., 2009; W.-K. Li et al., 1994), as both are attitudes (Carman, 1990; Parasuraman, Zeithaml, & Berry, 1985; Parasuraman, Zeithaml, & Berry, 1988). Labrecque et al. (2013) found that an indirect relationship exists between perceived quality and purchase intention, while some studies argued that perceived quality has a direct impact on purchase intention (Chi et al., 2009; Garretson & Clow, 1999).

The available empirical evidence about the relationship between perceived quality and purchase intention is contradictory. For example, in some studies service quality was considered a direct antecedent of purchase intentions (Bou-Llusar et al., 2001; Boulding,

Kalra, Staelin, & Zeithaml, 1993), whereas in another study, perceived quality has an indirect effect through satisfaction (Cronin Jr & Taylor, 1992). Similarly, other works have reported that satisfaction mediates the indirect relationship between perceived quality and purchase intention ( Sweeney, Soutar, & Johnson, 1999; Taylor & Baker, 1994; Tsiotsou, 2006).

### 3.9.3 Perceived Quality in Colour Studies

Colour provides referential meanings that consumers use to assess product quality, price, and performance (Labrecque et al., 2013). A marketer could differentiate product category by using additional colour cues or delinking the relationship between colour and consumers' perceived quality of the product (Aslam, 2006). For example Apple, Gatorade and M&Ms launched novel coloured product lines (Aslam, 2006; Garber Jr et al., 2000). Pepsi moved from red by creating new colour associations of blue (Aslam, 2006; Grossman & Wisenblit, 1999; Madden et al., 2000). Masterfoods added purple to its existing mix of red, orange, blue, brown, yellow, and green of their chocolate M&Ms (Aslam, 2006; Parmar, 2004).

## 3.10 Purchase Intention

Purchase intention is a tool that is often used to anticipate a response behaviour effectively (H. Li, Daugherty, & Biocca, 2002). Similarly, Ajzen and Fishbein (1975) explained that purchase intention is considered as a consumer's subjective inclination towards a product and is useful to predict consumer behaviour. It has been used to identify consumer purchase intention of a product within certain time periods (M. Brown, Pope, & Voges, 2003; Juster, 1966; Morrison, 1979; Whitlark, Geurts, & Swenson, 1993).

Consumer purchase intention has been divided into unplanned, partially planned, and fully planned buying behaviour (Chi et al., 2009; Engel, Blackwell, & Miniard, 1995). Unplanned buying (impulse buying behaviour) means that consumers decide to buy a product category

and a brand inside the store. Partial planned buying means that consumers decide on a product category, the specification before buying, and zero in on brands and types later inside the store. Finally, fully planned buying means that consumers decide the product and brand to buy, before entering the store.

Two different factors are said influence purchase intention (Dodds, Monroe, & Grewal, 1991): (1) individual attitudes which include personal preferences and obedience to others' expectation and, (2) unpredictable situations where consumers change purchase intention because of a changing situation (e.g., price is significantly higher than expected). Another argument is that a negative mood impacts purchase intention negatively (Isen et al., 1978; Srull, 1983), while memorization and free recall (Kamins & Marks, 1991) affect purchase intention positively. Perceived quality can also be included in Dodd's "individual attitudes", as influencing purchase intention (Garretson & Clow, 1999).

Monroe (1990) pointed to the mediation of perceived value in the positive relationship of perceived quality and purchase intention. The higher the perceived quality and perceived value of private brand foods, the higher the purchase intention. Further, perceived quality influences brand trust and brand affect influences brand attitude and purchase behaviour (Chi et al., 2009). Consumers will have a higher purchase intention with familiar brands (Kamins & Marks, 1991), and a well-known brand will have a higher purchase intention (through winning consumers' preference) than a less well-known brand (Chi et al., 2009). Thus, consumers' positive feelings for a brand are important, and may develop purchase intention (Aaker, 1991; Assael, 1984; Y. Wang & Kan, 2002).

Earlier investigation reported that higher purchase intentions lead to higher actual buying rates than having no intention of buying (Berkman & Gilson, 1978, cited in M. Brown et al., 2003). While it is accepted that purchase intention does not identify actual purchase behaviour, it has

been demonstrated that measuring purchase intention possesses predictive usefulness (M. Brown et al., 2003; Jamieson & Bass, 1989; Stapel, 1971).

According to (Clement, 2007; Kauppinen-Räisänen, 2014), up to 90% of consumers decide to purchase based on front of package visual examination. This chapter concludes with a summary of the variables that are important in an investigation of colour of local food package and purchase intention.

Purchase intention is a common effectiveness measure and often used to anticipate response behaviour (Li, H. et al., 2002). Similarly, Ajzen and Fishbein (1975) explained that consumers' purchase intention is considered as a subjective inclination toward a product and can be an important index to predict consumer behaviour. Another study noted that purchase intention measures have been used frequently to identify buying likelihoods for products within defined time periods (Brown, M. et al., 2003; Juster, 1966; Morrison, 1979; Whitlark et al., 1993).

### 3.10.1 Factors Influencing Purchase Intention

Kotler (2003) proposes that individual attitudes and unpredictable situations will influence purchase intention. Individual attitudes include personal preferences to others' opinions and obedience to others' expectations, while unpredictable situations signify that consumers change purchase intention because a situation appears, for example, when the price is higher than expected price (Dodds et al., 1991). Other authors, Pelet and Papadopoulou (2012) and Wu, C.-S. et al. (2008) argued that purchase intention is influenced by negative mood, while memorization and free recall were found to have a positive effect on purchase intention.

Earlier research has shown that consumers who report intentions to purchase a product possess higher actual buying rates than consumers who report that they have no intention of buying (Berkman and Gilson, 1978) cited in (Brown, M. et al., 2003). While it is accepted that

purchase intention does not identify actual purchase behaviour, it has been demonstrated that measures of purchase intention do possess predictive usefulness (Brown, M. et al., 2003; Jamieson and Bass, 1989; Stapel, 1971).

In relation to the main focus of this study, expected liking and willingness to purchase were useful to evaluate the influence of package colour on consumer hedonic expectations and their purchase intention. In a previous research about colour as website background by Hall and Hanna (2004), it was found that colour combinations do not have a significant effect on consumer purchase intention. However, Pelet and Papadopoulou (2012) found that blue is the favourite colour for purchase intention. They indicated that e-commerce website should merely use chromatic colours due to the higher aesthetic appreciation, which is correlated to higher purchase intention. Their study resulted that brightness has a positive effect on purchase intention for chromatic hues and that hue and brightness have an interaction effect on purchase intention. Another research by Wu, C.-S. et al. (2008) showed that warm colours positively influence purchase intention.

## 3.11 Conclusion

This chapter has demonstrated that marketing research has consistently emphasized the importance of colour in packaging. The introduction reviewed literatures on the significance of colour in daily life and in marketing study. The basic theories of psychology of colour as well as literature on how colour association and colour preference affects consumer behaviour have been reviewed in this part of the chapter. Consumer colour preferences and association with colour of package are variables investigated in the present study. This chapter has then reviewed the literature on packaging, specifically its elements, types, and role as well as.the literature of colour of package and colour of food package.

Other variables relevant to this study have been included in this literature review: Expected liking, word-of-mouth type of communication, the perceived quality, and consumers' intention to purchase. Likeability of colour, which is accepted as a rating of colour preference, may be the final persuasive factor in consumers' decision making. Another influential factor in marketing, particularly in developing countries, is word-of-mouth type communication. Consumer perception of quality, which is a subjective judgment of overall product quality, and intention to purchase are also significant factors in determining the relationship between colour of local food package and consumers' responses. Further, perceived quality directly and indirectly influences consumers' intention to purchase.

These variables are useful in evaluating the influence of package colour on consumer buying behaviour and were included in the examination of the two local food products of Bangladesh and Indonesia, that were the subject of this study. The next chapter describes the methodology used in the present study.

# CHAPTER 4 : METHODOLOGY

## 4.1 Overview

This chapter describes the approach and method adopted to address the research problem: how package colour affects consumer responses and their purchase intention of important regional food products of two different regions, Indonesia and Bangladesh. The two products examined were a bean-filled pastry called Bakpia from Indonesia and the popular yoghurt called Bogra Doi from Bangladesh. The investigation comprised of three stages, using a quantitative approach. Briefly, the first stage involved identifying the most popular colours for packaging local food in the two different regions, Indonesia and Bangladesh. These colours have also been the most popular in the packaging of Bakpia and Bogra Doi. The next stage was a pilot study, which tested the validity and reliability of instruments and resulted in a final questionnaire distributed to the respondents in the last stage of the study. Once the data was collected, a multivariate analysis was applied. This chapter is divided into two sections with Section 4.2 presenting a review of methods undertaken in previous research on colour in the fields of psychology and marketing, including packaging, and food packaging. It is important to cover some of the literature in psychology as humans experience colourful environment in their life. Section 4.3 details the methodology of this current study. The processes of data collection, unit of analysis, population and sample of the study, the measurement, and analysis are described in detail.

## 4.2 Methods in Previous Studies

The focus of the current study is on the relationship between the colour of food packaging and consumer responses and their purchase behaviour. Consumer responses were explored in terms of consumers' colour preferences and likeability, consumers' associations about colour,

the effect of “word of mouth” in marketing, consumers’ perception of quality, and also their intention to purchase. This section examines the methods of earlier studies and presents them in two parts: methods of data collection and methods of data analysis. In terms of materials on colour, some of the significant studies on colour in the field of psychology are covered as well as in the fields of marketing and packaging studies.

### 4.2.1 Methods of Data Collection

#### 4.2.1.1 Colour Studies in the Field of Psychology

Past studies on colour, primarily in field of psychology, commonly used experiment as the method for collecting data because researchers need to test hypotheses scientifically by manipulating independent variables (the cause), measuring dependent variables (the effect) and controlling any extraneous variables. For example, Siple and Springer (1983) conducted an experiment on memory and preferences for an object’s colours and found that memory was quite accurate in identifying preference for an objects’ hue and brightness.

Experimental studies were also useful for investigating the relationship between colour and emotion. For example, Lakens et al. (2012) grounded valence in brightness through shared relational structures. Their series of experiments showed how structural factors allow mappings between stimuli and responses to emerge or to prevent them from doing so, by manipulating valence and brightness either within or between participants. In the experimental study of Kaya and Epps (2004) of the relationship between colour and emotion, participants were tested at a personal computer in a ten minute experimental session. Ninety-eight college students indicated their emotional responses to five principle hues (i.e., red, yellow, green, blue, purple), five intermediate hues (i.e., yellow-red, green-yellow, blue-green, purple-blue, and red-purple), and three achromatic colours (white, grey, and black) and the reason for their choices. Results showed that principle hues comprised the highest number of positive

emotional responses, followed by intermediate hues and achromatic colours. In regard to cross-cultural comparison of colour emotion for two-colour combinations, observers assessed colour emotion using word pairs in their native language during the experiment (Ou et al., 2012). Consistent responses across cultures were recorded in terms of warm/cool, heavy/light, and active/passive.

Tangkijviwat, Rattanakasamsuk, et al. (2010) and Tangkijviwat, Shinoda, et al. (2010) worked on another experimental study on hue effects using thirty-three colour chips. They found that consumers prefer brightest and most saturated colours of chips, and hue has a lesser effect on colour preferences in the light source of colour mode. This colour mode refers to three obvious colour appearance modes based on the recognised visual space of illumination theory, such as mobile phone display reflecting surface in daylight, and radiating on its own at night. In another study, A. J. Elliot et al. (2007) conducted six different experimental data collections in his investigation regarding the effect of red on performance attainment. The first of four experiments revealed only a brief perception of red, while the other two experiments established the link between red and avoidance motivation. Findings suggested that care must be taken in how red is used in achievement contexts and illustrated how colour acts as a subtle environmental cue that has important influences on behaviour.

Some researchers used qualitative methods in their studies on colour. For example in their study of colour and emotion Clarke and Costall (2008) used a qualitative methodology to investigate the emotional significance of colour and the arousing effects of different colours. The findings of the semi-structured interviews were consistent with previous studies and showed that non-experimental work can bring new insights related to the connotations of colours.

#### 4.2.1.2 Methods of Data Collection in Colour Studies (Marketing, Advertising, and Branding)

Studies on colour have gained significant importance in marketing, advertising and branding, which are the focus of this subsection. Investigators have used quantitative, qualitative, or a mixed methods approaches. Researchers have carried out a wide range of investigations including studies about environmental colour, consumer feelings, consumer behaviour, purchase likelihood, advertisements, logos and so on (Bellizzi & Hite, 1992; Beneke, Floyd, et al., 2015; Beneke, Mathews, et al., 2015; Hutchings, 2015; Risso, Maggioni, Olivero, & Gallace, 2015; Wei et al., 2015).

Experimental methods have proved most favoured by researchers on colour in the field of marketing. For example, Bellizzi and Hite (1992) conducted two experiments about the ability of colour to induce moods or feeling that may create behaviour or behavioural intention. Findings indicated that the affective perception of colour might be responsible for the outcome rather than the arousal dimension of colour. Bellizi and Hite discovered that consumers view red retail environments as more negative and unpleasant compared to blue retail environments. Another experiment regarding colour in the retail environment was recently conducted by Westerman et al. (2012). They worked on e-commerce interface colour and consumer decision making, and demonstrated that there is multifaceted nature of the interface colour influence on consumer decision making in retail environments. The interface colour has impact on cognitive capacities and strategies of consumers, as well as exerts influences through participants' aesthetic judgements.

Gorn et al. (1997) conducted an experimental study to examine the effects of colour as an executional cue in advertising, while in a branding study, Hynes (2009) conducted a two-stage experiment to investigate corporate logo colour and its meaning. In Hynes' study, experimental and exploratory methodologies were used to overcome the difficulties in separating the associations between corporate identity, logo design, and colour. Labrecque and Milne (2012)

carried out an experiment on “exciting red” and “competent blue” which emphasized the importance of colour in branding. Red used to be linked to excitement as it is considered up-to-date, arousing, exciting, stimulating, as well as associated with activity, strength, and stimulation. Blue represents competence since it is associated with intelligence, communication, trust, efficiency, duty, logic, and seen as a secure colour. This study acknowledged that colour has impact on forming consumers’ brand perception by performing demographic and manipulation check items.

In colour and culture studies, Chebat and Morrin (2007) and Cassidy (2012) conducted surveys and explored the effect of a mall’s décor on consumer perceptions. Further, they examined the personal colour analysis, consumer’s colour preferences, and forecasting colour for the fashion and textile industries. They found that French-Canadians perceived high product quality with the mall’s warm colour décor, whereas Anglo-Canadians perceived high product quality with the mall’s cool colour décor. Cassidy (2012) used secondary data from the three dimensions of colour (hue, saturation, and value) and a survey in which respondents indicated their preferences for each colour using a Likert scale. Cassidy concluded that the three dimensions of colour in all palette types were more useful than one dimension only as a potential market data collection tool for forecasting the future fashion colour for the fashion industry.

Crowley (1993) designed a laboratory experiment to examine the impact of shopping, participants were assigned randomly at one of four colour conditions (blue, green, yellow, and red) with all treatments using fully saturated colour (i.e., pure colour containing no black or white to dilute colour). Findings supported that one dimension of consumers’ colour response reflects the activation-related behaviours, while a separate colour effect is related to affective (liking) responses to colour.

An effective example of a qualitative study is the study by Kauppinen-Räisänen and Luomala (2010). They conducted individual in-depth interviews to explore consumers' product-specific colour meanings, which supported the findings of previous studies.

#### 4.2.1.3 Methods of Data Collection in Packaging Colour Studies

Packaging colour studies have used all the well-established methodologies of survey, experiment, focus group and interviews. Often mixed methods have been used, such as survey and interview, or interview and experiment.

Several exploratory studies using a qualitative approach with open-ended and in-depth interviews examined the communicative role of product packaging (Underwood, 2003; Underwood & Ozanne, 1998) and investigated the brand identity construction through packaging (Underwood, 1999). These studies emphasised the role of packaging in communication. Silayoi and Speece (2004) conducted another exploratory study with in-depth interviews to determine the impact of involvement level and time pressure on the relationship between packaging and purchase decision. Meanwhile, through observational work, Wells et al. (2007) examined the importance of packaging design for own-label food brands. Unlike Underwood's studies, these last two studies explored the impact of packaging on purchase decision.

Another qualitative approach by Moodie and Ford (2011) used focus groups to study young adult smoker's perceptions of cigarette pack innovation, pack colour and plain packaging. Consistent with past studies, results revealed that branding removal from package reduced its attractiveness, with plain package appearing more unappealing than light brown, dark, and light grey packs.

Experiments and mixed experiment/interview studies have also been used in marketing studies. For example, Ampuero and Vila (2006) conducted a two-phase data collection (interview and experiment) study about consumer perceptions of product packaging. They found that all positioning strategies they performed seemed to be associated with some particular packaging graphical element (colour, typography, form and illustration).

Van Ittersum and Wansink (2012) used experiment to investigate the dinnerware size and colour recommendation. They found that larger package sizes obviously influence usage volume. Findings suggested that the size of dinnerware creates two opposing biases, which lead people to over-serve on larger plates and bowls and underserve on smaller plates and bowls through the neglected Delboeuf illusion. Rodomonte et al. (2010) designed another experimental study to detect counterfeit drugs through tablets and secondary packaging colour. The results were sufficiently precise for the packages and most tablets investigated and “robust toward ambient conditions changes” (p. 215).

Using both survey and in-store experiment, Garber et al. (2000) investigated the role of package colour in consumers’ purchase consideration and choice. They reported three significant findings: (1) for shoppers who are not loyal to a particular brand, a change in package colour can enhance brand consideration; (2) if the brand has a large base of loyal customers, it may be better to retain the original package or a execute only a minor variation, as large changes may reduce brand identification and confuse existing customers; (3) a change in package colour can increase the total amount of search in the category. Like Garber, Hurley et al. (2016) conducted a post-experiment survey regarding colour harmonies in packaging. They used two separate survey computers to gather demographic information and follow-up questions related to packaging, shopping habits, and the influences of colour on consumers’ purchase decision. No significant difference was found between colour harmonies and consumer preference, or for the eye-tracking metrics. In Hurley’s study colour

harmonies referred to a subset of harmonious colour, while the eye-tracking processing unit was used within the screen to create an unobtrusive environment for the participant.

Bramklev (2009) conducted a three surveys process to examine a generic package in order to develop an updated version. Similarly, Beneke, Floyd, et al. (2015) conducted a "mall-intercept survey" to examine consumer response regarding chocolate and colour to packaging variation. After being exposed to the relevant treatment, the respondents completed a questionnaire comprising three sections: (1) rating impulsiveness of their decision-making process using a product-specific impulsiveness scale; (2) rating their brand loyalty using a loyalty intent scale; and (3) key demographic questions. The results showed that colour has a potential influence on consumer's purchase behaviour in relation to chocolate.

Elicitation surveys with quasi-type experiments, which are used by researchers to tap peoples' beliefs, are a favoured methodology used in marketing research. Bakar et al. (2013) used a free-format elicitation survey with a quasi-type experiment, to examine the effect on consumers of the elicited Islamic symbol on the product package. They found a significant increase of purchase intention particularly of highly religious Muslim consumers compared to those of low religiosity. Another quasi-type experiment study by Orquin (2014) defined as "a Brunswik lens model of consumer health judgements of packaged foods", was designed using images of packaged foods as stimuli. Here, the quasi-experimental design used images on the food package as stimuli to determine how consumers evaluate the healthfulness of packaged foods.

This review of past studies has revealed that numerous methods have been used in the study of colour both in the field of psychology and in the various disciplines of marketing. For instance, experiments involving manipulation in the data collection featured both in the disciplines of psychology and marketing. The quantitative approach using survey for data collection and mixed method approaches such as quasi-type experiments with elicitation

surveys were also much used in marketing studies on colour. Qualitative approaches were also used, such as semi-structured interviews and individual in-depth interviews. Figure 4.1 provides a summary of methods used in colour studies related to psychology, marketing and packaging.

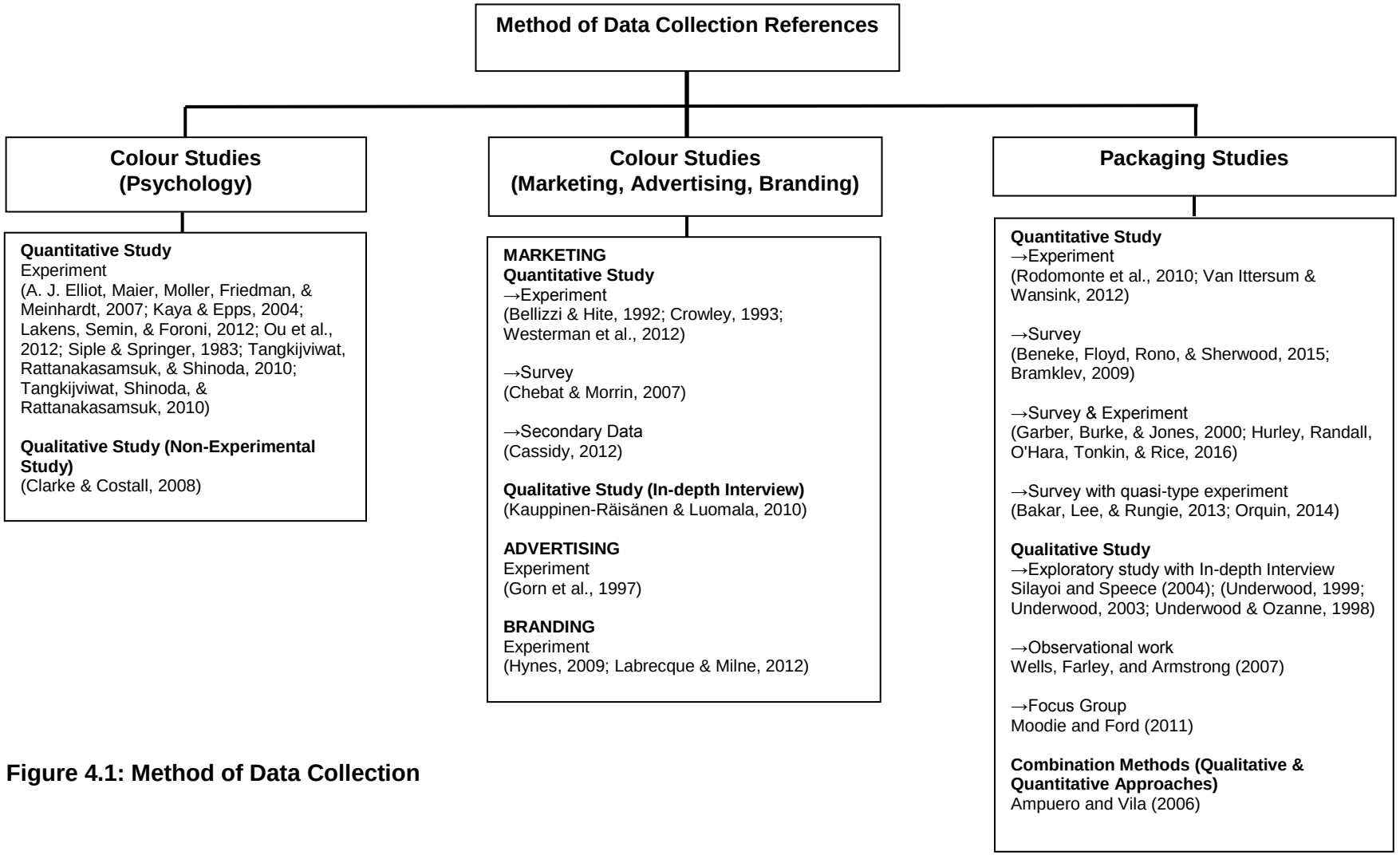



**Figure 4.1: Method of Data Collection**

The next section presents the previous works regarding the methods of analysis. It includes the reviews of methods of analysis in colours studies (both psychology and marketing) as well as method of analysis in packaging studies.

### 4.2.2 Methods of Analysis

This subsection outlines the various types of data analyses that were conducted by past researchers in colour studies. Research in the fields of marketing, packaging and food and beverage packaging is examined.

#### 4.2.2.1 Methods of Analysis in Marketing Studies

In the Gorn et al. (1997) study mentioned earlier, ANOVA (analysis of variance) was applied to analyse statistically the effects of colour as an executional cue in advertising. Westerman et al. (2012) also employed ANOVA in the statistical analysis of their data on the ecommerce interface colour and consumer decision making. Bagchi and Cheema (2013) and Bruno et al. (2013) also used ANOVA for data analysis in two different studies; “the effect of red background colour on willingness to pay” and “the effect of the colour red on consuming food does not depend on achromatic (Michelson) contrast and extends to rubbing cream on the skin.” Meanwhile, Bruno et al. (2013) investigated the effect of plate colour by means of between-factor ANOVA to test the report that serving food on red plates reduces food consumption.

Labrecque and Milne (2012) used ANOVA and regression analysis, in the study of exciting red and competent blue while Chebat and Morrin (2007) and Cassidy (2012) applied ANOVA statistical analysis in their investigations regarding respectively mall decor on consumer perceptions and their study consumer of colour preferences and colour forecasting for the fashion and textile industries. Funk and Oly Ndubisi (2006) used multiple regression as

statistical analysis method in their study about gender roles in colour and product choice, having recruited participants by random sampling and surveyed them.

#### 4.2.2.2 Methods of Analysis in Packaging Studies

In his package studies, Wansink (1996) analysed the data using ANOVA as did Baron and Kenny (1986) in their investigation regarding package size and usage volume. In colour of package studies, Rodomonte et al. (2010) also used ANOVA in their investigation regarding counterfeit drugs detection by measurement of tablets and secondary packaging colour. Similarly, Sehrawet and Kundu (2007) employed ANOVA and the Scheffe Test in buying behaviour of rural and urban consumers in India study (a case of the impact of packaging). Because comparison, manipulation and modification were involved, ANOVA was the most suitable form of data analysis for these studies.

Yang and Raghubir (2005) used a multi-method in their study of the effect of package shape on how much to buy. ANOVA and MANOVA (multivariate analysis of variance) helped as the data analysis method and findings showed that the more elongated a container, the lower its purchase quantity. Underwood et.al. also employed ANOVA in two different investigations; first “Packaging communication–attentional effects of product imagery” (2001), and second “Packaging as brand communication–effects of product pictures on consumer responses to the package brand” (2002). In the first study, a weighted-least-square analysis of variance was chosen and in the second study, they used a repeated-measures ANOVA statistical analysis.

Orth et al. (2010) in their work “Formation of consumer price expectation based on package design–attractive and quality routes,” analysed the data using regression analysis. They tested mediation effect and assessed moderation role as well (Baron & Kenny, 1986; Irwin & McClelland, 2003).

In the food package study by Garber Jr, Hyatt, and Boya (2008b) on the question “Does visual package clutter obscure the communicability of food package shape?”, a series of regression models using SAS GLM procedures was used. The study by Ares and Deliza (2010) on the influence of package shape and colour on consumer expectations of milk dessert used ANOVA for expecting liking and willingness to purchase. Conjoint analysis was used to estimate the relative importance of different package attributes on consumer perceptions of food product. The qualitative approach was appropriate to elicit the associations analysed. Similarly, Piqueras-Fiszman et al. (2012) used ANOVA to examine implicit and explicit cross-modal colour-flavour correspondences in product packaging.

It is evident that researchers used both qualitative and quantitative methods and mixed methods in their studies of colour in marketing. Survey, interview, focus group, and quasi-experimental methods of data collection were treated with ANOVA, MANOVA and regression analysis. Figure 4.2 presents the methods of analysis with respect to colour studies in psychology, packaging and marketing.

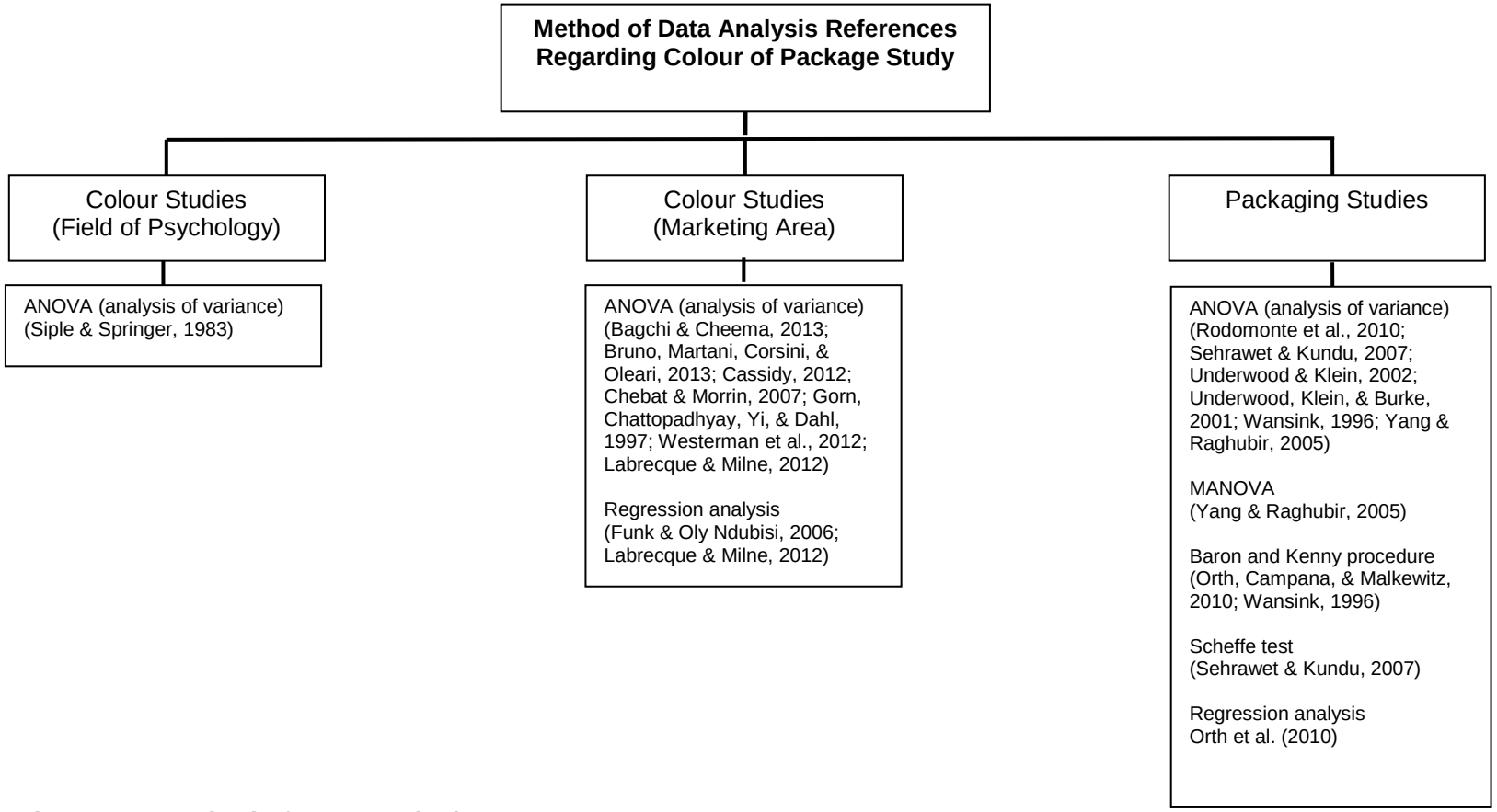



**Figure 4.2: Method of Data Analysis**

Table 4.1 provides a summary of the review of the literature on food package colour that contributed to the theoretical foundation of this present study.

**Table 4.1: Studies of Food Package Colour**

| No | Author | Study | Aim | Method | Findings |
|---|---|---|---|---|---|
| 1 | Ares and Deliza (2010) | Studying the influence of package shape and colour on consumer expectations of milk dessert using word association and conjoint analysis | (a) Evaluate the applicability of word association to study consumer associations about milk dessert packages as a mean to understand their expectations.<br>(b) Study the influence of package shape and colour on consumer expectations of milk desserts. | - Conjoint analysis<br>- ANOVA<br>- Qualitative analysis | Both colour and shape significantly affected consumers' associations, expected liking and willingness to purchase. |
| 2 | Gollety and Guichard (2011) | The dilemma of flavour and colour in the choice of packaging by children | Evaluate the role of colour and its influence on the choice behaviour of children with regard to products where flavour is represented by colour by using a semiotic approach to marketing. | - Interview<br>- Experiment | - Colour codes of the market are not used very much by children to make their product choice.<br>- The influences of metonymical logic (colour of the component responsible for the flavour) and aesthetics (favourite colour) dominate the choice.<br>- In a choice situation, flavour preference prevails more often over colour preference. |
| 3 | Piqueras-Fiszman and Spence (2012) | The influence of the colour of the cup on consumers' perception of a hot beverage | Investigate whether the colour of plastic cups would influence the consumers' rating of the sweetness, bitterness, creaminess, flavour and aroma intensities, and/or liking of hot chocolate beverages. | - Experiment<br>- A repeated measures analysis of variance | The colour of the cup can influence sensory-discriminative and hedonic (liking) evaluations of a familiar hot drink, namely hot chocolate. |
| 4 | Piqueras-Fiszman et al. (2012) | Exploring implicit and explicit cross-modal colour-flavour correspondences in product packaging | (1) Investigate consumers' implicit flavour associations toward the colour of branded crisp packages, by switching the colour–flavour code and including unfamiliar colour–flavour combinations.<br><br>(2) Assess explicit colour–flavour associations with uncoloured packages | 4 | There were two main kinds of associations between the colour of the packaging and flavour types: (1) a learned association through a conventional pairing attributable to a specific brand, and (2) an association between a flavour and its potential packaging colour, based on the colour of the primary named ingredients. |

| No | Author | Study | Aim | Method | Findings |
|---|---|---|---|---|---|
| | | | of a fictitious brand and unfamiliar flavour labels in order to avoid any possible influence of brand acquaintance on the results.<br><br>(3) Check for any cultural differences comparing results from two countries, namely Colombia and UK. | | |
| 5 | Velasco, Wan, et al. (2014) | The context of colour-flavour associations in crisps packaging: a cross-cultural study comparing Chinese, Colombian, and British consumers | Builds on the aforementioned research in order to assess the existence of any differences in the colour–flavour associations that exist between people living in Colombia, mainland China, and the UK. | Experiment | The only two colour–flavour interactions that proved to be consistent across all three countries were those for the cucumber and tomato flavours, which were associated with green and red, respectively (though it appears that some other associations are shared at least by some of the participants in each country). |
| 6 | Beneke, Mathews, et al. (2015) | The role of package colour in influencing purchase intent of bottled water | Investigate the influence of colour in packaging on the purchase intent of consumers for bottled water. | - Experiment<br>- ANOVA | - There is a greater preference for neutral colours as opposed to cold and warm colours in bottled water packaging<br>- Income has a significant influence on colour preference for bottled water |

The next section describes in detail the methodology employed in this current study of the consumer responses to the colour of the packages of Bakpia and Bogra Doi, the two local foods of Indonesia and Bangladesh respectively

## 4.3 Methodology of this Research

A quantitative approach was considered the most appropriate for addressing the research questions of this current study, in which the population distribution of particular factors were to be assessed. The main types of studies aiming to explain behaviour, such as consumer behaviour, are survey, experiment, or focus group of a qualitative approach (Grunert & Wills, 2007). However, a qualitative study was not considered appropriate to examine the proposed

hypotheses and the proposed set of response choices of this study (Vuckovic, Ritenbaugh, Taren, & Tobar, 2000).

One of the potential negative aspects of surveys, however, is that respondents are bad at assessing causality, and are unable to provide a causal argument. Providing many options for responses does not provide the information as to why respondents respond in particular ways. Further, there is no information as to whether the respondents themselves know why they act like that, or whether they keep the reasons to themselves. To address these issues in this study, the survey was designed as a quasi-experimental tool or field experiment in a real setting. Experimentation is generally a more effective method of measuring causality of behaviour (Alreck & Settle, 1994). Cook and Campbell (cited in Mayer & Davis, 1999), defined quasi-experiment as a design that treats an untreated control group with pretest measures at more than one time interval. They pointed out that this type of untreated control group becomes much stronger when additional pretests are added.

A field experiment conducted in a real setting enhances the potential for the results to be generalizable, which is the strength of this method (Benbunan-Fich & Hiltz, 1999; Hiltz, Johnson, & Turoff, 1991). However, there are some limitations to this methodology. Specifically, in field experiments, the implication that many factors cannot be completely controlled in the real world could be a weakness (Benbunan-Fich & Hiltz, 1999; Hiltz et al., 1991). In a field experiment (conducted in the street, store, office, school, or other places), even the independent variable is manipulated, as the researcher cannot always control the allocation of participants into groups. In contrast, the strength of a laboratory experiment is its replicability and repeatability. The more often it is repeated, the more confidence in the validity of the tested theory (provided a similar result is obtained). One limitation of the laboratory experiment is that participants may change their behaviour because of the artificiality of a laboratory environment, which leads to difficulties of generalising to other situations. Another limitation is the potential for the researcher to affect the participant's behaviour.

### 4.3.1 Research Approach of This Study

In this study, a quasi-experimental survey was considered to be an easier, quicker, less expensive, and more accurate way of obtaining the required information from a large quota of samples: 458 for Bakpia and 220 for Bogra Doi. This design was also chosen because the information regarding the products existed already and the information concerning the colour of the food packages of Bakpia and Bogra Doi, gathered through the introductory study, yielded four different specific package colours in the respondents' memory.

In the quasi-type experimental design of this study, a linear mixed model or a generalized linear mixed model was considered to be helpful because of its robustness with regard to possible unbalance in the design and because it can accommodate choice and judgement data yielded from different classes of decision strategies (Loose, Scholderer, Corsi, & Lockshin, 2012; Orquin, 2014).

A preliminary study was undertaken to discover which colours should to be used in the measurement. The next step was a pilot study, to pre-test the research instrument (Baker, 1994, cited in Van Teijlingen & Hundley (2002), to ensure the validity and reliability of the questions. Through a pilot study, the researcher might get advance warning of the possible flaws in the main study, such as non-compliance with research protocols or inappropriateness or over-complication of the proposed methods. Although important, pilot studies are likely to be "underdiscussed, underused and underreported" (Prescott & Soeken, 1989), and when reported, they often only justify the research methods or particular research tool used (Van Teijlingen & Hundley, 2002).

A set of responses choices for the participants was designed to predict a particular behaviour regarding consumers' responses on the package colour. Prediction is one of the aims of

academic study and sampling in a survey can yield information about an extremely large population, such that the results can be generalized (Alreck & Settle, 1994). However, in the study of package colour, favourite colour does not guarantee prediction of choice of colour for the product. Consumers likely develop a wide range of colour associations for various product contexts. Therefore, consumer colour preference does not adequately explain consumer colour choices for particular products (Grossman & Wisenblit, 1999). However, a recent study provided evidence that consumers do make colour choices based on knowledge of their personal colour preference (Westland & Shin, 2015).

In this current study, the respondents were divided equally and randomly into four groups, receiving questionnaires illustrated with one of the four colours of the packages of Bakpia or Bogra Doi respectively. The respondents answered the questions, which were identical, about the four package colours in each region: blue, yellow, green, red for Bakpia, and maroon, cream, orange, yellow for Bogra Doi, with pictures of the packages in all these colours. Data were collected in two different regions, Indonesia and Bangladesh.

### 4.3.2 Population Sample

The population of this current study is the consumer of a specific local food product from two different countries, Indonesia and Bangladesh. Participants in all three stages of the study were recruited directly outside the food shops selling Bakpia in Yogyakarta and Bogra Doi in Bogra City and were local residents or domestic tourists. They had to be at least 18 years of age and they had to be consumers of any brand or variety of the product, either purchased by them or received as a gift. 62 respondents participated in the preliminary study, 48 respondents participated in the pilot study and 458 and 220 respondents participated in the main study of Bakpia and Bogra Doi respectively.

#### 4.3.2.1 Bakpia of Indonesia

Bakpia is a pastry produced famously in Yogyakarta City, a region in the centre of Java, Indonesia. The rationales for selecting this local food product as a context were that the researcher had easy access to the data, and that this food was produced by small companies that support the economic growth of the region but are characterised by their fundamental weaknesses with respect to marketing awareness and practice (Gilmore, Carson, & Grant, 2001; Mc Cartan-Quinn & Carson, 2003). This study is expected to contribute practically to the improvement of marketing practices of such small local businesses.

#### 4.3.2.2 Bogra Doi of Bangladesh

The yoghurt, Bogra Doi originated in and is a well-known feature of Bogra City, Bangladesh. Like Bakpia, Bogra Doi is processed by small local companies, but its huge local market could be an indication its international marketability. Like Bakpia, however, the small companies have marketing weaknesses and this study could be helpful in creating a more marketable and differentiated product package.

### 4.3.3 Data Collection

#### 4.3.3.1 Stage 1 – Preliminary Study

The preliminary study sought to discover what colours were the most prominent colours of the packages of Bakpia and Bogra Doi. Four different colours of package were found to be the most identifiable for each food (1) blue, red, yellow, and green for Bakpia, and (2) maroon, cream, orange, and yellow for Bogra Doi. These findings became the colours in the pictures of the products' packages shown in the questionnaires of next stages.

#### 4.3.3.2 Stage 2 – Pilot Study (Tests of Validity and Reliability)

The purpose of the pilot study was to verify the validity and reliability of the questionnaire which was designed based on the findings of the preliminary study. Verifying validity is to ensure that the instrument actually measures what it sets out to measure, while verifying reliability ensures that an instrument can be interpreted consistently across different situations (A. Field, 2013) or that a variable or set of variables is consistent in what it is intended to measure (Hair, Black, Babin, & Anderson, 2014). The collection of 48 samples in the current pilot study aimed at ensuring the proper conceptual definition of the questionnaire (validity) and its consistency across any situation (reliability).

Validity was tested using varimax rotation of factorial analysis. To assess the suitability of the data for factor analysis, the Kaiser–Mayer–Olkin's (KMO) Measure of Sampling Adequacy (Kaiser, 1974) or Kaiser's criterion: retention of factors with eigenvalues greater than 1.0 (Kaiser, 1960) was utilized (Kane, Houston-Vega, Tan, & Hawkins, 2002; Luciano et al., 2010). The KMO value varies between 0 and 1: A value of 0 indicates that the sum of partial correlations is large relative to the sum of correlations, whilst a value close to 1 indicates that patterns of correlations are compact, and so factor analysis will yield reliable factors (Akbulut et al., 2008). Specifically, Kaiser categorised six different criterions: in the .90s=marvellous, in the .80s=meritorious, in the .70s=middling, in the .60s=mediocre, in the .50s=miserable, and below .50=unacceptable. It determines the optimal number of factors to retain in the analysis and the interpretability of the factor loadings (Luciano et al., 2010). Similarly, following recommendations of Hutcheson and Sofroniou (1999), individual items with scores lower than 0.50 are considered unacceptable and KMO scores above 0.90 are considered excellent (Kane et al., 2002; Luciano et al., 2010). Further, it is indicated that KMO value should be over 0.60, and if it is close to 0.90 it is considered perfect (Hutchenson & Sofroniou, 1999; Namlu & Odabasi, 2007). Other authors indicated that Hutcheson and Sofroniou (1999) specified that values between 0.5 and 0.7 are normal, values between 0.7 and 0.8 are good, values between

0.8 and 0.9 are great, and values above 0.9 are superb (Akbulut et al., 2008), while Pallant (2013) suggests that the KMO statistic should be larger than 0.6 (Akbulut et al., 2008). Bartlett's test of Sphericity was also applied to examine the extent to which the correlation matrices departed from orthogonality (Bartlett, 1954). Finally, the results of our pilot test suggested that one item in the measurement (one of the tools for determining word-of-mouth type of communication) had to be excluded.

The questionnaire's reliability was assessed with the help of SPSS statistic version 22 and rule of thumb. Cronbach (1951) argued that, the highest and lowest coefficients for the mechanical test differ by only .80, a difference which would be important only when a very precise estimate of reliability is needed.

Having confirmed the validity and reliability of the questionnaire in this pilot study, the questionnaire was considered appropriately accurate for the main study.

#### 4.3.3.3 Stage 3 – Main Study (Ready-to-Use Questionnaire Distribution with Large Samples)

The final and main stage of this study was conducted by giving the ready-to-use format questionnaires to 458 participants face-to-face in Indonesia for the Bakpia case and 220 respondents in Bangladesh for the Bogra Doi case. Using randomisation in the questionnaires' distribution, participants received different sequences of pictures of the product's package colour with all variable items. Participants responded to the colour questions as well as the questions concerning frequency of purchase, gender and age. Participants were assured of anonymity and confidentially. Each participant responded in 15-20 minutes.

### 4.3.4 Questionnaire

This section describes the process of development of the instruments in the preliminary, pilot and main stages of this investigation. All instruments had to be translated into Bangla or Indonesian and administered by the researcher in Indonesian and a research assistant in Bangla, both being native speakers of these languages. The English versions of the instruments appear in the Appendix for Chapter 4.

The instrument for the preliminary stage consisted of five questions of which two were questions about colour in general (e.g., What colour do you like the most?) and three were specifically about the colour of Bakpia or Bogra Doi package (e.g., related to the product, what first colour comes in your mind?). These items were developed in order to discover which colours of Bakpia or Bogra Doi packages were popular.

All questions and elements in the pilot study were taken from items appearing in similar research and investigations and modified to suit the cultural contexts of this study. Factorial analysis showed that one of the items (“speak unflatteringly”) in the Word of Mouth variable was inappropriate and had to be removed. It was obvious that this item was misunderstood in the specific cultural contexts.

The final questionnaire began with two short questions to screen the respondents who were going to participate in the main study. The questions sought the age appropriateness: “Are you 18 years old or over?” and experience appropriateness: “Have you ever consumed or bought Bakpia/Bogra Doi?” These questions aimed to fulfil the requirements that the participants should be adult general public-buyers/consumers of Bakpia or Bogra Doi.

The main questions were developed from past research. For example, the questions relating to the word-of-mouth variable about the colour of Bakpia or Bogra Doi package were adapted

and modified from the previous investigation by Goyette et al. (2010). They are: “I will speak of it much more frequently than any other Bakpia/Bogra Doi;” “I will recommend this Bakpia/Bogra Doi”. The model for the item “I will speak unflatteringly of this Bakpia/Bogra Doi to others” was also taken from this source but, as mentioned above, had to be deleted.

In regard to section of the questionnaire rating the package colour preferences in terms of the four different colours that were discovered as the most relevant in the preliminary study, the first two items under each different coloured picture of the package aimed to measure the consumers’ preferences and likeability toward colour of Bakpia or Bogra Doi package. The next four items measuring the participants’ perception of the quality and safety of the product packaged in that particular colour were initially adapted from past studies about measuring visual quality, healthiness, nutritional value and general safety (e.g., Krystallis, Chryssochoidis, & Scholderer, 2007). They were modified by the researcher into “inferior quality”, “very unsafe”, “inferior quality of appearance”, and “low value,” to increase comprehensibility for participants and relevance to this particular study. The three questions on the variable “purchase intention”, as well as five questions regarding consumers’ colour associations were developed and modified by researcher to suit the context and the purpose of this study. These questions have been used in innumerable past investigations in various modifications but with the same purpose.

### 4.3.5 Measurement

The various variables regarding the respondents were investigated: buyer proportion (heavy and light buyer) and demographic information such as gender and age. The distribution of light and heavy buyer was identified by the responses to the question: How frequently have you bought Bakpia/Bogra Doi in the last six months? Options were: (1) more than once a month (2) once a month (3) once in two-three months (4) once in six months (5) none in the last six months (6) never. The categorization of the responses was: “never” defined as non-buyers,

“none in the last six months” and “once in six months” as light buyers, “once in two-three months” and “once a month” as medium buyers. Heavy buyers were defined as “more than once a month” frequency of purchase.

The independent variables were the assorted colours based on the colour of the packages of the two products (the colours that are popularly perceived by consumers). The consumers’ preferences of colour in general and colour of the product’s package in particular that were discovered in the preliminary study and were therefore used in this main questionnaire were: blue, red, yellow, and green in relation to Bakpia and maroon, cream, orange, and yellow in relation to Bogra Doi.

The instruments developed to elicit responses were: (1) rating of preferences of the product shown in the pictures and the likeability about the pictures; (2) perceptions of the quality of the product appearing in the pictures through four different responses; (3) intention to purchase the food by three questions related to willingness to buy the product as shown in the pictures; (4) the relationship of word-of-mouth type of communication to the product’s image through four sets of questions; and finally, (5) the consumers’ association of colours of the products displayed in the pictures linked with five different related items.

Each of the measurements used 7-point Likert scales from least to most preferred for measuring the preferential rating of the product, least to most liked for the likeability of the product’s picture, and strongly agree to strongly disagree for assessing each of the responses of word-of-mouth type of communication and consumers’ mental image of the colour of the products and linked products. Four different measures were used to measure perception of quality: inferior quality – superior quality, very unsafe – completely safe, inferior quality appearance – superior quality appearance, low value – high value. Finally, three items were used for measuring the intention to purchase: least likely to buy it – most likely to buy it, definitely not buy it – definitely buy it, not consider buying it – consider buying it.

### 4.3.6 Analysis

In the data, there were four different groups based on the colour of the local food packages in each region. A multivariate test was employed to investigate the impact of these colours of package simultaneously on various variables.

This multivariate test did not provide information about which groups of colour differed from which. To determine this effect individually, tests of between-subjects effects (a kind of univariate test) were conducted as the continuation of the multivariate test. A measure of the practical importance of a result can be obtained in a univariate analysis by any of a variety of measures of strength of association that convey information about the strength of an effect.

In MANOVA, there is a comparable set of "variance accounted for" measures of strength of association. These measures of strength of association for each of the four multivariate test statistics are defined as Wilks's A, Pillai's V, Hotelling's T, and Roy's $\theta$. In an early study, Olson (1976) recommended that the largest-root test R (Roy's $\theta$) be rejected by almost any standard due to the far too many false claims of significance in the results when assumptions are violated. It has poor power in the relatively diffuse no-centrality structures that might be anticipated in the behavioural sciences.

Figure 4.3 outlines the methodology of the three stages of this study. The Figure shows us the main points involved in each step of the quantitative approach, as well as the findings of the preliminary study, and the pilot study.

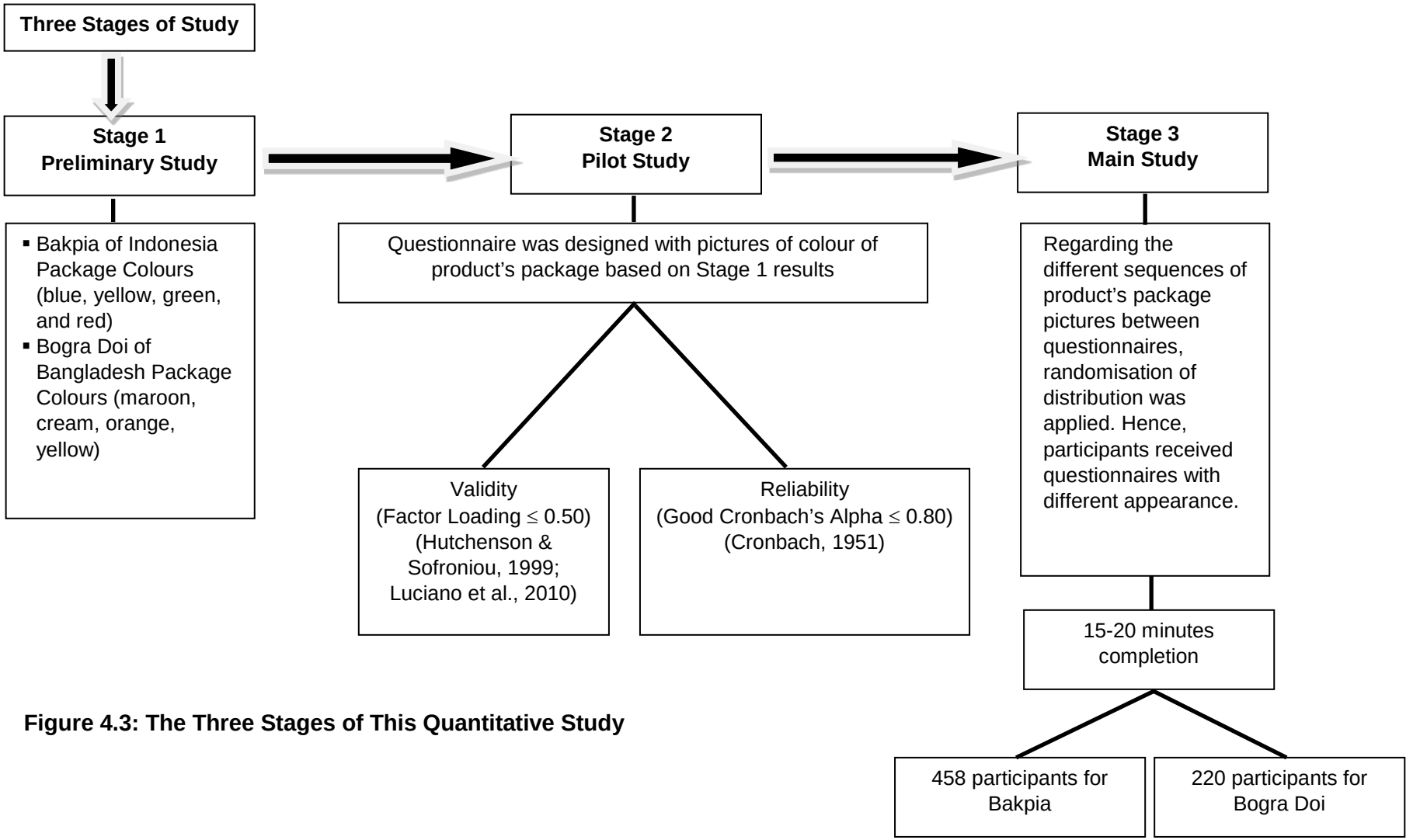



**Figure 4.3: The Three Stages of This Quantitative Study**

This chapter has provided information on the methodologies of previous colour studies in the fields of psychology and marketing, particularly product packaging. The methods of the three stages of this current quantitative study have been described in detail. The next chapter presents the results of the analyses of the data obtained in the three stages of the study.

# CHAPTER 5 : ANALYSIS AND RESULTS

## 5.1 Overview

This chapter presents the results of the analysis of data which were collected and analysed as described in the previous chapter. Sections 5.2 and 5.3 present the demographic and behavioural data of the participants in terms of gender and age and buyer proportion. Section 5.4 describes the preliminary, qualitative stage of the study, which consisted of a short questionnaire to a smaller sample of participants from Yogyakarta and Bogra Doi in order to discover the package colours which should be the subject of the main survey or questionnaire. Section 5.5 presents the results of the validity and reliability tests of the instrument which was to be used in the final, quantitative stage of the study.

Sections 5.6 and 5.7 present the extensive results of all the analyses of the data in the final questionnaires for the 458 Indonesian respondents in the Bakpia study and the 220 Bangladeshi respondents in the Bogra Doi study. The results of the multivariate analyses as well as of the between-subjects effects analysis with regard to buyer proportion, age and gender and responses to package colours are reported.

## 5.2 Demographic Data

Profiling is an important step in analysis, as demographic characteristics enable samples to be identified and examined thoroughly. The descriptive report in this section provides the respondents' profiles with respect to gender and age. The analyses of demographic data of the samples from Indonesia and Bangladesh are separately presented.

### 5.2.1 Gender Distribution

In terms gender information Tables 5.1 and 5.2 provide the share of the gender composition of respondents in the surveys in Yogyakarta about Bakpia and Bogra City about Bogra Doi.

**Table 5.1: Bakpia Study of Respondents' Gender Distribution**

| Gender | Frequency | Percentage |
|---|---|---|
| Male | 183 | 40.0 |
| Female | 275 | 60.0 |
| **Total** | **458** | **100.0** |

The gender distribution of the respondents in the Bakpia study showed that females accounted for 60% or 275 out of a total of 458. Unlike the Indonesian case, the gender distribution result in Bogra Doi showed that males comprised 61.4% or 135 of 220 respondents.

**Table 5.2: Bogra Doi Study of Respondents' Gender Distribution**

| Gender | Frequency | Percentage |
|---|---|---|
| Male | 135 | 61.4 |
| Female | 85 | 38.6 |
| **Total** | **220** | **100.0** |

In this current study, the 458 samples of the Bakpia study and the 220 samples of the Bogra Doi study were given four different colours based on the results of the first stage of the study about prominent package colours: (1) blue, yellow, green, and red for Bakpia; (2) maroon, cream, orange, and yellow for Bogra Doi.

### 5.2.2 Age Distribution

The age proportion was analysed in a similar way to the gender distribution. The age of respondents was categorised into particular groups: 18-24, 25-30, 31-35, 36-40, 41-45, 46-50, and over 50 years

old. Tables 5.3 and Table 5.4 provide details of the age distribution of respondents in the Bakpia and Bogra Doi studies.

**Table 5.3: Age Distribution of Respondents in the Bakpia Study**

| Age | Frequency | Percentage |
|---|---|---|
| 18-24 | 133 | 29.0 |
| 25-30 | 63 | 13.8 |
| 31-35 | 68 | 14.8 |
| 36-40 | 63 | 13.8 |
| 41-45 | 53 | 11.6 |
| 46-50 | 36 | 7.9 |
| Over 50 | 42 | 9.2 |
| **Total** | **458** | **100.0** |

The actual distribution in Bakpia study revealed that the youngest age group was the largest at 133 participants of 458 or 29%. As with the Bakpia case, Table 5.4 shows that the category of 18-24 year old participants was the largest group at 108 of 220 or 49.1% in the Bogra Doi study.

**Table 5.4: Age Distribution of Respondents in the Bogra Doi Study**

| Age | Frequency | Percentage |
|---|---|---|
| 18-24 | 108 | 49.1 |
| 25-30 | 45 | 20.5 |
| 31-35 | 13 | 5.9 |
| 36-40 | 20 | 9.1 |
| 41-45 | 14 | 6.4 |
| 46-50 | 12 | 5.5 |
| Over 50 | 8 | 3.6 |
| **Total** | **220** | **100.0** |

The next section provides the reports on the analyses of the distribution of heavy and light buyers among the respondents.

## 5.3 Distribution of Light and Heavy Buyers

The behavioural groups in the form of heavy and light buyers were examined and are presented in this section based on the coding: 0=non buyers, 1=light buyers, 2=medium buyers, and 4=heavy buyers in the Bakpia and the Bogra Doi studies. The category of non-buyers comprises those who never buy the related food, light buyers consist of consumers who buy the product at least once in six months, medium buyers are consumers who buy the product once in two-three months, or once a month. Heavy buyers are consumers who responded to the buying frequency question by indicating that they purchase the product more than once a month.

### 5.3.1 Buyers Proportion of Bakpia

Table 5.5 provides information in detail regarding the distribution of buyers in the form of light, medium, heavy, and non-buyers.

**Table 5.5: Buyers Proportion of Bakpia**

| Buying Categorisation | N | Percentage |
|---|---|---|
| Non-buyers | 17 | 3.7 |
| Light buyers | 155 | 33.8 |
| Medium buyers | 228 | 49.8 |
| Heavy buyers | 58 | 12.7 |
| **Total** | **458** | **100.0** |

Table 5.5 informs us that medium buyers group had the highest numbers of participants in the Bakpia study at 228 participants or 49.8% while non-buyers were the lowest in number.

### 5.3.2 Buyers Proportion of Bogra Doi

Table 5.6 provides the results of buyer proportion of Bogra Doi.

**Table 5.6: Buyers Proportion of Bogra Doi**

| Buying Categorisation | N | Percentage |
|---|---|---|
| Non-buyers | 34 | 15.5 |
| Light buyers | 67 | 30.5 |
| Medium buyers | 98 | 44.5 |
| Heavy buyers | 21 | 9.5 |
| **Total** | **220** | **100.0** |

Unlike the Bakpia study, Table 5.6 shows us that group of heavy buyers occupied the least proportion at only 9.5%. Compared to the Bakpia investigation in which light, medium, and heavy buyers reached 96.3%, the Bogra Doi buyers in those three categories reached 84.5%. Similar to the distribution of buyers of Bakpia, medium buyers of Bogra Doi were the largest group, at 98 participants or 44.5% followed by light buyers and heavy buyers respectively.

The next section describes the preliminary stage of this study, which investigated the colours that were considered most prominent or recognizable or likeable by the buyers of Bakpia or Bogra Doi.

## 5.4 Preliminary Stage

In this preliminary qualitative stage, 62 participants in Yogyakarta and 48 participants in Bogra City were required to respond to questions concerning colours in general and colours related to the packages of the two products. The aim was to discover which colours would be appropriate to include in the questionnaire of the main study. Table 5.7 lists the five questions.

**Table 5.7: Five Questions of Preliminary Study**

| | Question |
|---|---|
| 1 | What colour do you like the most? |
| 2 | Any other? (up to 3) |
| 3 | Related to the local food Bakpia/Bogra Doi package, what first colour comes in your mind? |
| 4 | What are the others? |
| 5 | Related to the local food Bakpia/Bogra Doi package, which of the following colours do you prefer?<br>You can choose as many as you want.<br>a. red<br>b. orange<br>c. yellow<br>d. green<br>e. blue<br>f. purple<br>g. brown<br>h. any other: …… |

A statistical analysis of the responses to these questions was conducted. The results showed that four different colours appeared as the most recognizable and preferred colours of the Bakpia package: (a) yellow, (b) green, (c) red, and (d) blue. Those colours were frequently mentioned in the responses and were the first four common colours of the Bakpia package in the region. Bakpia consumers all had these colours in mind as the package colours.

The participants in Bogra City, when questioned about the Bogra Doi packages, mentioned four different colours: (a) maroon, (b) cream, (c) orange, and (d) yellow. These colours emerged as the most often mentioned. Similar to the Bakpia case, Bogra Doi consumers all had these colours in mind as the package colours.

The mode and percentage formula in this first stage of the study aimed to gain more valid and cross-checked results. Additionally, the findings of this stage were required as the foundation of the second or pilot stage of the study, which examined the relationship between package colours of Bakpia and Bogra Doi, consumer responses, and their buying proportion by involving the two demographic variables: age and gender.

## 5.5 Pilot Stage

The purpose of the pilot stage of this study was to ensure that the instrument that was developed to investigate a certain concept would indeed accurately measure the variables, and that the measures were good. It is crucial for researchers to evaluate the concept that was chosen for measurement. Cavana, Delahaye, and Sekaran (2001) argued that better instruments will ensure accurate results and enhance the scientific quality of the research. Hence, assessment of the 'goodness' of measures is necessary. In this pilot stage, validity and reliability analyses were undertaken to ensure the questionnaires, developed as a result of the preliminary study, were ready-to-use or academically appropriate.

### 5.5.1 Validity Analysis

Validity analyses were applied to the questionnaires in order to achieve the certainty of the accuracy of the results. This pilot stage aimed to verify the "goodness" of the instrument and calculate its validity by applying factor analysis. The purpose was to ensure the ability of the measure scales to measure the intended concept. All the items in the questionnaires created as the instruments of investigation were put through factor analysis for validity.

Table 5.8 displays 18 items (representing dependent variables) used in this examination of the colour of food package. The first two items c1 and c2 refer to the colour preference and likeability variables in the instrument, pq1 – pq4 represent the perceived quality variable, pi1 – pi3 refer to the variable of purchase intentions, wom1 – wom4 refer to the variable of word-of-mouth, and the five last items a1 – a5 describe the consumers' associations of colours.

**Table 5.8: Rotated Component Matrix of Factor Analysis**

| | Component | | |
|---|---|---|---|
| | 1 | 2 | 3 |
| preference (c1) | **.741** | .492 | .168 |
| likeability (c2) | **.757** | .497 | .142 |
| quality (pq1) | **.799** | .458 | .033 |
| safety (pq2) | **.738** | .449 | .003 |
| appearance (pq3) | **.688** | .442 | -.043 |
| value (pq4) | **.762** | .482 | .080 |
| likely of buying (pi1) | **.798** | .456 | -.134 |
| definitely of buying (pi2) | **.824** | .303 | -.155 |
| consider of buying (pi3) | **.702** | .229 | -.234 |
| frequent of speaking (wom1) | **.796** | .321 | .034 |
| recommend (wom2) | **.849** | .287 | .160 |
| speak unflatteringly (wom3) | .001 | .103 | **.942** |
| encourage (wom4) | **.829** | .299 | .157 |
| fits well (a1) | .365 | **.879** | .120 |
| compatible (a2) | .398 | **.886** | .105 |
| positive (a3) | .362 | **.872** | .054 |
| palatable (a4) | .426 | **.841** | .034 |
| highly prefer (a5) | .433 | **.818** | -.064 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]
a. Rotation converged in 5 iterations.

The validity of the instrument was tested using varimax rotation of factorial analysis, as Table 6.8 shows. The optimal number of retained and interpreted factors of factor loading in the factor analysis was determined (Luciano et al., 2010). To assess the suitability of the data, the item-factor retention of Kaiser's criterion or the Kaiser–Mayer–Olkin's (KMO) Measure of Sampling Adequacy (Kaiser, 1974) was used. Specifically, Kaiser (1974) characterised numerous criteria for categorising the acceptable loading factor in the validity testing of factor analysis: (a) in the .90s=marvellous, (b) in the .80s=meritorious, (c) in the .70s=middling, (d) in the .60s=mediocre, (e) in the .50s=miserable, and (f) below .50=unacceptable. Similarly, Hutcheson and Sofroniou (1999) recommended that individual items with KMO scores less than 0.50 are considered unacceptable while KMO scores above 0.90 are indicated excellent (Hutchenson & Sofroniou, 1999; Kane et al., 2002; Luciano et al., 2010). KMO values should be over 0.60 while closer to 0.90 means perfect (Hutchenson & Sofroniou, 1999; Namlu & Odabasi, 2007). Other studies indicated that values between 0.5 and 0.7 are normal, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great, and values above 0.9 are superb (Akbulut et al., 2008; Hutchenson & Sofroniou, 1999). In summary, the rule of thumb applied in this present investigation was that the loading factor of items should at least reach 0.50 to

be acceptable, or, in other words, if an item fails to load above .50 on any one factor (together with other items of one variable), the related item will be eliminated.

All the factors loaded above 0.50, clearly showing acceptable values, are printed bold. One item (wom3) failed to rotate above 0.50 in factor 1 (0.001), although, surprisingly, it rotated over 0.90 in factor 3. However it had to be excluded from the instrument because the result showed that wom3 may not represent variable word-of-mouth properly. The other three word-of-mouth items (wom1, wom2, and wom4) were loaded above 0.60 in factor 1 (0.796 for wom1; 0.849 for wom2; and 0.829 for wom4) and were valid according to Hutcheson and Sofroniou (1999).

Reliability analysis of the questionnaire was undertaken and is reported in the next subsection.

### 5.5.2 Reliability Analysis

Reliability of a measure indicates the extent to which it is without bias and hence ensures consistent measurement across time and various items (Sekaran & Bougie, 2010). It displays the stability and consistency of the instrument in measuring the concept and assessing the goodness of the measures (Cavana et al., 2001; Sekaran & Bougie, 2010). This research, being based on measurement, must be concerned with accuracy and dependability, and therefore used the reliability coefficient Cronbach's alpha (Cronbach, 1951). This coefficient indicates how well the items are positively correlated to one another. Cronbach argued that accuracy of measurement is usually examined for reliability by considering correlations between a number of measurements, which is called a reliability coefficient. Cronbach's alpha coefficient, which is the most frequently used (Gliem and Gliem (2003), ranges from 0 to 1.00, and (Cronbach & Shavelson, 2004). The closer to value 1.0, the better the reliability. Generally, an alpha coefficient of less than .60 is viewed as poor, those in range of .70 are acceptable, and over .80 is rated good (Cavana et al., 2001; Cortina, 1993). Table 5.9 provides the Cronbach's alpha coefficient of internal consistency (.968) of the 18 items of measurement including wom3. The second column of the Standardized Item contains the

Cronbach's Alpha coefficient of internal consistency when all scale items have been standardized. This coefficient is used only when the individual scale items are not scaled the same.

**Table 5.9: Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| .968 | .969 | 18 |

Table 5.10 shows the values of Cronbach's alpha, if item deleted.

**Table 5.10: Cronbach's Alpha of All Items**

| Items (18) | Cronbach's Alpha if Item Deleted |
|---|---|
| preference (c1) | .965 |
| likeability (c2) | .965 |
| quality (pq1) | .965 |
| safety (pq2) | .965 |
| appearance (pq3) | .966 |
| value (pq4) | .965 |
| likely of buying (pi1) | .965 |
| definitely of buying (pi2) | .966 |
| consider of buying (pi3) | .968 |
| frequent of speaking (wom1) | .966 |
| recommend (wom2) | .965 |
| **speak unflatteringly (wom3)** | **.975** |
| encourage (wom4) | .966 |
| fits well (a1) | .965 |
| compatible (a2) | .965 |
| positive (a3) | .966 |
| palatable (a4) | .965 |
| highly prefer (a5) | .965 |

Table 5.10 shows that the value of Cronbach's alpha when wom3 was deleted rose above 0.968 reaching 0.975. This indicates that wom3 is not measuring the same construct as the rest of the items in the scale. Removing wom3 from the scale resulted in an increase in Cronbach's alpha from 0.968 to 0.975 and made the construct more reliable for use as a predictor variable as Table 5.11 shows.

**Table 5.11: Reliability Statistics - Excluding wom3**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items (exclude wom3) |
|---|---|---|
| .975 | .976 | 17 |

Table 5.11 proves that eliminating wom3 from the scale or the items of measurement increased the alpha several points to 0.975 which made the instrument more reliable and established that the questionnaire was academically ready-to-distribute. Thus, the internal consistency reliability of the measure used in this study could be considered to be good.

The final stage of this study consisted of collecting and analysing the data from participants' responses to the questionnaires.

## 5.6 Third or Main Stage: Bakpia Study

This section presents the findings of the main study in relation to Bakpia. The analyses involved the colours of the packaging of the local food products, Bakpia, and the consumer responses, demography and behavioural factors. A multivariate statistical method (MANOVA) was employed to support this investigation. The statistical analyses were performed in two major parts, for the case of Indonesia's Bakpia, which is reported in this section, and for the case of Bogra Doi, which is reported in Section 5.7. The results are displayed in sequence and begin with the descriptive statistics, followed by the multivariate tests, and, finally, the between-subjects effects test.

### 5.6.1 Descriptive Statistics

The descriptive analysis of data for all variables should indicate the means and standard deviations for these variables (Creswell, 2014). Descriptive statistics on package colour responses, buyers

proportion and colour responses, age and colour responses and finally gender and colour responses are reported in this subsection.

#### 5.6.1.1 Descriptive Statistics of Colour Responses

Tables 5.12 provides the descriptive statistics regarding consumers' responses to colour questions relating to the Bakpia package.

**Table 5.12: Descriptive Statistics - Colour and Consumers' Responses of Indonesia's Bakpia (n=458)**

| | Colour | Mean | Std. Deviation |
|---|---|---|---|
| preference (c1) | blue | 3.52 | 1.686 |
| | **yellow** | **5.28** | 1.517 |
| | green | 5.00 | 1.622 |
| | red | 4.05 | 1.668 |
| likeability (c2) | blue | 3.55 | 1.686 |
| | **yellow** | **5.27** | 1.517 |
| | green | 4.97 | 1.580 |
| | red | 4.06 | 1.650 |
| quality (pq1) | blue | 3.65 | 1.597 |
| | **yellow** | **5.13** | 1.489 |
| | green | 4.83 | 1.567 |
| | red | 4.16 | 1.595 |
| safety (pq2) | blue | 3.91 | 1.653 |
| | **yellow** | **5.11** | 1.536 |
| | green | 4.91 | 1.541 |
| | red | 4.20 | 1.637 |
| appearance (pq3) | blue | 3.72 | 1.617 |
| | **yellow** | **5.10** | 1.516 |
| | green | 4.84 | 1.545 |
| | red | 4.14 | 1.582 |
| value (pq4) | blue | 3.74 | 1.601 |
| | **yellow** | **5.09** | 1.504 |
| | green | 4.78 | 1.594 |
| | red | 4.17 | 1.628 |
| likely of buying (pi1) | blue | 3.46 | 1.680 |
| | **yellow** | **5.04** | 1.596 |
| | green | 4.81 | 1.557 |
| | red | 3.86 | 1.666 |
| definitely of buying (pi2) | blue | 3.47 | 1.637 |
| | **yellow** | **4.96** | 1.600 |
| | green | 4.67 | 1.588 |
| | red | 3.89 | 1.669 |
| consider of buying (pi3) | blue | 3.84 | 1.756 |
| | **yellow** | **4.74** | 1.662 |
| | green | 4.37 | 1.643 |
| | red | 4.02 | 1.756 |
| frequent of speaking (wom1) | blue | 3.49 | 1.705 |
| | **yellow** | **4.79** | 1.558 |
| | green | 4.52 | 1.627 |
| | red | 3.71 | 1.728 |
| recommend (wom2) | blue | 3.44 | 1.717 |
| | **yellow** | **4.93** | 1.594 |
| | green | 4.65 | 1.586 |
| | red | 3.79 | 1.631 |
| encourage (wom4) | blue | 3.46 | 1.711 |
| | **yellow** | **4.78** | 1.592 |
| | green | 4.55 | 1.664 |
| | red | 3.89 | 1.684 |
| fits well (a1) | blue | 3.32 | 1.746 |

| | Colour | Mean | Std. Deviation |
|---|---|---|---|
| | **yellow** | **5.30** | 1.588 |
| | green | 4.85 | 1.655 |
| | red | 3.94 | 1.787 |
| compatible (a2) | blue | 3.39 | 1.708 |
| | **yellow** | **5.29** | 1.563 |
| | green | 4.85 | 1.655 |
| | red | 3.95 | 1.716 |
| positive (a3) | blue | 3.56 | 1.766 |
| | **yellow** | **5.24** | 1.550 |
| | green | 4.95 | 1.614 |
| | red | 4.15 | 1.835 |
| palatable (a4) | blue | 3.22 | 1.684 |
| | **yellow** | **4.96** | 1.737 |
| | green | 4.66 | 1.772 |
| | red | 3.73 | 1.820 |
| highly prefer (a5) | blue | 3.25 | 1.824 |
| | **yellow** | **5.29** | 1.638 |
| | green | 4.88 | 1.724 |
| | red | 3.76 | 1.850 |

Yellow obviously attracted the most attention, yielding the highest responses of all colours. For example, in the item c1 (preference) yellow has the mean value 5.28, green scores at 5.00, red at 4.05, while the lowest mean goes to colour blue at 3.52. This means that in terms of preference, consumers tend to choose Bakpia in a yellow package. If the related item is not available in the store, then they will pick Bakpia in a colour green package, and the next choices will go to red and blue packages of Bakpia. In terms of buying intention, consumers are likely to buy (pi1) Bakpia in a yellow package as the first choice (mean = 5.04). If the store does not provide the item mentioned, then consumers will buy the second option, which is Bakpia in a green package (mean = 4.81). The colours red (mean = 3.86) and blue (mean = 3.46) of the package are the next options in sequence. In summary, how consumers reacted to the colours was the same for all items, with yellow the most preferred colour, followed by green, red and blue. These striking regularities have significant management implications which are discussed in the next chapter in greater detail.

#### 5.6.1.2 Descriptive Statistics of Colour and Buyers Proportion

With yellow as the most preferred colour in the responses, the descriptive findings regarding responses to items about the colour of the package and buyers proportion revealed the same choice. As Table 5.13 shows, in the shares of purchase in all responses, yellow captured the most attention compared to purchase shares of green, red, and blue.

## Table 5.13: Descriptive Statistics Colour Responses and Buyers Proportion of Indonesia's Bakpia

| | Colour | Proportion of Buyers | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| Preference (c1) | blue | non buyers | 2.82 | 2.007 | 17 |
| | | **light buyers** | **3.59** | 1.646 | 155 |
| | | medium buyers | 3.55 | 1.674 | 228 |
| | | heavy buyers | 3.40 | 1.726 | 58 |
| | | Total | 3.52 | 1.686 | 458 |
| | yellow | non buyers | 5.24 | 1.821 | 17 |
| | | light buyers | 5.00 | 1.503 | 155 |
| | | medium buyers | 5.39 | 1.478 | 228 |
| | | **heavy buyers** | **5.59** | 1.534 | 58 |
| | | Total | 5.28 | 1.517 | 458 |
| | green | **non buyers** | **5.82** | 1.131 | 17 |
| | | light buyers | 4.79 | 1.735 | 155 |
| | | medium buyers | 5.05 | 1.564 | 228 |
| | | heavy buyers | 5.12 | 1.590 | 58 |
| | | Total | 5.00 | 1.622 | 458 |
| | red | non buyers | 3.06 | 1.197 | 17 |
| | | **light buyers** | **4.10** | 1.652 | 155 |
| | | medium buyers | 4.08 | 1.668 | 228 |
| | | **heavy buyers** | **4.10** | 1.774 | 58 |
| | | Total | 4.05 | 1.668 | 458 |
| Likeability (c2) | blue | non buyers | 2.71 | 1.961 | 17 |
| | | light buyers | 3.54 | 1.641 | 155 |
| | | **medium buyers** | **3.61** | 1.667 | 228 |
| | | heavy buyers | 3.59 | 1.777 | 58 |
| | | Total | 3.55 | 1.686 | 458 |
| | yellow | non buyers | 5.35 | 1.766 | 17 |
| | | light buyers | 5.01 | 1.488 | 155 |
| | | medium buyers | 5.34 | 1.497 | 228 |
| | | **heavy buyers** | **5.67** | 1.515 | 58 |
| | | Total | 5.27 | 1.517 | 458 |
| | green | **non buyers** | **5.35** | 1.618 | 17 |
| | | light buyers | 4.81 | 1.679 | 155 |
| | | medium buyers | 5.04 | 1.491 | 228 |
| | | heavy buyers | 5.03 | 1.633 | 58 |
| | | Total | 4.97 | 1.580 | 458 |
| | red | non buyers | 3.06 | 1.197 | 17 |
| | | **light buyers** | **4.17** | 1.659 | 155 |
| | | medium buyers | 4.09 | 1.614 | 228 |
| | | heavy buyers | 3.91 | 1.809 | 58 |
| | | Total | 4.06 | 1.650 | 458 |
| Quality (pq1) | blue | non buyers | 3.06 | 1.749 | 17 |
| | | **light buyers** | **3.79** | 1.480 | 155 |
| | | medium buyers | 3.60 | 1.613 | 228 |
| | | heavy buyers | 3.67 | 1.771 | 58 |
| | | Total | 3.65 | 1.597 | 458 |
| | yellow | non buyers | 5.29 | 1.724 | 17 |
| | | light buyers | 4.86 | 1.543 | 155 |
| | | medium buyers | 5.21 | 1.407 | 228 |
| | | **heavy buyers** | **5.48** | 1.501 | 58 |
| | | Total | 5.13 | 1.489 | 458 |
| | green | **non buyers** | **5.29** | 1.312 | 17 |
| | | light buyers | 4.58 | 1.667 | 155 |
| | | medium buyers | 4.90 | 1.485 | 228 |
| | | heavy buyers | 5.09 | 1.614 | 58 |
| | | Total | 4.83 | 1.567 | 458 |
| | red | non buyers | 3.29 | 1.312 | 17 |
| | | light buyers | 4.14 | 1.552 | 155 |
| | | medium buyers | 4.19 | 1.613 | 228 |
| | | **heavy buyers** | **4.33** | 1.669 | 58 |
| | | Total | 4.16 | 1.595 | 458 |
| Safety (pq2) | blue | non buyers | 3.29 | 2.114 | 17 |
| | | light buyers | 4.05 | 1.578 | 155 |
| | | medium buyers | 3.87 | 1.657 | 228 |
| | | **heavy buyers** | **3.88** | 1.676 | 58 |
| | | Total | 3.91 | 1.653 | 458 |
| | yellow | non buyers | 5.35 | 1.801 | 17 |
| | | light buyers | 4.90 | 1.528 | 155 |
| | | medium buyers | 5.14 | 1.525 | 228 |
| | | **heavy buyers** | **5.48** | 1.466 | 58 |
| | | Total | 5.11 | 1.536 | 458 |
| | green | **non buyers** | **5.47** | 1.125 | 17 |
| | | light buyers | 4.76 | 1.546 | 155 |
| | | medium buyers | 4.92 | 1.546 | 228 |
| | | heavy buyers | 5.07 | 1.588 | 58 |
| | | Total | 4.91 | 1.541 | 458 |
| | red | non buyers | 3.35 | 1.455 | 17 |
| | | light buyers | 4.13 | 1.582 | 155 |
| | | **medium buyers** | **4.32** | 1.654 | 228 |
| | | heavy buyers | 4.21 | 1.714 | 58 |
| | | Total | 4.20 | 1.637 | 458 |
| Appearance (pq3) | blue | non buyers | 3.06 | 1.819 | 17 |
| | | **light buyers** | **3.88** | 1.524 | 155 |
| | | medium buyers | 3.65 | 1.585 | 228 |
| | | heavy buyers | 3.72 | 1.881 | 58 |
| | | Total | 3.72 | 1.617 | 458 |
| | yellow | **non buyers** | **5.59** | 1.543 | 17 |
| | | light buyers | 4.85 | 1.542 | 155 |
| | | medium buyers | 5.17 | 1.454 | 228 |
| | | heavy buyers | 5.36 | 1.608 | 58 |
| | | Total | 5.10 | 1.516 | 458 |
| | green | **non buyers** | **5.29** | 1.448 | 17 |
| | | light buyers | 4.63 | 1.563 | 155 |
| | | medium buyers | 4.90 | 1.526 | 228 |
| | | heavy buyers | 5.02 | 1.562 | 58 |
| | | Total | 4.84 | 1.545 | 458 |
| | red | non buyers | 3.29 | 1.105 | 17 |

| | Colour | Proportion of Buyers | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | light buyers | 4.12 | 1.530 | 155 |
| | | **medium buyers** | **4.21** | 1.584 | 228 |
| | | heavy buyers | 4.14 | 1.781 | 58 |
| | | Total | 4.14 | 1.582 | 458 |
| Value (pq4) | blue | non buyers | 3.24 | 1.855 | 17 |
| | | **light buyers** | **3.85** | 1.441 | 155 |
| | | medium buyers | 3.69 | 1.613 | 228 |
| | | heavy buyers | 3.76 | 1.867 | 58 |
| | | Total | 3.74 | 1.601 | 458 |
| | yellow | **non buyers** | **5.47** | 1.463 | 17 |
| | | light buyers | 4.85 | 1.472 | 155 |
| | | medium buyers | 5.13 | 1.495 | 228 |
| | | heavy buyers | 5.43 | 1.568 | 58 |
| | | Total | 5.09 | 1.504 | 458 |
| | green | **non buyers** | **5.24** | 1.437 | 17 |
| | | light buyers | 4.52 | 1.617 | 155 |
| | | medium buyers | 4.90 | 1.519 | 228 |
| | | heavy buyers | 4.83 | 1.798 | 58 |
| | | Total | 4.78 | 1.594 | 458 |
| | red | non buyers | 3.18 | 1.380 | 17 |
| | | light buyers | 4.20 | 1.560 | 155 |
| | | medium buyers | 4.21 | 1.639 | 228 |
| | | **heavy buyers** | **4.24** | 1.770 | 58 |
| | | Total | 4.17 | 1.628 | 458 |
| Likely of buying (pi1) | blue | non buyers | 2.59 | 1.938 | 17 |
| | | light buyers | 3.51 | 1.539 | 155 |
| | | medium buyers | 3.43 | 1.697 | 228 |
| | | **heavy buyers** | **3.67** | 1.849 | 58 |
| | | Total | 3.46 | 1.680 | 458 |
| | yellow | non buyers | 4.88 | 2.118 | 17 |
| | | light buyers | 4.77 | 1.537 | 155 |
| | | medium buyers | 5.14 | 1.570 | 228 |
| | | **heavy buyers** | **5.40** | 1.611 | 58 |
| | | Total | 5.04 | 1.596 | 458 |
| | green | **non buyers** | **5.29** | 1.490 | 17 |
| | | light buyers | 4.59 | 1.626 | 155 |
| | | medium buyers | 4.90 | 1.473 | 228 |
| | | heavy buyers | 4.86 | 1.670 | 58 |
| | | Total | 4.81 | 1.557 | 458 |
| | red | non buyers | 2.88 | .928 | 17 |
| | | light buyers | 3.81 | 1.662 | 155 |
| | | **medium buyers** | **3.94** | 1.677 | 228 |
| | | heavy buyers | 3.93 | 1.736 | 58 |
| | | Total | 3.86 | 1.666 | 458 |
| Definitely of buying (pi2) | blue | non buyers | 2.59 | 1.839 | 17 |
| | | light buyers | 3.63 | 1.508 | 155 |
| | | **medium buyers** | **3.44** | 1.642 | 228 |
| | | heavy buyers | 3.43 | 1.827 | 58 |
| | | Total | 3.47 | 1.637 | 458 |
| | yellow | non buyers | 4.82 | 2.157 | 17 |
| | | light buyers | 4.63 | 1.571 | 155 |
| | | medium buyers | 5.11 | 1.528 | 228 |
| | | **heavy buyers** | **5.31** | 1.657 | 58 |
| | | Total | 4.96 | 1.600 | 458 |
| | green | **non buyers** | **5.12** | 1.616 | 17 |
| | | light buyers | 4.51 | 1.589 | 155 |
| | | medium buyers | 4.70 | 1.522 | 228 |
| | | heavy buyers | 4.86 | 1.811 | 58 |
| | | Total | 4.67 | 1.588 | 458 |
| | red | non buyers | 2.94 | .966 | 17 |
| | | light buyers | 3.90 | 1.619 | 155 |
| | | **medium buyers** | **3.99** | 1.704 | 228 |
| | | heavy buyers | 3.78 | 1.768 | 58 |
| | | Total | 3.89 | 1.669 | 458 |
| Consider of buying (pi3) | blue | non buyers | 3.41 | 2.210 | 17 |
| | | **light buyers** | **3.93** | 1.640 | 155 |
| | | medium buyers | 3.82 | 1.779 | 228 |
| | | heavy buyers | 3.84 | 1.843 | 58 |
| | | Total | 3.84 | 1.756 | 458 |
| | yellow | non buyers | 4.59 | 1.873 | 17 |
| | | light buyers | 4.46 | 1.617 | 155 |
| | | **medium buyers** | **4.91** | 1.651 | 228 |
| | | heavy buyers | 4.86 | 1.701 | 58 |
| | | Total | 4.74 | 1.662 | 458 |
| | green | **non buyers** | **4.71** | 1.687 | 17 |
| | | light buyers | 4.22 | 1.649 | 155 |
| | | medium buyers | 4.42 | 1.598 | 228 |
| | | heavy buyers | 4.50 | 1.789 | 58 |
| | | Total | 4.37 | 1.643 | 458 |
| | red | non buyers | 3.29 | 1.611 | 17 |
| | | **light buyers** | **4.17** | 1.746 | 155 |
| | | medium buyers | 4.07 | 1.734 | 228 |
| | | heavy buyers | 3.67 | 1.849 | 58 |
| | | Total | 4.02 | 1.756 | 458 |
| Frequent of speaking (wom1) | blue | non buyers | 2.71 | 1.724 | 17 |
| | | light buyers | 3.45 | 1.580 | 155 |
| | | medium buyers | 3.50 | 1.732 | 228 |
| | | **heavy buyers** | **3.76** | 1.876 | 58 |
| | | Total | 3.49 | 1.705 | 458 |
| | yellow | non buyers | 5.18 | 1.811 | 17 |
| | | light buyers | 4.35 | 1.514 | 155 |
| | | medium buyers | 4.95 | 1.508 | 228 |
| | | **heavy buyers** | **5.24** | 1.548 | 58 |
| | | Total | 4.79 | 1.558 | 458 |
| | green | **non buyers** | **5.06** | 1.713 | 17 |
| | | light buyers | 4.32 | 1.705 | 155 |
| | | medium buyers | 4.57 | 1.554 | 228 |
| | | heavy buyers | 4.74 | 1.639 | 58 |
| | | Total | 4.52 | 1.627 | 458 |
| | red | non buyers | 2.76 | .903 | 17 |
| | | light buyers | 3.54 | 1.740 | 155 |

| | Colour | Proportion of Buyers | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | medium buyers | 3.82 | 1.716 | 228 |
| | | **heavy buyers** | **4.02** | 1.821 | 58 |
| | | Total | 3.71 | 1.728 | 458 |
| Recommend (wom2) | blue | non buyers | 2.82 | 2.069 | 17 |
| | | light buyers | 3.43 | 1.546 | 155 |
| | | medium buyers | 3.44 | 1.751 | 228 |
| | | **heavy buyers** | **3.60** | 1.901 | 58 |
| | | Total | 3.44 | 1.717 | 458 |
| | yellow | non buyers | 4.82 | 2.038 | 17 |
| | | light buyers | 4.65 | 1.527 | 155 |
| | | medium buyers | 5.03 | 1.580 | 228 |
| | | **heavy buyers** | **5.31** | 1.603 | 58 |
| | | Total | 4.93 | 1.594 | 458 |
| | green | **non buyers** | **5.00** | 1.732 | 17 |
| | | light buyers | 4.48 | 1.589 | 155 |
| | | medium buyers | 4.68 | 1.528 | 228 |
| | | heavy buyers | 4.91 | 1.740 | 58 |
| | | Total | 4.65 | 1.586 | 458 |
| | red | non buyers | 3.06 | 1.088 | 17 |
| | | light buyers | 3.70 | 1.567 | 155 |
| | | medium buyers | 3.85 | 1.675 | 228 |
| | | **heavy buyers** | **4.02** | 1.712 | 58 |
| | | Total | 3.79 | 1.631 | 458 |
| Encourage (wom4) | blue | non buyers | 2.82 | 1.912 | 17 |
| | | **light buyers** | **3.50** | 1.526 | 155 |
| | | medium buyers | 3.49 | 1.762 | 228 |
| | | heavy buyers | 3.45 | 1.912 | 58 |
| | | Total | 3.46 | 1.711 | 458 |
| | yellow | non buyers | 4.71 | 1.896 | 17 |
| | | light buyers | 4.39 | 1.560 | 155 |
| | | medium buyers | 4.91 | 1.551 | 228 |
| | | **heavy buyers** | **5.34** | 1.528 | 58 |
| | | Total | 4.78 | 1.592 | 458 |
| | green | non buyers | 4.65 | 1.656 | 17 |
| | | light buyers | 4.30 | 1.628 | 155 |
| | | medium buyers | 4.67 | 1.610 | 228 |
| | | **heavy buyers** | **4.72** | 1.918 | 58 |
| | | Total | 4.55 | 1.664 | 458 |
| | red | non buyers | 2.94 | 1.197 | 17 |
| | | light buyers | 3.84 | 1.661 | 155 |
| | | medium buyers | 3.94 | 1.722 | 228 |
| | | **heavy buyers** | **4.12** | 1.655 | 58 |
| | | Total | 3.89 | 1.684 | 458 |
| Fits well (a1) | blue | non buyers | 2.59 | 1.906 | 17 |
| | | **light buyers** | **3.47** | 1.744 | 155 |
| | | medium buyers | 3.30 | 1.739 | 228 |
| | | heavy buyers | 3.21 | 1.714 | 58 |
| | | Total | 3.32 | 1.746 | 458 |
| | yellow | non buyers | 5.53 | 1.875 | 17 |
| | | light buyers | 5.04 | 1.574 | 155 |
| | | medium buyers | 5.39 | 1.549 | 228 |
| | | **heavy buyers** | **5.59** | 1.633 | 58 |
| | | Total | 5.30 | 1.588 | 458 |
| | green | **non buyers** | **5.41** | 1.543 | 17 |
| | | light buyers | 4.50 | 1.781 | 155 |
| | | medium buyers | 5.00 | 1.544 | 228 |
| | | heavy buyers | 5.02 | 1.638 | 58 |
| | | Total | 4.85 | 1.655 | 458 |
| | red | non buyers | 3.06 | 1.298 | 17 |
| | | light buyers | 3.80 | 1.828 | 155 |
| | | **medium buyers** | **4.08** | 1.744 | 228 |
| | | heavy buyers | 4.03 | 1.901 | 58 |
| | | Total | 3.94 | 1.787 | 458 |
| Compatible (a2) | blue | non buyers | 2.71 | 1.929 | 17 |
| | | **light buyers** | **3.52** | 1.688 | 155 |
| | | medium buyers | 3.34 | 1.662 | 228 |
| | | heavy buyers | 3.45 | 1.856 | 58 |
| | | Total | 3.39 | 1.708 | 458 |
| | yellow | non buyers | 5.53 | 1.772 | 17 |
| | | light buyers | 4.97 | 1.639 | 155 |
| | | medium buyers | 5.38 | 1.463 | 228 |
| | | **heavy buyers** | **5.71** | 1.556 | 58 |
| | | Total | 5.29 | 1.563 | 458 |
| | green | **non buyers** | **5.18** | 1.741 | 17 |
| | | light buyers | 4.56 | 1.784 | 155 |
| | | medium buyers | 4.94 | 1.591 | 228 |
| | | heavy buyers | 5.17 | 1.428 | 58 |
| | | Total | 4.85 | 1.655 | 458 |
| | red | non buyers | 3.12 | 1.576 | 17 |
| | | light buyers | 3.85 | 1.826 | 155 |
| | | **medium buyers** | **4.07** | 1.612 | 228 |
| | | heavy buyers | 4.00 | 1.806 | 58 |
| | | Total | 3.95 | 1.716 | 458 |
| Positive (a3) | blue | non buyers | 3.24 | 2.359 | 17 |
| | | light buyers | 3.63 | 1.744 | 155 |
| | | medium buyers | 3.54 | 1.693 | 228 |
| | | **heavy buyers** | **3.55** | 1.939 | 58 |
| | | Total | 3.56 | 1.766 | 458 |
| | yellow | **non buyers** | **5.88** | 1.317 | 17 |
| | | light buyers | 4.90 | 1.612 | 155 |
| | | medium buyers | 5.30 | 1.487 | 228 |
| | | heavy buyers | 5.76 | 1.490 | 58 |
| | | Total | 5.24 | 1.550 | 458 |
| | green | **non buyers** | **5.41** | 1.622 | 17 |
| | | light buyers | 4.59 | 1.716 | 155 |
| | | medium buyers | 5.06 | 1.525 | 228 |
| | | heavy buyers | 5.36 | 1.518 | 58 |
| | | Total | 4.95 | 1.614 | 458 |
| | red | non buyers | 3.76 | 1.640 | 17 |
| | | light buyers | 4.13 | 1.936 | 155 |
| | | **medium buyers** | **4.19** | 1.780 | 228 |

| | Colour | Proportion of Buyers | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | heavy buyers | 4.17 | 1.856 | 58 |
| | | Total | 4.15 | 1.835 | 458 |
| Palatable (a4) | blue | non buyers | 2.41 | 1.805 | 17 |
| | | light buyers | 3.24 | 1.596 | 155 |
| | | **medium buyers** | **3.27** | 1.685 | 228 |
| | | heavy buyers | 3.26 | 1.850 | 58 |
| | | Total | 3.22 | 1.684 | 458 |
| | yellow | non buyers | 5.12 | 1.933 | 17 |
| | | light buyers | 4.73 | 1.676 | 155 |
| | | medium buyers | 5.04 | 1.700 | 228 |
| | | **heavy buyers** | **5.21** | 1.953 | 58 |
| | | Total | 4.96 | 1.737 | 458 |
| | green | **non buyers** | **5.06** | 1.853 | 17 |
| | | light buyers | 4.41 | 1.872 | 155 |
| | | medium buyers | 4.75 | 1.701 | 228 |
| | | heavy buyers | 4.84 | 1.715 | 58 |
| | | Total | 4.66 | 1.772 | 458 |
| | red | non buyers | 2.65 | 1.169 | 17 |
| | | light buyers | 3.66 | 1.880 | 155 |
| | | **medium buyers** | **3.83** | 1.793 | 228 |
| | | heavy buyers | 3.81 | 1.849 | 58 |
| | | Total | 3.73 | 1.820 | 458 |
| Highly prefer (a5) | blue | non buyers | 2.71 | 2.114 | 17 |
| | | light buyers | 3.33 | 1.799 | 155 |
| | | medium buyers | 3.17 | 1.746 | 228 |
| | | **heavy buyers** | **3.48** | 2.088 | 58 |
| | | Total | 3.25 | 1.824 | 458 |
| | yellow | **non buyers** | **5.82** | 1.551 | 17 |
| | | light buyers | 5.03 | 1.737 | 155 |
| | | medium buyers | 5.33 | 1.546 | 228 |
| | | heavy buyers | 5.67 | 1.658 | 58 |
| | | Total | 5.29 | 1.638 | 458 |
| | green | **non buyers** | **5.41** | 1.543 | 17 |
| | | light buyers | 4.64 | 1.823 | 155 |
| | | medium buyers | 4.96 | 1.668 | 228 |
| | | heavy buyers | 5.07 | 1.674 | 58 |
| | | Total | 4.88 | 1.724 | 458 |
| | red | non buyers | 2.82 | 1.237 | 17 |
| | | light buyers | 3.61 | 1.939 | 155 |
| | | **medium buyers** | **3.93** | 1.781 | 228 |
| | | heavy buyers | 3.74 | 1.943 | 58 |
| | | Total | 3.76 | 1.850 | 458 |

Among the heavy buyers, yellow is the most prominent choice for the Bakpia package colour, according to the mean values as seen in Table 5.13. Five items are the exceptions where the highest value in the yellow category is not on the heavy buyers. They are appearance (pq3): non-buyers with mean value 5.59; value (pq4): non-buyers at 5.47; consider of buying (pi3): medium buyers at 4.91; positive (a3): non-buyers at 5.88; and highly prefer (a5): non-buyers at 5.82. Four items were dominated by non-buyers. However, the heavy buyers in the five exceptional items were in the second strongest relationship of the colour yellow response: 5.36 (pq3), 5.43 (pq4), 4.86 (pi3), 5.76 (a3), and 5.67 (a5). In the non-buyers category, the most powerful relationship with the colour green was exhibited across all items except for encouragement of buying (wom4). Meanwhile, the other two package colours of red and blue revealed a variety of most powerful relationships with the buyer categories (light, medium, and heavy). Overall, these show us that the heavy buyers category made the highest contribution to the colour yellow responses while non-buyers category made the highest contribution to the colour green responses. This means that yellow was the first choice of Bakpia package for heavy buyers, whereas green as the colour of the package was considered first in the minds of people who never buy Bakpia. There might be several reasons for such a result: (1) Heavy

buyers choosing the yellow package were the consumers who regularly buy Bakpia over a particular time and have already known this product very well for a long time. (2) Non-buyers choosing the green package were people who first heard of this product based on the current market situation, in which one of the best competitors recently launched their Bakpia in a green package. However, Table 5.14 tells us that in total, heavy buyers had the strongest relationship between colour responses and buyers proportion of Bakpia.

**Table 5.14: Descriptive Statistics Colour Responses and Buyers Proportion of Indonesia's Bakpia (Total)**

| | Colour | Proportion of Buyers | Mean |
|---|---|---|---|
| c1 (preference) | Total | non buyers | 4.24 |
| | | light buyers | 4.37 |
| | | medium buyers | 4.52 |
| | | **heavy buyers** | **4.55** |
| c2 (likeability) | Total | non buyers | 4.12 |
| | | light buyers | 4.38 |
| | | medium buyers | 4.52 |
| | | **heavy buyers** | **4.55** |
| pq1 (quality) | Total | non buyers | 4.24 |
| | | light buyers | 4.34 |
| | | medium buyers | 4.47 |
| | | **heavy buyers** | **4.64** |
| pq2 (safety) | Total | non buyers | 4.37 |
| | | light buyers | 4.46 |
| | | medium buyers | 4.56 |
| | | **heavy buyers** | **4.66** |
| pq3 (appearance) | Total | non buyers | 4.31 |
| | | light buyers | 4.37 |
| | | medium buyers | 4.48 |
| | | **heavy buyers** | **4.56** |
| pq4 (value) | Total | non buyers | 4.28 |
| | | light buyers | 4.35 |
| | | medium buyers | 4.48 |
| | | **heavy buyers** | **4.56** |
| pi1 (likely of buying) | Total | non buyers | 3.91 |
| | | light buyers | 4.17 |
| | | medium buyers | 4.35 |
| | | **heavy buyers** | **4.47** |
| pi2 (definitely of buying) | Total | non buyers | 3.87 |
| | | light buyers | 4.17 |
| | | medium buyers | 4.31 |
| | | **heavy buyers** | **4.34** |
| pi3 (consider of buying) | Total | non buyers | 4.00 |
| | | light buyers | 4.20 |
| | | medium buyers | 4.30 |
| | | **heavy buyers** | **4.22** |
| wom1 (frequent of speaking) | Total | non buyers | 3.93 |
| | | light buyers | 3.91 |
| | | medium buyers | 4.21 |
| | | **heavy buyers** | **4.44** |
| wom2 (recommend) | Total | non buyers | 3.93 |
| | | light buyers | 4.07 |
| | | medium buyers | 4.25 |
| | | **heavy buyers** | **4.46** |
| wom4 (encourage) | Total | non buyers | 3.78 |
| | | light buyers | 4.01 |
| | | medium buyers | 4.25 |
| | | **heavy buyers** | **4.41** |
| a1 (fits well) | Total | non buyers | 4.15 |
| | | light buyers | 4.20 |
| | | medium buyers | 4.44 |
| | | **heavy buyers** | **4.46** |

| | Colour | Proportion of Buyers | Mean |
|---|---|---|---|
| a2 compatible) | Total | non buyers | 4.13 |
| | | light buyers | 4.23 |
| | | medium buyers | 4.43 |
| | | **heavy buyers** | **4.58** |
| a3 (positive) | Total | non buyers | 4.57 |
| | | light buyers | 4.31 |
| | | medium buyers | 4.52 |
| | | **heavy buyers** | **4.71** |
| a4 (palatable) | Total | non buyers | 3.81 |
| | | light buyers | 4.01 |
| | | medium buyers | 4.22 |
| | | **heavy buyers** | **4.28** |
| a5 (highly prefer) | Total | non buyers | 4.19 |
| | | light buyers | 4.15 |
| | | medium buyers | 4.35 |
| | | **heavy buyers** | **4.49** |

The next subsection discusses the results of the analysis of the demographic aspects of the gender of participants who responded to the colour questions.

#### 5.6.1.3 Descriptive Statistics of Colour and Gender Responses

With respect to demographic items in this study, the descriptive statistical outcomes of the relationships between colour responses and gender are presented in the Table 5.15.

**Table 5.15: Descriptive Statistics Gender and Responses to Colour of Bakpia Package**

| | Colour | Gender | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| c1 (preference) | blue | **male** | **3.69** | 1.688 | 181 |
| | | female | 3.41 | 1.678 | 277 |
| | | Total | 3.52 | 1.686 | 458 |
| | yellow | male | 5.27 | 1.478 | 181 |
| | | **female** | **5.28** | 1.544 | 277 |
| | | Total | 5.28 | 1.517 | 458 |
| | green | male | 4.93 | 1.604 | 181 |
| | | **female** | **5.05** | 1.636 | 277 |
| | | Total | 5.00 | 1.622 | 458 |
| | red | **male** | **4.33** | 1.697 | 181 |
| | | female | 3.87 | 1.627 | 277 |
| | | Total | 4.05 | 1.668 | 458 |
| c2 (likeability) | blue | **male** | **3.72** | 1.691 | 181 |
| | | female | 3.44 | 1.677 | 277 |
| | | Total | 3.55 | 1.686 | 458 |
| | yellow | male | 5.25 | 1.469 | 181 |
| | | **female** | **5.28** | 1.551 | 277 |
| | | Total | 5.27 | 1.517 | 458 |
| | green | male | 4.93 | 1.541 | 181 |
| | | **female** | **5.00** | 1.607 | 277 |
| | | Total | 4.97 | 1.580 | 458 |
| | red | **male** | **4.29** | 1.702 | 181 |
| | | female | 3.90 | 1.600 | 277 |
| | | Total | 4.06 | 1.650 | 458 |
| pq1 (quality) | blue | **male** | **3.72** | 1.640 | 181 |
| | | female | 3.61 | 1.570 | 277 |
| | | Total | 3.65 | 1.597 | 458 |
| | yellow | **male** | **5.15** | 1.432 | 181 |
| | | female | 5.11 | 1.527 | 277 |
| | | Total | 5.13 | 1.489 | 458 |
| | green | **male** | **4.88** | 1.482 | 181 |
| | | female | 4.80 | 1.623 | 277 |
| | | Total | 4.83 | 1.567 | 458 |
| | red | **male** | **4.39** | 1.638 | 181 |
| | | female | 4.01 | 1.551 | 277 |
| | | Total | 4.16 | 1.595 | 458 |
| pq2 (safety) | blue | **male** | **4.03** | 1.655 | 181 |
| | | female | 3.84 | 1.650 | 277 |
| | | Total | 3.91 | 1.653 | 458 |

| | Colour | Gender | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | yellow | **male** | **5.12** | 1.488 | 181 |
| | | female | 5.11 | 1.569 | 277 |
| | | Total | 5.11 | 1.536 | 458 |
| | green | **male** | **5.00** | 1.430 | 181 |
| | | female | 4.84 | 1.609 | 277 |
| | | Total | 4.91 | 1.541 | 458 |
| | red | **male** | **4.40** | 1.679 | 181 |
| | | female | 4.08 | 1.599 | 277 |
| | | Total | 4.20 | 1.637 | 458 |
| pq3 (appearance) | blue | **male** | **3.72** | 1.687 | 181 |
| | | female | 3.71 | 1.573 | 277 |
| | | Total | 3.72 | 1.617 | 458 |
| | yellow | **male** | **5.18** | 1.506 | 181 |
| | | female | 5.05 | 1.523 | 277 |
| | | Total | 5.10 | 1.516 | 458 |
| | green | **male** | **4.84** | 1.517 | 181 |
| | | female | 4.83 | 1.565 | 277 |
| | | Total | 4.84 | 1.545 | 458 |
| | red | **male** | **4.35** | 1.625 | 181 |
| | | female | 4.00 | 1.542 | 277 |
| | | Total | 4.14 | 1.582 | 458 |
| pq4 (value) | blue | **male** | **3.81** | 1.654 | 181 |
| | | female | 3.69 | 1.567 | 277 |
| | | Total | 3.74 | 1.601 | 458 |
| | yellow | **male** | **5.14** | 1.490 | 181 |
| | | female | 5.05 | 1.515 | 277 |
| | | Total | 5.09 | 1.504 | 458 |
| | green | **male** | **4.88** | 1.458 | 181 |
| | | female | 4.70 | 1.676 | 277 |
| | | Total | 4.78 | 1.594 | 458 |
| | red | **male** | **4.33** | 1.674 | 181 |
| | | female | 4.07 | 1.592 | 277 |
| | | Total | 4.17 | 1.628 | 458 |
| pi1 (likely of buying) | blue | **male** | **3.66** | 1.687 | 181 |
| | | female | 3.32 | 1.665 | 277 |
| | | Total | 3.46 | 1.680 | 458 |
| | yellow | **male** | **5.08** | 1.619 | 181 |
| | | female | 5.01 | 1.583 | 277 |
| | | Total | 5.04 | 1.596 | 458 |
| | green | male | 4.80 | 1.514 | 181 |
| | | **female** | **4.81** | 1.587 | 277 |
| | | Total | 4.81 | 1.557 | 458 |
| | red | **male** | **4.03** | 1.767 | 181 |
| | | female | 3.74 | 1.589 | 277 |
| | | Total | 3.86 | 1.666 | 458 |
| pi2 (definitely of buying) | blue | **male** | **3.68** | 1.695 | 181 |
| | | female | 3.34 | 1.585 | 277 |
| | | Total | 3.47 | 1.637 | 458 |
| | yellow | **male** | **5.04** | 1.499 | 181 |
| | | female | 4.91 | 1.664 | 277 |
| | | Total | 4.96 | 1.600 | 458 |
| | green | **male** | **4.71** | 1.500 | 181 |
| | | female | 4.65 | 1.646 | 277 |
| | | Total | 4.67 | 1.588 | 458 |
| | red | **male** | **4.14** | 1.739 | 181 |
| | | female | 3.73 | 1.605 | 277 |
| | | Total | 3.89 | 1.669 | 458 |
| pi3 (consider of buying) | blue | male | 3.78 | 1.671 | 181 |
| | | **female** | **3.88** | 1.811 | 277 |
| | | Total | 3.84 | 1.756 | 458 |
| | yellow | **male** | **4.90** | 1.609 | 181 |
| | | female | 4.64 | 1.690 | 277 |
| | | Total | 4.74 | 1.662 | 458 |
| | green | **male** | **4.59** | 1.538 | 181 |
| | | female | 4.23 | 1.695 | 277 |
| | | Total | 4.37 | 1.643 | 458 |
| | red | **male** | **4.06** | 1.745 | 181 |
| | | female | 4.00 | 1.765 | 277 |
| | | Total | 4.02 | 1.756 | 458 |
| wom1 (frequent of speaking) | blue | **male** | **3.62** | 1.777 | 181 |
| | | female | 3.40 | 1.653 | 277 |
| | | Total | 3.49 | 1.705 | 458 |
| | yellow | **male** | **4.81** | 1.556 | 181 |
| | | female | 4.78 | 1.562 | 277 |
| | | Total | 4.79 | 1.558 | 458 |
| | green | **male** | **4.53** | 1.638 | 181 |
| | | female | 4.52 | 1.623 | 277 |
| | | Total | 4.52 | 1.627 | 458 |
| | red | **male** | **3.88** | 1.780 | 181 |
| | | female | 3.60 | 1.686 | 277 |
| | | Total | 3.71 | 1.728 | 458 |
| recommend (wom2) | blue | **male** | **3.62** | 1.784 | 181 |
| | | female | 3.32 | 1.664 | 277 |
| | | Total | 3.44 | 1.717 | 458 |
| | yellow | **male** | **4.96** | 1.639 | 181 |
| | | female | 4.91 | 1.567 | 277 |
| | | Total | 4.93 | 1.594 | 458 |
| | green | **male** | **4.67** | 1.549 | 181 |
| | | female | 4.64 | 1.612 | 277 |
| | | Total | 4.65 | 1.586 | 458 |
| | red | **male** | **3.93** | 1.710 | 181 |
| | | female | 3.70 | 1.574 | 277 |
| | | Total | 3.79 | 1.631 | 458 |
| encourage (wom4) | blue | **male** | **3.60** | 1.766 | 181 |
| | | female | 3.38 | 1.671 | 277 |
| | | Total | 3.46 | 1.711 | 458 |
| | yellow | **male** | **4.80** | 1.617 | 181 |
| | | female | 4.77 | 1.577 | 277 |
| | | Total | 4.78 | 1.592 | 458 |
| | green | **male** | **4.55** | 1.644 | 181 |
| | | **female** | **4.55** | 1.680 | 277 |

| | Colour | Gender | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | Total | 4.55 | 1.664 | 458 |
| | red | **male** | **4.08** | 1.728 | 181 |
| | | female | 3.77 | 1.646 | 277 |
| | | Total | 3.89 | 1.684 | 458 |
| fits well (a1) | blue | **male** | **3.38** | 1.815 | 181 |
| | | female | 3.28 | 1.703 | 277 |
| | | Total | 3.32 | 1.746 | 458 |
| | yellow | male | 5.28 | 1.641 | 181 |
| | | **female** | **5.32** | 1.556 | 277 |
| | | Total | 5.30 | 1.588 | 458 |
| | green | **male** | **4.86** | 1.578 | 181 |
| | | female | 4.84 | 1.706 | 277 |
| | | Total | 4.85 | 1.655 | 458 |
| | red | **male** | **4.16** | 1.802 | 181 |
| | | female | 3.80 | 1.766 | 277 |
| | | Total | 3.94 | 1.787 | 458 |
| compatible (a2) | blue | **male** | **3.55** | 1.756 | 181 |
| | | female | 3.29 | 1.671 | 277 |
| | | Total | 3.39 | 1.708 | 458 |
| | yellow | male | 5.27 | 1.580 | 181 |
| | | **female** | **5.31** | 1.554 | 277 |
| | | Total | 5.29 | 1.563 | 458 |
| | green | **male** | **4.87** | 1.593 | 181 |
| | | female | 4.84 | 1.697 | 277 |
| | | Total | 4.85 | 1.655 | 458 |
| | red | **male** | **4.18** | 1.736 | 181 |
| | | female | 3.80 | 1.690 | 277 |
| | | Total | 3.95 | 1.716 | 458 |
| positive (a3) | blue | **male** | **3.70** | 1.780 | 181 |
| | | female | 3.47 | 1.754 | 277 |
| | | Total | 3.56 | 1.766 | 458 |
| | yellow | male | 5.18 | 1.590 | 181 |
| | | **female** | **5.29** | 1.526 | 277 |
| | | Total | 5.24 | 1.550 | 458 |
| | green | **male** | **5.06** | 1.552 | 181 |
| | | female | 4.88 | 1.653 | 277 |
| | | Total | 4.95 | 1.614 | 458 |
| | red | **male** | **4.40** | 1.893 | 181 |
| | | female | 3.99 | 1.780 | 277 |
| | | Total | 4.15 | 1.835 | 458 |
| palatable (a4) | blue | **male** | **3.37** | 1.745 | 181 |
| | | female | 3.13 | 1.639 | 277 |
| | | Total | 3.22 | 1.684 | 458 |
| | yellow | male | 4.82 | 1.817 | 181 |
| | | **female** | **5.04** | 1.681 | 277 |
| | | Total | 4.96 | 1.737 | 458 |
| | green | male | 4.65 | 1.766 | 181 |
| | | **female** | **4.66** | 1.780 | 277 |
| | | Total | 4.66 | 1.772 | 458 |
| | red | **male** | **3.90** | 1.860 | 181 |
| | | female | 3.62 | 1.789 | 277 |
| | | Total | 3.73 | 1.820 | 458 |
| highly prefer (a5) | blue | **male** | **3.37** | 1.892 | 181 |
| | | female | 3.17 | 1.778 | 277 |
| | | Total | 3.25 | 1.824 | 458 |
| | yellow | male | 5.19 | 1.738 | 181 |
| | | **female** | **5.36** | 1.570 | 277 |
| | | Total | 5.29 | 1.638 | 458 |
| | green | male | 4.83 | 1.751 | 181 |
| | | **female** | **4.91** | 1.709 | 277 |
| | | Total | 4.88 | 1.724 | 458 |
| | red | **male** | **4.02** | 1.948 | 181 |
| | | female | 3.59 | 1.766 | 277 |
| | | Total | 3.76 | 1.850 | 458 |

In terms of the relationship of colour responses and gender in the case of Bakpia, the results show that both males and female indicated yellow as the most noticeable colour of the package in each of the specific items. For example, in terms of preference (c1), female respondents had a higher response rate to yellow compared to male respondents at mean value 5.28, while, in terms of quality (pq1), male participants had the higher response to yellow at mean value 5.15. Across all items, the other three colours had mostly higher male responses. The responses in total are listed in Table 5.16 below.

**Table 5.16: Descriptive Statistics Gender and Responses to Colour of Bakpia Package (Total)**

| | Gender | Mean |
|---|---|---|
| c1 (preference) | **male** | **4.56** |
| | female | 4.40 |
| c2 (likeability) | **male** | **4.55** |
| | female | 4.40 |
| pq1 (quality) | **male** | **4.53** |
| | female | 4.38 |
| pq2 (safety) | **male** | **4.64** |
| | female | 4.47 |
| pq3 (appearance) | **male** | **4.52** |
| | female | 4.40 |
| pq4 (value) | **male** | **4.54** |
| | female | 4.38 |
| pi1 (likely of buying) | **male** | **4.40** |
| | female | 4.22 |
| pi2 (definitely of buying) | **male** | **4.39** |
| | female | 4.16 |
| pi3 (consider of buying) | **male** | **4.33** |
| | female | 4.19 |
| wom1 (frequent of speaking) | **male** | **4.21** |
| | female | 4.07 |
| wom2 (recommend) | **male** | **4.29** |
| | female | 4.14 |
| wom4 (encourage) | **male** | **4.26** |
| | female | 4.11 |
| a1 (fits well) | **male** | **4.42** |
| | female | 4.31 |
| a2 (compatible) | **male** | **4.46** |
| | female | 4.31 |
| a3 (positive) | **male** | **4.58** |
| | female | 4.41 |
| a4 (palatable) | **male** | **4.19** |
| | female | 4.11 |
| a5 (highly prefer) | **male** | **4.35** |
| | female | 4.26 |

Table 5.16 reveals that in total, male respondents dominated the relationship between colour responses and gender in relation to the Bakpia package. Despite the fact that numerically, female respondents were dominant, accounting for more than 60% of the participants (277 of 458 respondents), the descriptive statistical findings related to the colour response and gender revealed that in each of the response items, there was almost no difference between the genders. Table 5.17 presents the findings of calculations using the percentage difference formula:

$$\frac{|V_1 - V_2|}{\frac{(V_1 + V_2)}{2}} \quad X \quad 100$$

As seen from the mean scores of the response items in Table 5.15, neither male nor female responses reached ten percentage difference in terms of gender responses toward colour of with the exception of three responses about the colour red (11.2% for c1, 10.4% for pi2, and 11.3% for a5). The conclusion we can reach is that gender had no impact on responses about the colour of the Bakpia package.

**Table 5.17: Percentage of Differences of Gender Responses toward Colours of Bakpia Package**

| | Blue | | % of | Yellow | | % of | Green | | % of | Red | | % of |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | F | differences | M | F | differences | M | F | differences | M | F | differences |
| c1 | 3.69 | 3.41 | 7.9 | 5.27 | 5.28 | 0.2 | 4.93 | 5.05 | 2.4 | 4.33 | 3.87 | **11.2** |
| c2 | 3.72 | 3.44 | 7.8 | 5.25 | 5.28 | 0.6 | 4.93 | 5.00 | 1.4 | 4.29 | 3.90 | 9.5 |
| pq1 | 3.72 | 3.61 | 3.0 | 5.15 | 5.11 | 0.8 | 4.88 | 4.80 | 1.7 | 4.39 | 4.01 | 9.0 |
| pq2 | 4.03 | 3.84 | 4.8 | 5.12 | 5.11 | 0.2 | 5.00 | 4.84 | 3.3 | 4.40 | 4.08 | 7.5 |
| pq3 | 3.72 | 3.71 | 0.3 | 5.18 | 5.05 | 2.5 | 4.84 | 4.83 | 0.2 | 4.35 | 4.00 | 8.4 |
| pq4 | 3.81 | 3.69 | 3.2 | 5.14 | 5.05 | 1.8 | 4.88 | 4.70 | 3.8 | 4.33 | 4.07 | 6.2 |
| pi1 | 3.66 | 3.32 | 9.7 | 5.08 | 5.01 | 1.4 | 4.80 | 4.81 | 0.2 | 4.03 | 3.74 | 7.5 |
| pi2 | 3.68 | 3.34 | 9.7 | 5.04 | 4.91 | 2.6 | 4.71 | 4.65 | 1.3 | 4.14 | 3.73 | **10.4** |
| pi3 | 3.78 | 3.88 | 2.6 | 4.90 | 4.64 | 5.5 | 4.59 | 4.23 | 8.2 | 4.06 | 4.00 | 1.5 |
| wom1 | 3.62 | 3.40 | 6.3 | 4.81 | 4.78 | 0.6 | 4.53 | 4.52 | 0.2 | 3.88 | 3.60 | 7.5 |
| wom2 | 3.62 | 3.32 | 8.6 | 4.96 | 4.91 | 1.0 | 4.67 | 4.64 | 0.6 | 3.93 | 3.70 | 6.0 |
| wom4 | 3.60 | 3.38 | 6.3 | 4.80 | 4.77 | 0.6 | 4.55 | 4.55 | 0 | 4.08 | 3.77 | 7.9 |
| a1 | 3.38 | 3.28 | 3.0 | 5.28 | 5.32 | 0.8 | 4.86 | 4.84 | 0.4 | 4.16 | 3.80 | 9.0 |
| a2 | 3.55 | 3.29 | 7.6 | 5.27 | 5.31 | 0.8 | 4.87 | 4.84 | 0.6 | 4.18 | 3.80 | 9.5 |
| a3 | 3.70 | 3.47 | 6.4 | 5.18 | 5.29 | 2.1 | 5.06 | 4.88 | 3.6 | 4.40 | 3.99 | 9.8 |
| a4 | 3.37 | 3.13 | 7.4 | 4.82 | 5.04 | 4.5 | 4.65 | 4.66 | 0.2 | 3.90 | 3.62 | 7.4 |
| a5 | 3.37 | 3.17 | 6.1 | 5.19 | 5.36 | 3.2 | 4.83 | 4.91 | 1.6 | 4.02 | 3.59 | **11.3** |

No differences of gender responses toward colour of package if % of differences less than 10%

### 5.6.1.4 Descriptive Statistics of Colour and Age Responses

The statistical results of the other demographic item, age, are presented in Table 5.18.

**Table 5.18: Descriptive Statistics Age and Responses to Colour of Bakpia Package**

| | Colour | Age | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| preference (c1) | blue | 18-24 | 3.63 | 1.675 | 134 |
| | | **25-30** | **3.95** | 1.611 | 63 |
| | | 31-35 | 3.54 | 1.726 | 67 |
| | | 36-40 | 3.16 | 1.648 | 63 |
| | | 41-45 | 3.06 | 1.460 | 53 |
| | | 46-50 | 3.58 | 1.697 | 36 |
| | | over 50 | 3.57 | 1.940 | 42 |
| | yellow | 18-24 | 4.93 | 1.528 | 134 |
| | | 25-30 | 5.37 | 1.261 | 63 |
| | | 31-35 | 5.16 | 1.629 | 67 |
| | | 36-40 | 5.59 | 1.399 | 63 |
| | | **41-45** | **5.62** | 1.348 | 53 |
| | | 46-50 | 5.31 | 1.802 | 36 |
| | | over 50 | 5.48 | 1.612 | 42 |
| | green | 18-24 | 4.78 | 1.578 | 134 |
| | | 25-30 | 5.08 | 1.429 | 63 |
| | | 31-35 | 4.99 | 1.762 | 67 |
| | | **36-40** | **5.38** | 1.660 | 63 |
| | | 41-45 | 5.23 | 1.368 | 53 |
| | | 46-50 | 4.53 | 1.978 | 36 |
| | | over 50 | 5.19 | 1.612 | 42 |
| | red | 18-24 | 4.00 | 1.594 | 134 |
| | | 25-30 | 4.32 | 1.584 | 63 |
| | | 31-35 | 3.99 | 1.895 | 67 |
| | | 36-40 | 3.97 | 1.665 | 63 |
| | | 41-45 | 3.85 | 1.598 | 53 |
| | | **46-50** | **4.50** | 1.765 | 36 |
| | | over 50 | 3.95 | 1.652 | 42 |
| likeability (c2) | blue | 18-24 | 3.66 | 1.650 | 134 |
| | | **25-30** | **3.81** | 1.605 | 63 |
| | | 31-35 | 3.49 | 1.673 | 67 |
| | | 36-40 | 3.35 | 1.724 | 63 |
| | | 41-45 | 3.23 | 1.565 | 53 |
| | | 46-50 | 3.39 | 1.825 | 36 |
| | | over 50 | 3.71 | 1.904 | 42 |
| | yellow | 18-24 | 4.88 | 1.580 | 134 |
| | | 25-30 | 5.37 | 1.195 | 63 |
| | | 31-35 | 5.19 | 1.663 | 67 |
| | | 36-40 | 5.51 | 1.469 | 63 |
| | | **41-45** | **5.57** | 1.352 | 53 |
| | | 46-50 | 5.50 | 1.630 | 36 |
| | | over 50 | 5.55 | 1.501 | 42 |
| | green | 18-24 | 4.75 | 1.489 | 134 |
| | | 25-30 | 4.76 | 1.489 | 63 |
| | | 31-35 | 5.15 | 1.645 | 67 |
| | | **36-40** | **5.29** | 1.650 | 63 |
| | | 41-45 | 5.25 | 1.343 | 53 |
| | | 46-50 | 4.61 | 1.931 | 36 |
| | | over 50 | 5.19 | 1.627 | 42 |
| | red | 18-24 | 4.02 | 1.568 | 134 |
| | | 25-30 | 4.30 | 1.613 | 63 |
| | | 31-35 | 3.97 | 1.800 | 67 |
| | | 36-40 | 3.90 | 1.692 | 63 |
| | | 41-45 | 3.94 | 1.549 | 53 |
| | | **46-50** | **4.58** | 1.746 | 36 |
| | | over 50 | 3.86 | 1.676 | 42 |
| quality (pq1) | blue | 18-24 | 3.81 | 1.553 | 134 |
| | | **25-30** | **3.92** | 1.579 | 63 |
| | | 31-35 | 3.58 | 1.549 | 67 |
| | | 36-40 | 3.29 | 1.698 | 63 |
| | | 41-45 | 3.38 | 1.333 | 53 |
| | | 46-50 | 3.64 | 1.775 | 36 |
| | | over 50 | 3.79 | 1.774 | 42 |
| | yellow | 18-24 | 4.82 | 1.491 | 134 |
| | | 25-30 | 4.90 | 1.467 | 63 |
| | | 31-35 | 5.31 | 1.479 | 67 |
| | | **36-40** | **5.54** | 1.366 | 63 |
| | | 41-45 | 5.26 | 1.416 | 53 |
| | | 46-50 | 5.22 | 1.588 | 36 |
| | | over 50 | 5.26 | 1.563 | 42 |
| | green | 18-24 | 4.66 | 1.451 | 134 |
| | | 25-30 | 4.75 | 1.391 | 63 |
| | | 31-35 | 4.91 | 1.612 | 67 |
| | | 36-40 | 5.17 | 1.700 | 63 |
| | | 41-45 | 4.85 | 1.634 | 53 |
| | | 46-50 | 4.42 | 1.903 | 36 |
| | | **over 50** | **5.19** | 1.418 | 42 |
| | red | 18-24 | 4.09 | 1.568 | 134 |
| | | 25-30 | 4.22 | 1.591 | 63 |
| | | 31-35 | 4.12 | 1.745 | 67 |
| | | 36-40 | 4.17 | 1.651 | 63 |
| | | 41-45 | 4.09 | 1.418 | 53 |
| | | **46-50** | **4.47** | 1.594 | 36 |

| | Colour | Age | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | over 50 | 4.12 | 1.641 | 42 |
| safety (pq2) | blue | 18-24 | 4.01 | 1.509 | 134 |
| | | **25-30** | **4.16** | 1.668 | 63 |
| | | 31-35 | 3.87 | 1.766 | 67 |
| | | 36-40 | 3.73 | 1.798 | 63 |
| | | 41-45 | 3.79 | 1.472 | 53 |
| | | 46-50 | 3.64 | 1.791 | 36 |
| | | over 50 | 3.98 | 1.787 | 42 |
| | yellow | 18-24 | 4.78 | 1.559 | 134 |
| | | 25-30 | 4.90 | 1.701 | 63 |
| | | 31-35 | 5.30 | 1.518 | 67 |
| | | **36-40** | **5.44** | 1.341 | 63 |
| | | 41-45 | 5.38 | 1.390 | 53 |
| | | 46-50 | 5.17 | 1.612 | 36 |
| | | over 50 | 5.33 | 1.459 | 42 |
| | green | 18-24 | 4.78 | 1.433 | 134 |
| | | 25-30 | 4.86 | 1.469 | 63 |
| | | 31-35 | 4.93 | 1.691 | 67 |
| | | **36-40** | **5.25** | 1.534 | 63 |
| | | 41-45 | 5.00 | 1.519 | 53 |
| | | 46-50 | 4.50 | 1.797 | 36 |
| | | over 50 | 5.07 | 1.504 | 42 |
| | red | 18-24 | 4.17 | 1.587 | 134 |
| | | 25-30 | 4.17 | 1.690 | 63 |
| | | 31-35 | 4.22 | 1.757 | 67 |
| | | 36-40 | 4.14 | 1.712 | 63 |
| | | 41-45 | 4.21 | 1.511 | 53 |
| | | **46-50** | **4.36** | 1.710 | 36 |
| | | over 50 | 4.26 | 1.594 | 42 |
| appearance (pq3) | blue | 18-24 | 3.84 | 1.584 | 134 |
| | | 25-30 | 3.78 | 1.601 | 63 |
| | | 31-35 | 3.87 | 1.641 | 67 |
| | | 36-40 | 3.40 | 1.680 | 63 |
| | | 41-45 | 3.42 | 1.365 | 53 |
| | | 46-50 | 3.67 | 1.821 | 36 |
| | | **over 50** | **3.88** | 1.714 | 42 |
| | yellow | 18-24 | 4.91 | 1.504 | 134 |
| | | 25-30 | 5.08 | 1.462 | 63 |
| | | 31-35 | 5.19 | 1.569 | 67 |
| | | 36-40 | 5.32 | 1.468 | 63 |
| | | **41-45** | **5.36** | 1.388 | 53 |
| | | 46-50 | 4.86 | 1.759 | 36 |
| | | over 50 | 5.12 | 1.549 | 42 |
| | green | 18-24 | 4.76 | 1.493 | 134 |
| | | 25-30 | 4.60 | 1.443 | 63 |
| | | 31-35 | 4.97 | 1.497 | 67 |
| | | 36-40 | 5.02 | 1.651 | 63 |
| | | 41-45 | 4.98 | 1.587 | 53 |
| | | 46-50 | 4.39 | 1.777 | 36 |
| | | **over 50** | **5.14** | 1.458 | 42 |
| | red | 18-24 | 4.00 | 1.594 | 134 |
| | | 25-30 | 4.27 | 1.516 | 63 |
| | | 31-35 | 4.16 | 1.702 | 67 |
| | | 36-40 | 4.17 | 1.582 | 63 |
| | | 41-45 | 4.06 | 1.574 | 53 |
| | | **46-50** | **4.33** | 1.656 | 36 |
| | | over 50 | 4.21 | 1.457 | 42 |
| value (pq4) | blue | 18-24 | 3.90 | 1.565 | 134 |
| | | **25-30** | **3.92** | 1.462 | 63 |
| | | 31-35 | 3.73 | 1.657 | 67 |
| | | 36-40 | 3.41 | 1.729 | 63 |
| | | 41-45 | 3.43 | 1.366 | 53 |
| | | 46-50 | 3.72 | 1.799 | 36 |
| | | over 50 | 3.81 | 1.700 | 42 |
| | yellow | 18-24 | 4.77 | 1.541 | 134 |
| | | 25-30 | 4.92 | 1.473 | 63 |
| | | 31-35 | 5.24 | 1.538 | 67 |
| | | **36-40** | **5.40** | 1.386 | 63 |
| | | 41-45 | 5.30 | 1.395 | 53 |
| | | 46-50 | 5.31 | 1.527 | 36 |
| | | over 50 | 5.17 | 1.545 | 42 |
| | green | 18-24 | 4.63 | 1.500 | 134 |
| | | 25-30 | 4.54 | 1.512 | 63 |
| | | 31-35 | 4.87 | 1.575 | 67 |
| | | 36-40 | 5.03 | 1.694 | 63 |
| | | 41-45 | 5.02 | 1.550 | 53 |
| | | 46-50 | 4.28 | 1.936 | 36 |
| | | **over 50** | **5.17** | 1.513 | 42 |
| | red | 18-24 | 4.16 | 1.651 | 134 |
| | | 25-30 | 4.30 | 1.681 | 63 |
| | | 31-35 | 4.15 | 1.617 | 67 |
| | | 36-40 | 4.14 | 1.595 | 63 |
| | | 41-45 | 4.00 | 1.544 | 53 |
| | | **46-50** | **4.44** | 1.796 | 36 |
| | | over 50 | 4.07 | 1.568 | 42 |
| likely of buying (pi1) | blue | 18-24 | 3.68 | 1.715 | 134 |
| | | **25-30** | **3.76** | 1.692 | 63 |
| | | 31-35 | 3.24 | 1.596 | 67 |
| | | 36-40 | 3.35 | 1.578 | 63 |
| | | 41-45 | 3.00 | 1.359 | 53 |
| | | 46-50 | 3.22 | 1.853 | 36 |
| | | over 50 | 3.60 | 1.926 | 42 |
| | yellow | 18-24 | 4.82 | 1.593 | 134 |
| | | 25-30 | 4.86 | 1.595 | 63 |
| | | 31-35 | 5.10 | 1.578 | 67 |
| | | **36-40** | **5.44** | 1.423 | 63 |
| | | 41-45 | 5.25 | 1.479 | 53 |
| | | 46-50 | 4.94 | 1.956 | 36 |

| | Colour | Age | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | over 50 | 5.10 | 1.635 | 42 |
| | green | 18-24 | 4.80 | 1.408 | 134 |
| | | 25-30 | 4.52 | 1.512 | 63 |
| | | 31-35 | 4.76 | 1.759 | 67 |
| | | **36-40** | **5.13** | 1.420 | 63 |
| | | 41-45 | 4.96 | 1.568 | 53 |
| | | 46-50 | 4.42 | 1.903 | 36 |
| | | over 50 | 4.98 | 1.554 | 42 |
| | red | 18-24 | 3.90 | 1.645 | 134 |
| | | 25-30 | 3.98 | 1.621 | 63 |
| | | 31-35 | 3.73 | 1.666 | 67 |
| | | 36-40 | 3.92 | 1.781 | 63 |
| | | 41-45 | 3.60 | 1.485 | 53 |
| | | **46-50** | **4.11** | 1.737 | 36 |
| | | over 50 | 3.74 | 1.822 | 42 |
| definitely of buying (pi2) | blue | 18-24 | 3.69 | 1.656 | 134 |
| | | **25-30** | **3.71** | 1.539 | 63 |
| | | 31-35 | 3.12 | 1.523 | 67 |
| | | 36-40 | 3.40 | 1.642 | 63 |
| | | 41-45 | 3.11 | 1.423 | 53 |
| | | 46-50 | 3.39 | 1.745 | 36 |
| | | over 50 | 3.62 | 1.937 | 42 |
| | yellow | 18-24 | 4.78 | 1.588 | 134 |
| | | 25-30 | 4.92 | 1.559 | 63 |
| | | 31-35 | 4.87 | 1.613 | 67 |
| | | **36-40** | **5.38** | 1.453 | 63 |
| | | 41-45 | 5.09 | 1.497 | 53 |
| | | 46-50 | 4.97 | 1.781 | 36 |
| | | over 50 | 4.98 | 1.828 | 42 |
| | green | 18-24 | 4.60 | 1.420 | 134 |
| | | 25-30 | 4.30 | 1.643 | 63 |
| | | 31-35 | 4.81 | 1.672 | 67 |
| | | **36-40** | **5.08** | 1.495 | 63 |
| | | 41-45 | 4.81 | 1.455 | 53 |
| | | 46-50 | 4.17 | 2.063 | 36 |
| | | over 50 | 4.90 | 1.574 | 42 |
| | red | 18-24 | 4.01 | 1.717 | 134 |
| | | **25-30** | **4.14** | 1.635 | 63 |
| | | 31-35 | 3.73 | 1.648 | 67 |
| | | 36-40 | 3.83 | 1.709 | 63 |
| | | 41-45 | 3.60 | 1.459 | 53 |
| | | 46-50 | 4.06 | 1.706 | 36 |
| | | over 50 | 3.71 | 1.771 | 42 |
| consider of buying (pi3) | blue | **18-24** | **4.16** | 1.707 | 134 |
| | | 25-30 | 3.84 | 1.619 | 63 |
| | | 31-35 | 3.40 | 1.706 | 67 |
| | | 36-40 | 3.78 | 1.879 | 63 |
| | | 41-45 | 3.77 | 1.694 | 53 |
| | | 46-50 | 3.61 | 1.825 | 36 |
| | | over 50 | 3.93 | 1.930 | 42 |
| | yellow | 18-24 | 4.41 | 1.609 | 134 |
| | | 25-30 | 4.60 | 1.690 | 63 |
| | | 31-35 | 4.85 | 1.500 | 67 |
| | | **36-40** | **5.40** | 1.454 | 63 |
| | | 41-45 | 4.72 | 1.725 | 53 |
| | | 46-50 | 4.86 | 1.869 | 36 |
| | | over 50 | 4.76 | 1.845 | 42 |
| | green | 18-24 | 4.27 | 1.477 | 134 |
| | | 25-30 | 4.29 | 1.631 | 63 |
| | | 31-35 | 4.27 | 1.684 | 67 |
| | | **36-40** | **4.87** | 1.453 | 63 |
| | | 41-45 | 4.23 | 1.637 | 53 |
| | | 46-50 | 3.97 | 2.145 | 36 |
| | | over 50 | 4.76 | 1.764 | 42 |
| | red | 18-24 | 4.25 | 1.732 | 134 |
| | | 25-30 | 3.87 | 1.670 | 63 |
| | | 31-35 | 3.73 | 1.797 | 67 |
| | | 36-40 | 3.92 | 1.852 | 63 |
| | | 41-45 | 3.60 | 1.548 | 53 |
| | | 46-50 | 4.19 | 1.925 | 36 |
| | | **over 50** | **4.55** | 1.714 | 42 |
| frequent of speaking (wom1) | blue | 18-24 | 3.38 | 1.671 | 134 |
| | | **25-30** | **4.03** | 1.665 | 63 |
| | | 31-35 | 3.21 | 1.675 | 67 |
| | | 36-40 | 3.59 | 1.828 | 63 |
| | | 41-45 | 3.17 | 1.503 | 53 |
| | | 46-50 | 3.25 | 1.730 | 36 |
| | | over 50 | 3.90 | 1.778 | 42 |
| | yellow | 18-24 | 4.48 | 1.397 | 134 |
| | | 25-30 | 4.57 | 1.729 | 63 |
| | | 31-35 | 4.51 | 1.709 | 67 |
| | | 36-40 | 5.24 | 1.510 | 63 |
| | | **41-45** | **5.26** | 1.288 | 53 |
| | | 46-50 | 5.00 | 1.724 | 36 |
| | | over 50 | 5.14 | 1.458 | 42 |
| | green | 18-24 | 4.33 | 1.574 | 134 |
| | | 25-30 | 4.51 | 1.469 | 63 |
| | | 31-35 | 4.31 | 1.716 | 67 |
| | | 36-40 | 4.81 | 1.693 | 63 |
| | | 41-45 | 4.64 | 1.533 | 53 |
| | | 46-50 | 4.39 | 1.917 | 36 |
| | | **over 50** | **5.05** | 1.545 | 42 |
| | red | 18-24 | 3.66 | 1.691 | 134 |
| | | 25-30 | 3.79 | 1.588 | 63 |
| | | 31-35 | 3.61 | 1.875 | 67 |
| | | 36-40 | 3.78 | 1.782 | 63 |
| | | 41-45 | 3.36 | 1.594 | 53 |
| | | **46-50** | **4.11** | 1.848 | 36 |

| | Colour | Age | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | over 50 | 3.90 | 1.792 | 42 |
| recommend (wom2) | blue | 18-24 | 3.55 | 1.697 | 134 |
| | | 25-30 | 3.70 | 1.719 | 63 |
| | | 31-35 | 3.19 | 1.734 | 67 |
| | | 36-40 | 3.33 | 1.751 | 63 |
| | | 41-45 | 3.06 | 1.406 | 53 |
| | | 46-50 | 3.33 | 1.897 | 36 |
| | | **over 50** | **3.79** | 1.842 | 42 |
| | yellow | 18-24 | 4.59 | 1.518 | 134 |
| | | 25-30 | 4.94 | 1.491 | 63 |
| | | 31-35 | 4.69 | 1.751 | 67 |
| | | 36-40 | 5.29 | 1.650 | 63 |
| | | **41-45** | **5.38** | 1.304 | 53 |
| | | 46-50 | 5.08 | 1.713 | 36 |
| | | over 50 | 5.17 | 1.666 | 42 |
| | green | 18-24 | 4.49 | 1.564 | 134 |
| | | 25-30 | 4.57 | 1.445 | 63 |
| | | 31-35 | 4.49 | 1.618 | 67 |
| | | **36-40** | **5.06** | 1.533 | 63 |
| | | 41-45 | 4.85 | 1.486 | 53 |
| | | 46-50 | 4.28 | 1.846 | 36 |
| | | over 50 | 5.00 | 1.667 | 42 |
| | red | 18-24 | 3.69 | 1.571 | 134 |
| | | **25-30** | **4.02** | 1.631 | 63 |
| | | 31-35 | 3.69 | 1.794 | 67 |
| | | 36-40 | 3.75 | 1.704 | 63 |
| | | 41-45 | 3.74 | 1.416 | 53 |
| | | 46-50 | 3.97 | 1.612 | 36 |
| | | over 50 | 3.93 | 1.759 | 42 |
| encourage (wom4) | blue | 18-24 | 3.67 | 1.698 | 134 |
| | | 25-30 | 3.78 | 1.736 | 63 |
| | | 31-35 | 3.03 | 1.605 | 67 |
| | | 36-40 | 3.46 | 1.865 | 63 |
| | | 41-45 | 3.02 | 1.487 | 53 |
| | | 46-50 | 3.19 | 1.600 | 36 |
| | | **over 50** | **3.81** | 1.811 | 42 |
| | yellow | 18-24 | 4.54 | 1.464 | 134 |
| | | 25-30 | 4.75 | 1.524 | 63 |
| | | 31-35 | 4.52 | 1.761 | 67 |
| | | 36-40 | 5.17 | 1.651 | 63 |
| | | 41-45 | 4.91 | 1.522 | 53 |
| | | 46-50 | 4.78 | 1.726 | 36 |
| | | **over 50** | **5.29** | 1.535 | 42 |
| | green | 18-24 | 4.46 | 1.607 | 134 |
| | | 25-30 | 4.32 | 1.595 | 63 |
| | | 31-35 | 4.42 | 1.852 | 67 |
| | | 36-40 | 4.86 | 1.703 | 63 |
| | | 41-45 | 4.81 | 1.481 | 53 |
| | | 46-50 | 4.00 | 1.912 | 36 |
| | | **over 50** | **5.05** | 1.396 | 42 |
| | red | 18-24 | 3.90 | 1.678 | 134 |
| | | **25-30** | **4.19** | 1.683 | 63 |
| | | 31-35 | 3.76 | 1.793 | 67 |
| | | 36-40 | 3.73 | 1.780 | 63 |
| | | 41-45 | 3.64 | 1.415 | 53 |
| | | 46-50 | 4.08 | 1.763 | 36 |
| | | over 50 | 4.02 | 1.645 | 42 |
| fits well (a1) | blue | 18-24 | 3.49 | 1.822 | 134 |
| | | 25-30 | 3.44 | 1.730 | 63 |
| | | 31-35 | 3.34 | 1.746 | 67 |
| | | 36-40 | 2.86 | 1.645 | 63 |
| | | 41-45 | 3.11 | 1.527 | 53 |
| | | 46-50 | 3.22 | 1.775 | 36 |
| | | **over 50** | **3.60** | 1.862 | 42 |
| | yellow | 18-24 | 4.96 | 1.654 | 134 |
| | | 25-30 | 5.21 | 1.483 | 63 |
| | | 31-35 | 5.27 | 1.620 | 67 |
| | | 36-40 | 5.54 | 1.554 | 63 |
| | | **41-45** | **5.75** | 1.270 | 53 |
| | | 46-50 | 5.61 | 1.661 | 36 |
| | | over 50 | 5.43 | 1.670 | 42 |
| | green | 18-24 | 4.69 | 1.610 | 134 |
| | | 25-30 | 4.57 | 1.500 | 63 |
| | | 31-35 | 4.88 | 1.830 | 67 |
| | | 36-40 | 5.24 | 1.583 | 63 |
| | | 41-45 | 5.23 | 1.409 | 53 |
| | | **46-50** | **4.28** | 2.065 | 36 |
| | | over 50 | 5.14 | 1.539 | 42 |
| | red | 18-24 | 3.96 | 1.861 | 134 |
| | | 25-30 | 3.92 | 1.659 | 63 |
| | | 31-35 | 4.06 | 1.945 | 67 |
| | | 36-40 | 3.79 | 1.797 | 63 |
| | | 41-45 | 3.91 | 1.608 | 53 |
| | | **46-50** | **4.50** | 1.715 | 36 |
| | | over 50 | 3.50 | 1.700 | 42 |
| compatible (a2) | blue | 18-24 | 3.55 | 1.779 | 134 |
| | | 25-30 | 3.54 | 1.664 | 63 |
| | | 31-35 | 3.37 | 1.704 | 67 |
| | | 36-40 | 3.00 | 1.704 | 63 |
| | | 41-45 | 3.11 | 1.423 | 53 |
| | | 46-50 | 3.33 | 1.707 | 36 |
| | | **over 50** | **3.67** | 1.843 | 42 |
| | yellow | 18-24 | 4.99 | 1.638 | 134 |
| | | 25-30 | 5.16 | 1.516 | 63 |
| | | 31-35 | 5.31 | 1.653 | 67 |
| | | 36-40 | 5.52 | 1.424 | 63 |
| | | 41-45 | 5.60 | 1.291 | 53 |
| | | **46-50** | **5.64** | 1.606 | 36 |

| | Colour | Age | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | over 50 | 5.36 | 1.620 | 42 |
| | green | 18-24 | 4.66 | 1.603 | 134 |
| | | 25-30 | 4.63 | 1.527 | 63 |
| | | 31-35 | 4.91 | 1.807 | 67 |
| | | **36-40** | **5.38** | 1.486 | 63 |
| | | 41-45 | 5.19 | 1.442 | 53 |
| | | 46-50 | 4.39 | 2.004 | 36 |
| | | over 50 | 4.86 | 1.747 | 42 |
| | red | 18-24 | 3.98 | 1.779 | 134 |
| | | 25-30 | 3.78 | 1.581 | 63 |
| | | **31-35** | **4.13** | 1.866 | 67 |
| | | 36-40 | 4.02 | 1.809 | 63 |
| | | 41-45 | 4.06 | 1.447 | 53 |
| | | 46-50 | 4.11 | 1.785 | 36 |
| | | over 50 | 3.45 | 1.565 | 42 |
| positive (a3) | blue | 18-24 | 3.58 | 1.799 | 134 |
| | | 25-30 | 3.65 | 1.677 | 63 |
| | | 31-35 | 3.46 | 1.795 | 67 |
| | | 36-40 | 3.54 | 1.830 | 63 |
| | | 41-45 | 3.47 | 1.624 | 53 |
| | | **46-50** | **3.69** | 1.997 | 36 |
| | | over 50 | 3.55 | 1.714 | 42 |
| | yellow | 18-24 | 4.84 | 1.516 | 134 |
| | | 25-30 | 5.10 | 1.593 | 63 |
| | | 31-35 | 5.34 | 1.647 | 67 |
| | | 36-40 | 5.54 | 1.522 | 63 |
| | | **41-45** | **5.72** | 1.215 | 53 |
| | | 46-50 | 5.53 | 1.665 | 36 |
| | | over 50 | 5.31 | 1.522 | 42 |
| | green | 18-24 | 4.60 | 1.595 | 134 |
| | | 25-30 | 4.68 | 1.615 | 63 |
| | | 31-35 | 5.16 | 1.582 | 67 |
| | | 36-40 | 5.29 | 1.560 | 63 |
| | | **41-45** | **5.45** | 1.280 | 53 |
| | | 46-50 | 4.58 | 2.020 | 36 |
| | | over 50 | 5.33 | 1.493 | 42 |
| | red | 18-24 | 4.04 | 1.998 | 134 |
| | | 25-30 | 4.27 | 1.762 | 63 |
| | | 31-35 | 4.21 | 1.879 | 67 |
| | | 36-40 | 4.08 | 1.834 | 63 |
| | | 41-45 | 4.34 | 1.640 | 53 |
| | | **46-50** | **4.58** | 1.713 | 36 |
| | | over 50 | 3.74 | 1.654 | 42 |
| palatable (a4) | blue | 18-24 | 3.37 | 1.825 | 134 |
| | | **25-30** | **3.57** | 1.692 | 63 |
| | | 31-35 | 3.04 | 1.637 | 67 |
| | | 36-40 | 3.10 | 1.692 | 63 |
| | | 41-45 | 2.96 | 1.330 | 53 |
| | | 46-50 | 3.03 | 1.630 | 36 |
| | | over 50 | 3.24 | 1.694 | 42 |
| | yellow | 18-24 | 4.55 | 1.741 | 134 |
| | | 25-30 | 4.95 | 1.670 | 63 |
| | | 31-35 | 4.99 | 1.736 | 67 |
| | | 36-40 | 5.35 | 1.638 | 63 |
| | | **41-45** | **5.45** | 1.435 | 53 |
| | | 46-50 | 5.25 | 1.779 | 36 |
| | | over 50 | 4.74 | 2.037 | 42 |
| | green | 18-24 | 4.45 | 1.792 | 134 |
| | | 25-30 | 4.51 | 1.655 | 63 |
| | | 31-35 | 4.67 | 1.761 | 67 |
| | | **36-40** | **5.16** | 1.734 | 63 |
| | | 41-45 | 4.96 | 1.640 | 53 |
| | | 46-50 | 4.17 | 1.964 | 36 |
| | | over 50 | 4.81 | 1.811 | 42 |
| | red | 18-24 | 3.67 | 1.922 | 134 |
| | | 25-30 | 3.79 | 1.770 | 63 |
| | | **31-35** | **3.97** | 1.930 | 67 |
| | | 36-40 | 3.76 | 1.881 | 63 |
| | | 41-45 | 3.51 | 1.436 | 53 |
| | | 46-50 | 3.94 | 1.788 | 36 |
| | | over 50 | 3.48 | 1.798 | 42 |
| highly prefer (a5) | blue | **18-24** | **3.43** | 1.894 | 134 |
| | | 25-30 | 3.38 | 1.773 | 63 |
| | | 31-35 | 3.22 | 1.857 | 67 |
| | | 36-40 | 3.03 | 1.685 | 63 |
| | | 41-45 | 2.89 | 1.637 | 53 |
| | | 46-50 | 3.31 | 1.895 | 36 |
| | | over 50 | 3.21 | 2.007 | 42 |
| | yellow | 18-24 | 4.95 | 1.770 | 134 |
| | | 25-30 | 5.30 | 1.520 | 63 |
| | | 31-35 | 5.33 | 1.664 | 67 |
| | | 36-40 | 5.59 | 1.433 | 63 |
| | | **41-45** | **5.66** | 1.329 | 53 |
| | | 46-50 | 5.33 | 1.852 | 36 |
| | | over 50 | 5.38 | 1.681 | 42 |
| | green | 18-24 | 4.66 | 1.756 | 134 |
| | | 25-30 | 4.79 | 1.696 | 63 |
| | | 31-35 | 4.93 | 1.761 | 67 |
| | | **36-40** | **5.29** | 1.631 | 63 |
| | | 41-45 | 5.17 | 1.516 | 53 |
| | | 46-50 | 4.47 | 2.049 | 36 |
| | | over 50 | 5.02 | 1.600 | 42 |
| | red | 18-24 | 3.72 | 1.925 | 134 |
| | | 25-30 | 4.00 | 1.723 | 63 |
| | | 31-35 | 3.84 | 1.989 | 67 |
| | | 36-40 | 3.73 | 1.825 | 63 |
| | | 41-45 | 3.55 | 1.600 | 53 |
| | | **46-50** | **4.19** | 1.954 | 36 |

| | Colour | Age | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | over 50 | 3.33 | 1.790 | 42 |

In this discussion the age categorisations are (a) 18-30 years old respondents: young, (b) 31-45 years old respondents: middle-aged and (c) ≥ 46 years old respondents: old. The mean values of Table A5.3 in the Appendix for Chapter 5 show that the responses of the colour yellow for the package were dominated mostly by the middle-aged group of respondents, except for the item "encourage" (wom4) which was supported most by people over 50 and the item "compatible" (a2) which was dominated most by consumers 46-50 years old. However, the highest mean values reached by these two items (wom4 and a2) differ slightly from those of middle-aged consumers. This means that middle-aged consumers led the responses that chose the colour yellow as the most prominent colour of Bakpia package, whereas the support toward the other three colours varied between young, middle-aged, and old consumers. Table 5.19 provides all the means (in total) relating to age of respondents and the colour of Bakpia package.

**Table 5.19: Descriptive Statistics (Mean) Age and Responses to Colour of Bakpia Package (Total)**

| | Colour | Age | Mean |
|---|---|---|---|
| c1 (preference) | Total | 18-24 | 4.33 |
| | | **25-30** | **4.68** |
| | | 31-35 | 4.42 |
| | | 36-40 | 4.52 |
| | | 41-45 | 4.44 |
| | | 46-50 | 4.48 |
| | | over 50 | 4.55 |
| c2 (likeability) | Total | 18-24 | 4.33 |
| | | 25-30 | 4.56 |
| | | 31-35 | 4.45 |
| | | 36-40 | 4.51 |
| | | 41-45 | 4.50 |
| | | 46-50 | 4.52 |
| | | **over 50** | **4.58** |
| pq1 (quality) | Total | 18-24 | 4.34 |
| | | 25-30 | 4.45 |
| | | 31-35 | 4.48 |
| | | 36-40 | 4.54 |
| | | 41-45 | 4.40 |
| | | 46-50 | 4.44 |
| | | **over 50** | **4.59** |
| pq2 (safety) | Total | 18-24 | 4.43 |
| | | 25-30 | 4.52 |
| | | 31-35 | 4.58 |
| | | 36-40 | 4.64 |
| | | 41-45 | 4.59 |
| | | 46-50 | 4.42 |
| | | **over 50** | **4.66** |
| pq3 (appearance) | Total | 18-24 | 4.38 |
| | | 25-30 | 4.43 |
| | | 31-35 | 4.55 |
| | | 36-40 | 4.48 |
| | | 41-45 | 4.45 |
| | | 46-50 | 4.31 |
| | | **over 50** | **4.59** |
| pq4 (value) | Total | 18-24 | 4.37 |
| | | 25-30 | 4.42 |
| | | 31-35 | 4.50 |
| | | 36-40 | 4.50 |
| | | 41-45 | 4.44 |

| | Colour | Age | Mean |
|---|---|---|---|
| | | 46-50 | 4.44 |
| | | **over 50** | **4.55** |
| pi1 (likely of buying) | Total | 18-24 | 4.30 |
| | | 25-30 | 4.28 |
| | | 31-35 | 4.21 |
| | | **36-40** | **4.46** |
| | | 41-45 | 4.20 |
| | | 46-50 | 4.17 |
| | | over 50 | 4.35 |
| pi2 (definitely of buying) | Total | 18-24 | 4.27 |
| | | 25-30 | 4.27 |
| | | 31-35 | 4.13 |
| | | **36-40** | **4.42** |
| | | 41-45 | 4.16 |
| | | 46-50 | 4.15 |
| | | over 50 | 4.30 |
| pi3 (consider of buying) | Total | 18-24 | 4.27 |
| | | 25-30 | 4.15 |
| | | 31-35 | 4.06 |
| | | 36-40 | 4.49 |
| | | 41-45 | 4.08 |
| | | 46-50 | 4.16 |
| | | **over 50** | **4.50** |
| wom1 (frequent of speaking) | Total | 18-24 | 3.96 |
| | | 25-30 | 4.23 |
| | | 31-35 | 3.91 |
| | | 36-40 | 4.35 |
| | | 41-45 | 4.11 |
| | | 46-50 | 4.19 |
| | | **over 50** | **4.50** |
| wom2 (recommend) | Total | 18-24 | 4.08 |
| | | 25-30 | 4.31 |
| | | 31-35 | 4.01 |
| | | 36-40 | 4.36 |
| | | 41-45 | 4.25 |
| | | 46-50 | 4.17 |
| | | **over 50** | **4.47** |
| wom4 (encourage) | Total | 18-24 | 4.14 |
| | | 25-30 | 4.26 |
| | | 31-35 | 3.93 |
| | | 36-40 | 4.31 |
| | | 41-45 | 4.09 |
| | | 46-50 | 4.01 |
| | | **over 50** | **4.54** |
| a1 (fits well) | Total | 18-24 | 4.27 |
| | | 25-30 | 4.29 |
| | | 31-35 | 4.39 |
| | | 36-40 | 4.36 |
| | | **41-45** | **4.50** |
| | | 46-50 | 4.40 |
| | | over 50 | 4.42 |
| a2 (compatible) | Total | 18-24 | 4.30 |
| | | 25-30 | 4.28 |
| | | 31-35 | 4.43 |
| | | 36-40 | 4.48 |
| | | **41-45** | **4.49** |
| | | 46-50 | 4.37 |
| | | over 50 | 4.33 |
| a3 (positive) | Total | 18-24 | 4.26 |
| | | 25-30 | 4.42 |
| | | 31-35 | 4.54 |
| | | 36-40 | 4.61 |
| | | **41-45** | **4.75** |
| | | 46-50 | 4.60 |
| | | over 50 | 4.48 |
| a4 (palatable) | Total | 18-24 | 4.01 |
| | | 25-30 | 4.21 |
| | | 31-35 | 4.17 |
| | | **36-40** | **4.34** |
| | | 41-45 | 4.22 |
| | | 46-50 | 4.10 |
| | | over 50 | 4.07 |
| a5 (highly prefer) | Total | 18-24 | 4.19 |
| | | 25-30 | 4.37 |
| | | 31-35 | 4.33 |
| | | **36-40** | **4.41** |
| | | 41-45 | 4.32 |
| | | 46-50 | 4.33 |
| | | over 50 | 4.24 |

Table 5.19 shows that the responses to the colour of Bakpia package were mostly contributed by middle-aged and old consumers in total, except for preference (c1) which is most contributed by young consumers (25-30 years old).

Using the percentage difference formula, calculations regarding differences in ranges of age of respondents and their responses about the colour of Bakpia package are shown in Table 5.20. The categorization of age groups was young (18-24 and 25-30), middle-aged (31-35, 36-40, and 41-45), and old (46-50 and above 50). Interestingly, in terms of responses toward the most popular colour of package, yellow, we can see that there were no differences between old and middle-aged consumers. Middle-aged consumers contributed most to colour yellow responses, and the old category of consumers dominated some of the other responses.

**Table 5.20: Percentage of Differences of Age Responses toward Colours of Bakpia Package**

| | Blue | | | % of differences | | | Yellow | | | % of differences | | | Green | | | % of differences | | | Red | | | % of differences | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | young | middle | old | M-Y | O-M | O-Y | young | middle | old | M-Y | O-M | O-Y | young | middle | old | M-Y | O-M | O-Y | young | middle | old | M-Y | O-M | O-Y |
| c1 | 3.8 | 3.3 | 3.6 | **14.1** | 8.7 | 5.4 | 5.2 | 5.5 | 5.4 | 5.6 | 1.8 | 3.8 | 4.9 | 5.2 | 4.9 | 5.9 | 5.9 | 0 | 4.2 | 3.9 | 4.2 | 7.4 | 7.4 | 0 |
| c2 | 3.7 | 3.4 | 3.6 | 8.5 | 5.7 | 2.7 | 5.1 | 5.4 | 5.5 | 5.7 | 1.8 | 7.5 | 4.8 | 5.2 | 4.9 | 8 | 5.9 | 2.1 | 4.2 | 3.9 | 4.2 | 7.4 | 7.4 | 0 |
| pq1 | 3.9 | 3.4 | 3.7 | **13.7** | 8.5 | 5.3 | 4.9 | 5.4 | 5.2 | 9.7 | 3.8 | 6.0 | 4.7 | 5.0 | 4.8 | 6.2 | 4.1 | 2.1 | 4.2 | 4.1 | 4.3 | 2.4 | 4.8 | 2.4 |
| pq2 | 4.1 | 3.8 | 3.8 | 7.6 | 0 | 7.6 | 4.8 | 5.4 | 5.3 | **11.8** | 1.9 | **10.0** | 4.8 | 5.1 | 4.8 | 6.1 | 6.1 | 0 | 4.2 | 4.2 | 4.3 | 0 | 2.4 | 2.4 |
| pq3 | 3.8 | 3.6 | 3.8 | 5.4 | 5.4 | 0 | 5.0 | 5.3 | 5.0 | 5.8 | 5.8 | 0 | 4.7 | 5.0 | 4.8 | 6.2 | 4.1 | 2.1 | 4.1 | 4.1 | 4.3 | 0 | 4.8 | 4.8 |
| pq4 | 3.9 | 3.5 | 3.8 | **10.8** | 8.2 | 2.6 | 4.8 | 5.3 | 5.3 | **10.0** | 0 | **10.0** | 4.6 | 5.0 | 4.7 | 8.3 | 6.2 | 2.2 | 4.2 | 4.1 | 4.3 | 2.4 | 4.8 | 2.4 |
| pi1 | 3.7 | 3.2 | 3.4 | **14.5** | 6.1 | 8.5 | 4.8 | 5.3 | 5.0 | **10.0** | 5.8 | 4.1 | 4.7 | 5.0 | 4.7 | 6.2 | 6.2 | 0 | 3.9 | 3.8 | 3.9 | 2.6 | 2.6 | 0 |
| pi2 | 3.7 | 3.2 | 3.5 | **14.5** | 9.0 | 5.6 | 4.9 | 5.1 | 5.0 | 4.0 | 2.0 | 2.0 | 4.5 | 4.9 | 4.5 | 8.5 | 8.5 | 0 | 4.1 | 3.7 | 3.9 | **10.2** | 5.3 | 5 |
| pi3 | 4.0 | 3.7 | 3.8 | 7.8 | 2.7 | 5.1 | 4.5 | 5.0 | 4.8 | **10.5** | 4.1 | 6.5 | 4.3 | 4.5 | 4.4 | 4.5 | 2.2 | 2.3 | 4.1 | 3.8 | 4.4 | 7.6 | **14.6** | 7.1 |
| wom1 | 3.8 | 3.3 | 3.6 | **14.1** | 8.7 | 5.4 | 4.5 | 5.0 | 5.1 | **10.5** | 2.0 | **12.5** | 4.4 | 4.6 | 4.7 | 4.4 | 2.2 | 6.6 | 3.7 | 3.6 | 4.0 | 2.7 | **10.5** | 7.8 |
| wom2 | 3.6 | 3.2 | 3.6 | **11.8** | **11.8** | 0 | 4.8 | 5.1 | 5.1 | 6.1 | 0 | 6.1 | 4.5 | 4.8 | 4.6 | 6.5 | 4.3 | 2.2 | 3.9 | 3.7 | 4.0 | 5.3 | 7.8 | 2.5 |
| wom4 | 3.7 | 3.2 | 3.5 | **14.5** | 9.0 | 5.6 | 4.6 | 4.9 | 5.0 | 6.3 | 2.0 | 8.3 | 4.4 | 4.7 | 4.5 | 6.6 | 4.3 | 2.2 | 4.0 | 3.7 | 4.1 | 7.8 | **10.2** | 2.5 |
| a1 | 3.5 | 3.1 | 3.4 | **12.1** | 9.2 | 2.9 | 5.1 | 5.5 | 5.5 | 7.5 | 0 | 7.5 | 4.6 | 5.1 | 4.7 | **10.3** | 8.2 | 2.2 | 3.9 | 3.9 | 4.0 | 0 | 2.5 | 2.5 |
| a2 | 3.5 | 3.2 | 3.5 | 9.0 | 9.0 | 0 | 5.1 | 5.5 | 5.5 | 7.5 | 0 | 7.5 | 4.6 | 5.2 | 4.6 | **12.2** | **12.2** | 0 | 3.9 | 4.1 | 3.8 | 5 | 7.6 | 2.6 |
| a3 | 3.6 | 3.5 | 3.6 | 2.8 | 2.8 | 0 | 5.0 | 5.5 | 5.4 | 9.5 | 1.8 | 7.7 | 4.6 | 5.3 | 5.0 | **14.1** | 5.8 | 8.3 | 4.2 | 4.2 | 4.2 | 0 | 0 | 0 |
| a4 | 3.5 | 3.0 | 3.1 | **15.4** | 3.3 | **12.1** | 4.8 | 5.3 | 5.0 | **10.0** | 5.8 | 4.1 | 4.5 | 4.9 | 5.0 | 8.5 | 2.0 | **10.5** | 3.7 | 3.7 | 3.7 | 0 | 0 | 0 |
| a5 | 3.4 | 3.0 | 3.3 | **12.5** | 9.5 | 3.0 | 5.1 | 5.5 | 5.4 | 7.5 | 1.8 | 5.7 | 4.7 | 5.1 | 4.7 | 8.2 | 8.2 | 0 | 3.9 | 3.7 | 3.8 | 5.3 | 2.7 | 2.6 |

No differences of gender responses toward colour of package if % of differences less than 10%

### 5.6.2 Multivariate Tests

Multivariate tests test the set of dependent variables for differences between the groups and then perform univariate tests on each purchase outcome. There are four different multivariate test statistics in common usage: Wilks's $\Lambda$, Pillai's *V*, Hotelling's *T*, and Roy's $\theta$. Generally, Roy's Largest Root is disregarded when it is significant but the three other multivariate tests are not significant. Olson (1976) explained that the Largest Root test is rejected by almost any standard. It results in far too many false claims of significance when assumptions are violated, and it has poor power in the relatively diffuse no centrality in the behavioural science. The majority of researchers reported that Pillai's Trace or Wilks' Lambda are the best tests because they are the least sensitive to violation of the assumption of covariance matrices.

Tables 5.21 – 5.24 present the results of the multivariate test of responses toward the colour of Bakpia package.

**Table 5.21: Multivariate Tests for Colour Responses (Bakpia)**

| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| colour | Pillai's Trace | .236 | 9.116 | 51.000 | 5442.000 | **.000** | .079 |
| | Wilks' Lambda | .769 | 9.746 | 51.000 | 5395.420 | **.000** | .084 |
| | Hotelling's Trace | .293 | 10.404 | 51.000 | 5432.000 | **.000** | .089 |
| | Roy's Largest Root | .268 | 28.574 | 17.000 | 1814.000 | **.000** | .211 |

Computed using alpha=.05

**Table 5.22: Multivariate Tests for Colour Responses and Buyers Proportion (Bakpia)**

| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| colour | Pillai's Trace | .150 | 5.584 | 51.000 | 5406.000 | **.000** | **.050** |
| | Wilks' Lambda | .853 | 5.781 | 51.000 | 5359.694 | **.000** | **.052** |
| | Hotelling's Trace | .170 | 5.981 | 51.000 | 5396.000 | **.000** | **.054** |
| | Roy's Largest Root | .149 | 15.769 | 17.000 | 1802.000 | **.000** | **.129** |
| propbuyers | Pillai's Trace | .038 | 1.366 | 51.000 | 5406.000 | **.043** | .013 |
| | Wilks' Lambda | .962 | 1.367 | 51.000 | 5359.694 | **.043** | .013 |
| | Hotelling's Trace | .039 | 1.368 | 51.000 | 5396.000 | **.043** | .013 |
| | Roy's Largest Root | .021 | 2.195 | 17.000 | 1802.000 | **.003** | .020 |
| colour * propbuyers | Pillai's Trace | .080 | .956 | 153.000 | 16272.000 | .637 | .009 |
| | Wilks' Lambda | .922 | .956 | 153.000 | 14430.452 | .638 | .009 |
| | Hotelling's Trace | .081 | .955 | 153.000 | 16184.000 | .640 | .009 |
| | Roy's Largest Root | .021 | 2.196 | 17.000 | 1808.000 | **.003** | .020 |

Computed using alpha=.05

**Table 5.23: Multivariate Tests for Colour Responses and Gender (Bakpia)**

| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| colour | Pillai's Trace | .222 | 8.511 | 51.000 | 5430.000 | **.000** | .074 |
| | Wilks' Lambda | .783 | 9.040 | 51.000 | 5383.511 | **.000** | .078 |
| | Hotelling's Trace | .271 | 9.590 | 51.000 | 5420.000 | **.000** | .083 |
| | Roy's Largest Root | .245 | 26.103 | 17.000 | 1810.000 | **.000** | .197 |
| gender | Pillai's Trace | .010 | 1.060 | 17.000 | 1808.000 | .388 | .010 |
| | Wilks' Lambda | .990 | 1.060 | 17.000 | 1808.000 | .388 | .010 |
| | Hotelling's Trace | .010 | 1.060 | 17.000 | 1808.000 | .388 | .010 |
| | Roy's Largest Root | .010 | 1.060 | 17.000 | 1808.000 | .388 | .010 |
| colour * gender | Pillai's Trace | .031 | 1.113 | 51.000 | 5430.000 | .270 | .010 |
| | Wilks' Lambda | .969 | 1.113 | 51.000 | 5383.511 | .270 | .010 |
| | Hotelling's Trace | .031 | 1.113 | 51.000 | 5420.000 | .270 | .010 |
| | Roy's Largest Root | .017 | 1.819 | 17.000 | 1810.000 | **.021** | .017 |

Computed using alpha=.05

**Table 5.24: Multivariate Tests for Colour Responses and Age (Bakpia)**

| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| colour | Pillai's Trace | .228 | 8.650 | 51.000 | 5370.000 | **.000** | .076 |
| | Wilks' Lambda | .777 | 9.217 | 51.000 | 5323.968 | **.000** | .081 |
| | Hotelling's Trace | .280 | 9.809 | 51.000 | 5360.000 | **.000** | .085 |
| | Roy's Largest Root | .255 | 26.882 | 17.000 | 1790.000 | **.000** | .203 |
| age | Pillai's Trace | .106 | 1.895 | 102.000 | 10758.000 | **.000** | .018 |
| | Wilks' Lambda | .898 | 1.900 | 102.000 | 10200.177 | **.000** | .018 |
| | Hotelling's Trace | .109 | 1.903 | 102.000 | 10718.000 | **.000** | .018 |
| | Roy's Largest Root | .038 | 4.058 | 17.000 | 1793.000 | **.000** | .037 |
| colour * age | Pillai's Trace | .168 | 1.001 | 306.000 | 30668.000 | .485 | .010 |
| | Wilks' Lambda | .844 | 1.002 | 306.000 | 22235.051 | .478 | .010 |
| | Hotelling's Trace | .172 | 1.004 | 306.000 | 30364.000 | .470 | .010 |
| | Roy's Largest Root | .038 | 3.825 | 18.000 | 1804.000 | **.000** | .037 |

Computed using alpha=.05

Table 5.21 provides the multivariate tests results regarding colour responses of Bakpia package. Pillai's Trace values are at .236 and Wilks' Lambda values at .769, but the actual F values are at 9.116 and 9.746. Calculated at alpha level .05, the result is significant, by showing ρ value less than a given alpha level .05 (ρ value .000). In this case, the null hypothesis was rejected. The conclusion is that by combining all the response items together, the colour of the package had a significant effect on the consumers' responses, or that certain colours had greater impact on the consumers' responses than others. Supplementary, partial eta squared explains about the variability of package colour across all items. For example, Pillai's Trace multivariate tests of colour responses reveal approximately 8% variability of package colour across all items and variables were accounted for by the four groups (colours).

Tables 5.22 – 5.24 provide the results of the tests of the relationship of colour responses, behavioural aspect (buyers proportion), and demographic items (gender and age). Based on the results displayed in the column of significance of Table 5.22 for Pillai's Trace test, that ρ value is less than .05 (ρ value .043), it is concluded that buyers proportion significantly influenced the responses simultaneously. Three other tests (Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root) show significant results as well, that buyers proportion had significant impact on consumers' responses when all the responses are combined together. Similarly, Table 5.24 shows that age significantly affected the responses simultaneously through ρ value .000 in four different multivariate tests. Yet, insignificant findings occurred (with ignorance of Roy's Largest Root values of significances) when colour and buyers proportion or when colour and age were combined together with the respect of their relationship with responses. Table 5.23 shows that gender had an insignificant effect on the consumers' responses, even when it was combined with colour.

### 5.6.3 Tests of Between-Subjects Effects

The tests of between-subjects effects revealed the details of which effects differed from which responses. In other words, the relationships between the responses and behavioural and demographic aspects of buyers proportion, gender, and age were individually calculated as shown below.

Table 5.25 presents the results of the between-subjects effects of colour responses computing various values of variables (preference and likeability, perceived quality, intention to purchase, word-of-mouth type communication, and consumers' association of colour).

**Table 5.25: Tests of Between-Subjects Effects for Colour Responses (Bakpia)**

| Source | Dependent Variable | F | Sig. |
|---|---|---|---|
| Colour | c1 (preference) | 116.098 | **.000** |
| | c2 (likeability) | 112.523 | **.000** |
| | pq1 (quality) | 82.707 | **.000** |
| | pq2 (safety) | 58.390 | **.000** |
| | pq3 (appearance) | 75.084 | **.000** |
| | pq4 (value) | 66.810 | **.000** |
| | pi1 (likely of buying) | 98.351 | **.000** |
| | pi2 (definitely of buying) | 82.199 | **.000** |
| | pi3 (consider of buying) | 24.781 | **.000** |
| | wom1 (frequent of speaking) | 65.953 | **.000** |
| | wom2 (recommend) | 85.137 | **.000** |
| | wom4 (encourage) | 60.570 | **.000** |
| | a1 (fits well) | 126.467 | **.000** |
| | a2 (compatible) | 122.439 | **.000** |
| | a3 (positive) | 93.505 | **.000** |
| | a4 (palatable) | 96.258 | **.000** |
| | a5 (highly prefer) | 134.006 | **.000** |

Computed using alpha=.05

Table 5.25 shows us that the colour of the Bakpia package had significant impact separately on responses. Computed at alpha .05, significance level values at .000 in each response. In the case of first item, the colour of package made an individually and statistically significant difference on the consumers' preference (c1) with F scores at 116.098.

Table 5.26 shows that whether combined or not with colour of package, buyers proportion significantly impacted some of the responses individually. For example, buyers proportion significantly influenced the likeability of buying Bakpia (pi1) (ρ values at .011) but did not significantly affect the consumers' preference (c1) (ρ values at .168). By contrast, when combined with the colour of Bakpia package, there was a significant difference between those variables and preference (c1) (ρ values at .014) but there was a non-significant difference between those variables and consumers' likely to buy (pi1) (ρ values at .086).

**Table 5.26: Tests of Between-Subjects Effects for Colour Responses and Buyers Proportion (Bakpia)**

| Source | Dependent Variable | F | Sig. |
|---|---|---|---|
| Colour | c1 (preference) | 67.596 | **.000** |
| | c2 (likeability) | 65.657 | **.000** |
| | pq1 (quality) | 48.109 | **.000** |
| | pq2 (safety) | 38.974 | **.000** |
| | pq3 (appearance) | 47.882 | **.000** |
| | pq4 (value) | 41.352 | **.000** |
| | pi1 (likely of buying) | 54.799 | **.000** |
| | pi2 (definitely of buying) | 49.479 | **.000** |
| | pi3 (consider of buying) | 14.470 | **.000** |
| | wom1 (frequent of speaking) | 42.916 | **.000** |
| | wom2 (recommend) | 45.066 | **.000** |
| | wom4 (encourage) | 34.718 | **.000** |
| | a1 (fits well) | 71.023 | **.000** |
| | a2 (compatible) | 67.882 | **.000** |
| | a3 (positive) | 53.845 | **.000** |
| | a4 (palatable) | 55.719 | **.000** |
| | a5 (highly prefer) | 74.584 | **.000** |
| propbuyers | c1 (preference) | 1.685 | .168 |
| | c2 (likeability) | 2.196 | .087 |
| | pq1 (quality) | 2.623 | **.049** |
| | pq2 (safety) | 1.269 | .283 |
| | pq3 (appearance) | 1.245 | .292 |
| | pq4 (value) | 1.540 | .202 |
| | pi1 (likely of buying) | 3.741 | **.011** |
| | pi2 (definitely of buying) | 2.492 | .059 |
| | pi3 (consider of buying) | 1.012 | .386 |
| | wom1 (frequent of speaking) | 7.356 | **.000** |
| | wom2 (recommend) | 4.275 | **.005** |
| | wom4 (encourage) | 5.654 | **.001** |
| | a1 (fits well) | 3.146 | **.024** |
| | a2 (compatible) | 3.700 | **.011** |
| | a3 (positive) | 3.784 | **.010** |
| | a4 (palatable) | 3.114 | **.025** |
| | a5 (highly prefer) | 2.681 | **.045** |
| | c1 (preference) | 2.303 | **.014** |

| Source | Dependent Variable | F | Sig. |
|---|---|---|---|
| colour * propbuyers | c2 (likeability) | 1.966 | **.040** |
| | pq1 (quality) | 2.017 | **.034** |
| | pq2 (safety) | 1.874 | .052 |
| | pq3 (appearance) | 2.251 | **.017** |
| | pq4 (value) | 2.198 | **.020** |
| | pi1 (likely of buying) | 1.691 | .086 |
| | pi2 (definitely of buying) | 2.332 | **.013** |
| | pi3 (consider of buying) | 1.609 | .107 |
| | wom1 (frequent of speaking) | 1.984 | **.038** |
| | wom2 (recommend) | .902 | .523 |
| | wom4 (encourage) | 1.662 | .093 |
| | a1 (fits well) | 2.201 | **.020** |
| | a2 (compatible) | 1.981 | **.038** |
| | a3 (positive) | 1.979 | **.038** |
| | a4 (palatable) | 1.327 | .217 |
| | a5 (highly prefer) | 1.885 | .050 |

Computed using alpha=.05

Table 5.27 reveals that there was no significant difference in most of the relationships between gender and responses individually, specifically when gender was combined with the colour of Bakpia package.

**Table 5.27: Tests of Between-Subjects Effects for Colour Responses and Gender (Bakpia)**

| Source | Dependent Variable | F | Sig. |
|---|---|---|---|
| colour | c1 (preference) | 105.499 | **.000** |
| | c2 (likeability) | 102.505 | **.000** |
| | pq1 (quality) | 77.467 | **.000** |
| | pq2 (safety) | 53.965 | **.000** |
| | pq3 (appearance) | 71.546 | **.000** |
| | pq4 (value) | 63.478 | **.000** |
| | pi1 (likely of buying) | 90.208 | **.000** |
| | pi2 (definitely of buying) | 75.548 | **.000** |
| | pi3 (consider of buying) | 25.938 | **.000** |
| | wom1 (frequent of speaking) | 60.510 | **.000** |
| | wom2 (recommend) | 78.295 | **.000** |
| | wom4 (encourage) | 55.513 | **.000** |
| | a1 (fits well) | 118.090 | **.000** |
| | a2 (compatible) | 112.555 | **.000** |
| | a3 (positive) | 86.171 | **.000** |
| | a4 (palatable) | 87.088 | **.000** |
| | a5 (highly prefer) | 122.036 | **.000** |
| gender | c1 (preference) | 3.888 | **.049** |
| | c2 (likeability) | 3.629 | .057 |
| | pq1 (quality) | 4.242 | **.040** |
| | pq2 (safety) | 4.873 | **.027** |
| | pq3 (appearance) | 2.754 | .097 |
| | pq4 (value) | 4.586 | **.032** |
| | pi1 (likely of buying) | 5.025 | **.025** |
| | pi2 (definitely of buying) | 9.411 | **.002** |
| | pi3 (consider of buying) | 3.221 | .073 |

| Source | Dependent Variable | F | Sig. |
|---|---|---|---|
| | wom1 (frequent of speaking) | 3.013 | .083 |
| | wom2 (recommend) | 3.621 | .057 |
| | wom4 (encourage) | 3.270 | .071 |
| | a1 (fits well) | 1.855 | .173 |
| | a2 (compatible) | 3.796 | .052 |
| | a3 (positive) | 4.678 | **.031** |
| | a4 (palatable) | .726 | .394 |
| | a5 (highly prefer) | 1.217 | .270 |
| colour * gender | c1 (preference) | 2.908 | **.033** |
| | c2 (likeability) | 2.125 | .095 |
| | pq1 (quality) | 1.066 | .362 |
| | pq2 (safety) | .738 | .529 |
| | pq3 (appearance) | 1.142 | .331 |
| | pq4 (value) | .263 | .852 |
| | pi1 (likely of buying) | 1.148 | .329 |
| | pi2 (definitely of buying) | 1.174 | .318 |
| | pi3 (consider of buying) | 1.557 | .198 |
| | wom1 (frequent of speaking) | .751 | .522 |
| | wom2 (recommend) | .758 | .518 |
| | wom4 (encourage) | .899 | .441 |
| | a1 (fits well) | 1.195 | .310 |
| | a2 (compatible) | 1.516 | .208 |
| | a3 (positive) | 1.709 | .163 |
| | a4 (palatable) | 1.912 | .126 |
| | a5 (highly prefer) | 2.650 | **.047** |

Computed using alpha=.05

Table 5.28 reveals that statistical significant differences existed in some of responses individually. For example, there was a significant difference between age and frequency of consumers “speak about the product” (wom1) (ρ values at .000), but no significant difference with the consumers’ association of how “fit the package to product” (a1) (ρ values at .723). Yet, when age was combined together with colour of package, it significantly impacted the association of well-fitting to the product (a1) (ρ values at .003) and no significant influence to how frequently the consumers speak about the product (wom1) (ρ values at .116).

**Table 5.28: Tests of Between-Subjects Effects for Colour Responses and Age (Bakpia)**

| Source | Dependent Variable | F | Sig. |
|---|---|---|---|
| colour | c1 (preference) | 109.123 | **.000** |
| | c2 (likeability) | 108.679 | **.000** |
| | pq1 (quality) | 78.334 | **.000** |
| | pq2 (safety) | 56.429 | **.000** |
| | pq3 (appearance) | 66.790 | **.000** |
| | pq4 (value) | 65.349 | **.000** |
| | pi1 (likely of buying) | 91.477 | **.000** |
| | pi2 (definitely of buying) | 77.181 | **.000** |

| Source | Dependent Variable | F | Sig. |
|---|---|---|---|
| | pi3 (consider of buying) | 27.002 | **.000** |
| | wom1 (frequent of speaking) | 63.091 | **.000** |
| | wom2 (recommend) | 81.171 | **.000** |
| | wom4 (encourage) | 59.614 | **.000** |
| | a1 (fits well) | 120.805 | **.000** |
| | a2 (compatible) | 116.482 | **.000** |
| | a3 (positive) | 89.639 | **.000** |
| | a4 (palatable) | 93.194 | **.000** |
| | a5 (highly prefer) | 125.767 | **.000** |
| age | c1 (preference) | 1.497 | .175 |
| | c2 (likeability) | .994 | .428 |
| | pq1 (quality) | .847 | .534 |
| | pq2 (safety) | .952 | .457 |
| | pq3 (appearance) | .784 | .582 |
| | pq4 (value) | .448 | .846 |
| | pi1 (likely of buying) | .844 | .536 |
| | pi2 (definitely of buying) | .978 | .439 |
| | pi3 (consider of buying) | 2.589 | **.017** |
| | wom1 (frequent of speaking) | 4.113 | **.000** |
| | wom2 (recommend) | 2.439 | **.024** |
| | wom4 (encourage) | 3.046 | **.006** |
| | a1 (fits well) | .610 | .723 |
| | a2 (compatible) | .757 | .604 |
| | a3 (positive) | 2.807 | **.010** |
| | a4 (palatable) | 1.271 | .267 |
| | a5 (highly prefer) | .625 | .710 |
| colour * age | c1 (preference) | 1.805 | **.020** |
| | c2 (likeability) | 1.772 | **.024** |
| | pq1 (quality) | 1.568 | .060 |
| | pq2 (safety) | 1.064 | .384 |
| | pq3 (appearance) | 1.003 | .453 |
| | pq4 (value) | 1.634 | **.045** |
| | pi1 (likely of buying) | 1.420 | .112 |
| | pi2 (definitely of buying) | 1.627 | **.046** |
| | pi3 (consider of buying) | 1.876 | **.014** |
| | wom1 (frequent of speaking) | 1.411 | .116 |
| | wom2 (recommend) | 1.308 | .173 |
| | wom4 (encourage) | 1.551 | .065 |
| | a1 (fits well) | 2.185 | **.003** |
| | a2 (compatible) | 1.854 | **.016** |
| | a3 (positive) | 1.429 | .108 |
| | a4 (palatable) | 1.717 | **.030** |
| | a5 (highly prefer) | 1.497 | .082 |

Computed using alpha=.05

## 5.7 Third or Main Stage: Bogra Doi Study

### 5.7.1 Descriptive Statistics

This section provides the descriptive statistics and analyses of the package colour responses and buyers proportion, age and gender.

#### 5.7.1.1 Descriptive Statistics of Colour Responses

Table 5.29 provides the descriptive statistics regarding consumers' responses to colour questions relating to the Bogra Doi package.

**Table 5.29: Descriptive Statistics Consumers' Responses to Colour of Bogra Doi Package (n=220)**

| | Colour | Mean | Std. Deviation |
|---|---|---|---|
| preference (c1) | **maroon or red** | **5.08** | 1.570 |
| | cream or light yellow | 3.96 | 1.716 |
| | orange | 5.06 | 1.535 |
| | yellow | 4.16 | 1.629 |
| likeability (c2) | maroon or red | 4.95 | 1.545 |
| | cream or light yellow | 3.81 | 1.602 |
| | **orange** | **4.96** | 1.549 |
| | yellow | 3.90 | 1.630 |
| quality (pq1) | maroon or red | 5.06 | 1.472 |
| | cream or light yellow | 4.11 | 1.684 |
| | **orange** | **5.10** | 1.463 |
| | yellow | 4.30 | 1.633 |
| safety (pq2) | maroon or red | 4.85 | 1.491 |
| | cream or light yellow | 4.18 | 1.576 |
| | **orange** | **4.99** | 1.398 |
| | yellow | 4.42 | 1.567 |
| appearance (pq3) | **maroon or red** | **5.06** | 1.538 |
| | cream or light yellow | 4.06 | 1.667 |
| | **orange** | **5.06** | 1.507 |
| | yellow | 4.08 | 1.641 |
| value (pq4) | **maroon or red** | **5.01** | 1.460 |
| | cream or light yellow | 4.12 | 1.532 |
| | orange | 4.90 | 1.409 |
| | yellow | 4.26 | 1.515 |
| likely of buying (pi1) | maroon or red | 4.78 | 1.582 |
| | cream or light yellow | 3.94 | 1.639 |
| | **orange** | **4.81** | 1.592 |
| | yellow | 4.20 | 1.703 |
| definitely of buying (pi2) | **maroon or red** | **4.92** | 1.546 |
| | cream or light yellow | 4.03 | 1.628 |
| | orange | 4.90 | 1.470 |
| | yellow | 4.16 | 1.613 |
| consider of buying (pi3) | maroon or red | 4.96 | 1.584 |
| | cream or light yellow | 4.20 | 1.680 |
| | **orange** | **5.04** | 1.565 |
| | yellow | 4.25 | 1.614 |
| frequent of speaking (wom1) | maroon or red | 4.49 | 1.600 |
| | cream or light yellow | 3.73 | 1.649 |
| | **orange** | **4.55** | 1.506 |
| | yellow | 3.81 | 1.630 |
| recommend (wom2) | maroon or red | 4.57 | 1.619 |
| | cream or light yellow | 3.75 | 1.741 |
| | **orange** | **4.61** | 1.605 |
| | yellow | 3.83 | 1.711 |
| encourage (wom4) | maroon or red | 4.59 | 1.618 |
| | cream or light yellow | 3.98 | 1.803 |
| | **orange** | **4.65** | 1.573 |
| | yellow | 3.88 | 1.716 |
| fits well (a1) | **maroon or red** | **4.75** | 1.730 |
| | cream or light yellow | 3.80 | 1.810 |

| | Colour | Mean | Std. Deviation |
|---|---|---|---|
| | orange | 4.58 | 1.624 |
| | yellow | 3.59 | 1.700 |
| compatible (a2) | **maroon or red** | **4.79** | 1.672 |
| | cream or light yellow | 3.84 | 1.785 |
| | orange | 4.72 | 1.611 |
| | yellow | 3.74 | 1.614 |
| positive (a3) | **maroon or red** | **4.83** | 1.695 |
| | cream or light yellow | 3.80 | 1.803 |
| | orange | 4.65 | 1.718 |
| | yellow | 3.73 | 1.810 |
| palatable (a4) | **maroon or red** | **4.51** | 1.797 |
| | cream or light yellow | 3.59 | 1.852 |
| | orange | 4.45 | 1.716 |
| | yellow | 3.67 | 1.831 |
| highly prefer (a5) | **maroon or red** | **4.95** | 1.764 |
| | cream or light yellow | 3.69 | 1.835 |
| | orange | 4.82 | 1.685 |
| | yellow | 3.64 | 1.869 |

Values of the means in Tables 5.29 show us that of responses available in the data (all the highest mean values in bold), half mainly supported the colour maroon of the Bogra Doi package (see the highest mean values of items c1, pq3, pq4, pi2, a1-a5). The rest of responses mainly indicated orange, except for product appearance (pq3) which showed both the colours maroon and orange. This outcome indicates that the colours maroon and orange of the package were the first option in the consumers' mind when it came to all matters regarding Bogra Doi. Further, the finding reveals that the colours cream and yellow of package were the second options whenever/wherever consumers could not find Bogra Doi packaged in maroon or orange. This result is not consistent with the results for Bakpia, which showed the most prominent package colour of package was only one colour, yellow, with the second prominent colour (green).

#### 5.7.1.2 Descriptive Statistics of Colour and Buyers Proportion

This section discusses the responses relating to colour and buyers proportion. The statistical results which contain the values of the mean, standard deviation, and number of participants collected are presented in Table 5.30.

## Table 5.30: Descriptive Statistics Package Colour Responses and Buyers Proportion of Bogra Doi

| | Colour | Proportion of Buyers | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| Preference (c1) | maroon or red | non buyers | 4.44 | 1.894 | 34 |
| | | light buyers | 5.00 | 1.679 | 67 |
| | | medium buyers | 5.29 | 1.339 | 98 |
| | | **heavy buyers** | **5.38** | 1.431 | 21 |
| | | Total | 5.08 | 1.570 | 220 |
| | cream or light yellow | non buyers | 3.91 | 1.913 | 34 |
| | | light buyers | 4.21 | 1.771 | 67 |
| | | medium buyers | 3.69 | 1.562 | 98 |
| | | **heavy buyers** | **4.48** | 1.778 | 21 |
| | | Total | 3.96 | 1.716 | 220 |
| | Orange | non buyers | 4.56 | 1.812 | 34 |
| | | light buyers | 4.84 | 1.648 | 67 |
| | | **medium buyers** | **5.33** | 1.353 | 98 |
| | | **heavy buyers** | **5.33** | 1.238 | 21 |
| | | Total | 5.06 | 1.535 | 220 |
| | Yellow | non buyers | 3.76 | 1.986 | 34 |
| | | **light buyers** | **4.69** | 1.549 | 67 |
| | | medium buyers | 3.86 | 1.392 | 98 |
| | | heavy buyers | 4.52 | 1.861 | 21 |
| | | Total | 4.16 | 1.629 | 220 |
| Likeability (c2) | maroon or red | non buyers | 4.17 | 1.911 | 136 |
| | | light buyers | 4.68 | 1.681 | 268 |
| | | medium buyers | 4.54 | 1.605 | 392 |
| | | **heavy buyers** | **4.93** | 1.626 | 84 |
| | | Total | 4.56 | 1.690 | 880 |
| | cream or light yellow | non buyers | 4.62 | 1.688 | 34 |
| | | light buyers | 4.94 | 1.641 | 67 |
| | | medium buyers | 5.00 | 1.414 | 98 |
| | | **heavy buyers** | **5.29** | 1.586 | 21 |
| | | Total | 4.95 | 1.545 | 220 |
| | Orange | non buyers | 3.85 | 1.828 | 34 |
| | | **light buyers** | **4.00** | 1.741 | 67 |
| | | medium buyers | 3.63 | 1.432 | 98 |
| | | heavy buyers | 3.95 | 1.532 | 21 |
| | | Total | 3.81 | 1.602 | 220 |
| | Yellow | non buyers | 4.15 | 1.844 | 34 |
| | | light buyers | 4.94 | 1.506 | 67 |
| | | **medium buyers** | **5.23** | 1.398 | 98 |
| | | heavy buyers | 5.10 | 1.480 | 21 |
| | | Total | 4.96 | 1.549 | 220 |
| Quality (pq1) | maroon or red | non buyers | 4.85 | 1.794 | 34 |
| | | light buyers | 5.04 | 1.471 | 67 |
| | | medium buyers | 5.08 | 1.313 | 98 |
| | | **heavy buyers** | **5.33** | 1.653 | 21 |
| | | Total | 5.06 | 1.472 | 220 |
| | cream or light yellow | non buyers | 3.76 | 1.742 | 34 |
| | | light buyers | 4.37 | 1.816 | 67 |
| | | medium buyers | 3.97 | 1.482 | 98 |
| | | **heavy buyers** | **4.48** | 1.965 | 21 |
| | | Total | 4.11 | 1.684 | 220 |
| | Orange | non buyers | 4.62 | 1.670 | 34 |
| | | light buyers | 5.18 | 1.547 | 67 |
| | | **medium buyers** | **5.23** | 1.258 | 98 |
| | | heavy buyers | 5.05 | 1.658 | 21 |
| | | Total | 5.10 | 1.463 | 220 |
| | Yellow | non buyers | 4.35 | 1.773 | 34 |
| | | **light buyers** | **4.87** | 1.455 | 67 |
| | | medium buyers | 3.85 | 1.495 | 98 |
| | | heavy buyers | 4.48 | 2.015 | 21 |
| | | Total | 4.30 | 1.633 | 220 |
| Safety (pq2) | maroon or red | non buyers | 4.40 | 1.773 | 136 |
| | | **light buyers** | **4.87** | 1.600 | 268 |
| | | medium buyers | 4.53 | 1.522 | 392 |
| | | heavy buyers | 4.83 | 1.836 | 84 |
| | | Total | 4.64 | 1.625 | 880 |
| | cream or light yellow | non buyers | 4.32 | 1.918 | 34 |
| | | light buyers | 4.76 | 1.634 | 67 |
| | | **medium buyers** | **5.05** | 1.187 | 98 |
| | | heavy buyers | 5.00 | 1.378 | 21 |
| | | Total | 4.85 | 1.491 | 220 |
| | orange | non buyers | 4.21 | 1.684 | 34 |
| | | **light buyers** | **4.43** | 1.681 | 67 |
| | | medium buyers | 3.98 | 1.436 | 98 |
| | | heavy buyers | 4.24 | 1.670 | 21 |
| | | Total | 4.18 | 1.576 | 220 |
| | yellow | non buyers | 4.44 | 1.744 | 34 |
| | | light buyers | 4.94 | 1.536 | 67 |
| | | medium buyers | 5.17 | 1.131 | 98 |
| | | **heavy buyers** | **5.19** | 1.289 | 21 |
| | | Total | 4.99 | 1.398 | 220 |
| Appearance (pq3) | maroon or red | non buyers | 4.76 | 1.671 | 34 |
| | | light buyers | 4.97 | 1.595 | 67 |
| | | medium buyers | 5.16 | 1.397 | 98 |
| | | **heavy buyers** | **5.33** | 1.770 | 21 |
| | | Total | 5.06 | 1.538 | 220 |
| | cream or light yellow | non buyers | 4.00 | 1.741 | 34 |
| | | light buyers | 4.15 | 1.617 | 67 |
| | | medium buyers | 3.90 | 1.602 | 98 |
| | | **heavy buyers** | **4.62** | 1.962 | 21 |
| | | Total | 4.06 | 1.667 | 220 |
| | orange | non buyers | 4.12 | 1.719 | 34 |
| | | light buyers | 5.03 | 1.517 | 67 |
| | | **medium buyers** | **5.39** | 1.313 | 98 |

| | Colour | Proportion of Buyers | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | heavy buyers | 5.19 | 1.401 | 21 |
| | | Total | 5.06 | 1.507 | 220 |
| | yellow | non buyers | 3.85 | 1.726 | 34 |
| | | **light buyers** | **4.52** | 1.636 | 67 |
| | | medium buyers | 3.85 | 1.460 | 98 |
| | | heavy buyers | 4.10 | 2.095 | 21 |
| | | Total | 4.08 | 1.641 | 220 |
| Value (pq4) | maroon or red | non buyers | 4.56 | 1.618 | 34 |
| | | light buyers | 4.91 | 1.454 | 67 |
| | | **medium buyers** | **5.29** | 1.347 | 98 |
| | | heavy buyers | 4.81 | 1.569 | 21 |
| | | Total | 5.01 | 1.460 | 220 |
| | cream or light yellow | non buyers | 4.26 | 1.729 | 34 |
| | | **light buyers** | **4.27** | 1.620 | 67 |
| | | medium buyers | 3.95 | 1.402 | 98 |
| | | heavy buyers | 4.24 | 1.513 | 21 |
| | | Total | 4.12 | 1.532 | 220 |
| | orange | non buyers | 4.12 | 1.431 | 34 |
| | | light buyers | 4.90 | 1.416 | 67 |
| | | **medium buyers** | **5.17** | 1.244 | 98 |
| | | heavy buyers | 4.95 | 1.687 | 21 |
| | | Total | 4.90 | 1.409 | 220 |
| | yellow | non buyers | 4.06 | 1.650 | 34 |
| | | **light buyers** | **4.69** | 1.384 | 67 |
| | | medium buyers | 4.05 | 1.467 | 98 |
| | | heavy buyers | 4.24 | 1.729 | 21 |
| | | Total | 4.26 | 1.515 | 220 |
| Likely of buying (pi1) | maroon or red | non buyers | 3.82 | 1.696 | 34 |
| | | light buyers | 4.72 | 1.640 | 67 |
| | | medium buyers | 5.02 | 1.385 | 98 |
| | | **heavy buyers** | **5.38** | 1.499 | 21 |
| | | Total | 4.78 | 1.582 | 220 |
| | cream or light yellow | non buyers | 3.62 | 1.923 | 34 |
| | | light buyers | 4.30 | 1.596 | 67 |
| | | medium buyers | 3.69 | 1.439 | 98 |
| | | **heavy buyers** | **4.48** | 1.914 | 21 |
| | | Total | 3.94 | 1.639 | 220 |
| | orange | non buyers | 4.06 | 1.953 | 34 |
| | | light buyers | 4.85 | 1.635 | 67 |
| | | medium buyers | 5.00 | 1.400 | 98 |
| | | **heavy buyers** | **5.05** | 1.396 | 21 |
| | | Total | 4.81 | 1.592 | 220 |
| | yellow | non buyers | 3.29 | 1.818 | 34 |
| | | **light buyers** | **4.69** | 1.672 | 67 |
| | | medium buyers | 4.08 | 1.517 | 98 |
| | | heavy buyers | 4.67 | 1.853 | 21 |
| | | Total | 4.20 | 1.703 | 220 |
| Definitely of buying (pi2) | maroon or red | non buyers | 4.21 | 1.737 | 34 |
| | | light buyers | 4.87 | 1.536 | 67 |
| | | medium buyers | 5.09 | 1.429 | 98 |
| | | **heavy buyers** | **5.48** | 1.470 | 21 |
| | | Total | 4.92 | 1.546 | 220 |
| | cream or light yellow | non buyers | 3.97 | 1.977 | 34 |
| | | **light buyers** | **4.40** | 1.558 | 67 |
| | | medium buyers | 3.72 | 1.498 | 98 |
| | | heavy buyers | 4.38 | 1.627 | 21 |
| | | Total | 4.03 | 1.628 | 220 |
| | orange | non buyers | 4.12 | 1.887 | 34 |
| | | light buyers | 5.12 | 1.365 | 67 |
| | | medium buyers | 4.97 | 1.327 | 98 |
| | | **heavy buyers** | **5.19** | 1.327 | 21 |
| | | Total | 4.90 | 1.470 | 220 |
| | yellow | non buyers | 3.76 | 1.810 | 34 |
| | | **light buyers** | **4.52** | 1.618 | 67 |
| | | medium buyers | 3.98 | 1.421 | 98 |
| | | **heavy buyers** | **4.52** | 1.914 | 21 |
| | | Total | 4.16 | 1.613 | 220 |
| Consider of buying (pi3) | maroon or red | non buyers | 4.21 | 1.789 | 34 |
| | | light buyers | 4.78 | 1.622 | 67 |
| | | **medium buyers** | **5.32** | 1.352 | 98 |
| | | heavy buyers | 5.14 | 1.711 | 21 |
| | | Total | 4.96 | 1.584 | 220 |
| | cream or light yellow | non buyers | 4.06 | 1.890 | 34 |
| | | light buyers | 4.40 | 1.634 | 67 |
| | | medium buyers | 3.98 | 1.599 | 98 |
| | | **heavy buyers** | **4.86** | 1.711 | 21 |
| | | Total | 4.20 | 1.680 | 220 |
| | orange | non buyers | 4.47 | 2.219 | 34 |
| | | light buyers | 4.99 | 1.451 | 67 |
| | | **medium buyers** | **5.24** | 1.393 | 98 |
| | | heavy buyers | 5.19 | 1.250 | 21 |
| | | Total | 5.04 | 1.565 | 220 |
| | yellow | non buyers | 3.68 | 1.804 | 34 |
| | | **light buyers** | **4.76** | 1.634 | 67 |
| | | medium buyers | 4.11 | 1.361 | 98 |
| | | heavy buyers | 4.14 | 1.957 | 21 |
| | | Total | 4.25 | 1.614 | 220 |
| Frequent of speaking (wom1) | maroon or red | non buyers | 4.24 | 1.759 | 34 |
| | | light buyers | 4.33 | 1.753 | 67 |
| | | **medium buyers** | **4.67** | 1.391 | 98 |
| | | heavy buyers | 4.52 | 1.750 | 21 |
| | | Total | 4.49 | 1.600 | 220 |
| | cream or light yellow | non buyers | 3.59 | 1.725 | 34 |
| | | **light buyers** | **4.04** | 1.655 | 67 |
| | | medium buyers | 3.50 | 1.548 | 98 |
| | | heavy buyers | 4.00 | 1.871 | 21 |
| | | Total | 3.73 | 1.649 | 220 |
| | orange | non buyers | 3.82 | 1.749 | 34 |

| | Colour | Proportion of Buyers | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | **light buyers** | **4.79** | 1.533 | 67 |
| | | medium buyers | 4.72 | 1.330 | 98 |
| | | heavy buyers | 4.14 | 1.424 | 21 |
| | | Total | 4.55 | 1.506 | 220 |
| | yellow | non buyers | 3.56 | 1.599 | 34 |
| | | **light buyers** | **4.46** | 1.700 | 67 |
| | | medium buyers | 3.40 | 1.441 | 98 |
| | | heavy buyers | 4.05 | 1.687 | 21 |
| | | Total | 3.81 | 1.630 | 220 |
| Recommend (wom2) | maroon or red | non buyers | 4.06 | 1.825 | 34 |
| | | light buyers | 4.58 | 1.733 | 67 |
| | | medium buyers | 4.67 | 1.405 | 98 |
| | | **heavy buyers** | **4.90** | 1.758 | 21 |
| | | Total | 4.57 | 1.619 | 220 |
| | cream or light yellow | non buyers | 3.53 | 1.879 | 34 |
| | | **light buyers** | **4.25** | 1.682 | 67 |
| | | medium buyers | 3.39 | 1.571 | 98 |
| | | heavy buyers | 4.14 | 2.081 | 21 |
| | | Total | 3.75 | 1.741 | 220 |
| | orange | non buyers | 3.71 | 1.851 | 34 |
| | | light buyers | 4.78 | 1.622 | 67 |
| | | medium buyers | 4.74 | 1.438 | 98 |
| | | **heavy buyers** | **4.95** | 1.465 | 21 |
| | | Total | 4.61 | 1.605 | 220 |
| | yellow | non buyers | 3.62 | 1.776 | 34 |
| | | **light buyers** | **4.45** | 1.645 | 67 |
| | | medium buyers | 3.41 | 1.545 | 98 |
| | | heavy buyers | 4.19 | 1.990 | 21 |
| | | Total | 3.83 | 1.711 | 220 |
| Encourage (wom4) | maroon or red | non buyers | 3.88 | 1.771 | 34 |
| | | light buyers | 4.76 | 1.767 | 67 |
| | | medium buyers | 4.66 | 1.331 | 98 |
| | | **heavy buyers** | **4.86** | 1.878 | 21 |
| | | Total | 4.59 | 1.618 | 220 |
| | cream or light yellow | non buyers | 4.00 | 2.030 | 34 |
| | | **light buyers** | **4.49** | 1.646 | 67 |
| | | medium buyers | 3.54 | 1.594 | 98 |
| | | heavy buyers | 4.38 | 2.355 | 21 |
| | | Total | 3.98 | 1.803 | 220 |
| | orange | non buyers | 3.82 | 1.834 | 34 |
| | | light buyers | 4.88 | 1.523 | 67 |
| | | medium buyers | 4.69 | 1.395 | 98 |
| | | **heavy buyers** | **5.10** | 1.700 | 21 |
| | | Total | 4.65 | 1.573 | 220 |
| | yellow | non buyers | 3.44 | 1.894 | 34 |
| | | **light buyers** | **4.55** | 1.778 | 67 |
| | | medium buyers | 3.52 | 1.364 | 98 |
| | | heavy buyers | 4.14 | 2.081 | 21 |
| | | Total | 3.88 | 1.716 | 220 |
| Fits well (a1) | maroon or red | non buyers | 4.76 | 1.634 | 34 |
| | | light buyers | 4.67 | 1.894 | 67 |
| | | **medium buyers** | **4.80** | 1.631 | 98 |
| | | heavy buyers | 4.76 | 1.895 | 21 |
| | | Total | 4.75 | 1.730 | 220 |
| | cream or light yellow | non buyers | 3.76 | 1.986 | 34 |
| | | **light buyers** | **3.99** | 1.919 | 67 |
| | | medium buyers | 3.69 | 1.646 | 98 |
| | | heavy buyers | 3.71 | 1.978 | 21 |
| | | Total | 3.80 | 1.810 | 220 |
| | orange | non buyers | 4.06 | 1.922 | 34 |
| | | **light buyers** | **4.75** | 1.709 | 67 |
| | | medium buyers | 4.67 | 1.456 | 98 |
| | | heavy buyers | 4.43 | 1.502 | 21 |
| | | Total | 4.58 | 1.624 | 220 |
| | yellow | non buyers | 3.21 | 1.771 | 34 |
| | | **light buyers** | **3.88** | 1.797 | 67 |
| | | medium buyers | 3.50 | 1.515 | 98 |
| | | heavy buyers | 3.71 | 2.028 | 21 |
| | | Total | 3.59 | 1.700 | 220 |
| Compatible (a2) | maroon or red | non buyers | 4.47 | 1.846 | 34 |
| | | light buyers | 4.69 | 1.893 | 67 |
| | | medium buyers | 4.90 | 1.447 | 98 |
| | | **heavy buyers** | **5.14** | 1.621 | 21 |
| | | Total | 4.79 | 1.672 | 220 |
| | cream or light yellow | non buyers | 4.03 | 1.899 | 34 |
| | | **light buyers** | **3.96** | 1.918 | 67 |
| | | medium buyers | 3.67 | 1.610 | 98 |
| | | heavy buyers | 3.90 | 1.998 | 21 |
| | | Total | 3.84 | 1.785 | 220 |
| | orange | non buyers | 4.35 | 1.840 | 34 |
| | | **light buyers** | **4.81** | 1.672 | 67 |
| | | medium buyers | 4.78 | 1.496 | 98 |
| | | heavy buyers | 4.76 | 1.578 | 21 |
| | | Total | 4.72 | 1.611 | 220 |
| | yellow | non buyers | 3.53 | 1.779 | 34 |
| | | **light buyers** | **4.07** | 1.560 | 67 |
| | | medium buyers | 3.55 | 1.493 | 98 |
| | | heavy buyers | 3.86 | 1.957 | 21 |
| | | Total | 3.74 | 1.614 | 220 |
| Positive (a3) | maroon or red | non buyers | 4.94 | 1.722 | 34 |
| | | light buyers | 4.69 | 1.868 | 67 |
| | | medium buyers | 4.86 | 1.593 | 98 |
| | | **heavy buyers** | **4.95** | 1.627 | 21 |
| | | Total | 4.83 | 1.695 | 220 |
| | cream or light yellow | non buyers | 4.18 | 1.850 | 34 |
| | | light buyers | 3.73 | 1.943 | 67 |
| | | medium buyers | 3.68 | 1.641 | 98 |
| | | **heavy buyers** | **3.90** | 2.022 | 21 |

| | Colour | Proportion of Buyers | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | Total | 3.80 | 1.803 | 220 |
| | orange | non buyers | 4.26 | 1.814 | 34 |
| | | **light buyers** | **4.78** | 1.782 | 67 |
| | | medium buyers | 4.67 | 1.636 | 98 |
| | | heavy buyers | 4.71 | 1.765 | 21 |
| | | Total | 4.65 | 1.718 | 220 |
| | yellow | non buyers | 3.76 | 1.970 | 34 |
| | | light buyers | 4.06 | 1.866 | 67 |
| | | medium buyers | 3.41 | 1.642 | 98 |
| | | **heavy buyers** | **4.14** | 1.957 | 21 |
| | | Total | 3.73 | 1.810 | 220 |
| Palatable (a4) | maroon or red | non buyers | 4.38 | 1.875 | 34 |
| | | light buyers | 4.51 | 1.926 | 67 |
| | | medium buyers | 4.49 | 1.707 | 98 |
| | | **heavy buyers** | **4.81** | 1.750 | 21 |
| | | Total | 4.51 | 1.797 | 220 |
| | cream or light yellow | non buyers | 3.82 | 1.977 | 34 |
| | | light buyers | 3.73 | 1.951 | 67 |
| | | medium buyers | 3.31 | 1.677 | 98 |
| | | **heavy buyers** | **4.05** | 2.037 | 21 |
| | | Total | 3.59 | 1.852 | 220 |
| | orange | non buyers | 3.94 | 1.999 | 34 |
| | | light buyers | 4.61 | 1.775 | 67 |
| | | medium buyers | 4.46 | 1.548 | 98 |
| | | **heavy buyers** | **4.76** | 1.729 | 21 |
| | | Total | 4.45 | 1.716 | 220 |
| | yellow | non buyers | 3.71 | 1.962 | 34 |
| | | **light buyers** | **3.93** | 1.909 | 67 |
| | | medium buyers | 3.44 | 1.675 | 98 |
| | | heavy buyers | 3.90 | 2.047 | 21 |
| | | Total | 3.67 | 1.831 | 220 |
| Highly prefer (a5) | maroon or red | non buyers | 4.79 | 1.871 | 34 |
| | | light buyers | 4.75 | 1.870 | 67 |
| | | medium buyers | 5.06 | 1.661 | 98 |
| | | **heavy buyers** | **5.38** | 1.717 | 21 |
| | | Total | 4.95 | 1.764 | 220 |
| | cream or light yellow | **non buyers** | **4.06** | 2.117 | 34 |
| | | light buyers | 3.70 | 1.931 | 67 |
| | | medium buyers | 3.47 | 1.594 | 98 |
| | | heavy buyers | 4.05 | 2.061 | 21 |
| | | Total | 3.69 | 1.835 | 220 |
| | orange | non buyers | 4.03 | 1.850 | 34 |
| | | light buyers | 4.75 | 1.761 | 67 |
| | | **medium buyers** | **5.11** | 1.485 | 98 |
| | | heavy buyers | 5.00 | 1.732 | 21 |
| | | Total | 4.82 | 1.685 | 220 |
| | yellow | non buyers | 3.29 | 1.801 | 34 |
| | | light buyers | 3.91 | 2.013 | 67 |
| | | medium buyers | 3.48 | 1.694 | 98 |
| | | **heavy buyers** | **4.05** | 2.202 | 21 |
| | | Total | 3.64 | 1.869 | 220 |

Among various groups of buyers, colour maroon and orange were the most prominent colours of Bogra Doi package as reflected by' responses. However, among heavy buyers, colour maroon contributed most to twelve items (c1, c2, pq1, pq3, pi1, pi2, wom2, wom4, a2, a3, a4, a5). Similar outcomes were found in terms of the colours cream and yellow as the second option of colour of Bogra Doi package. Table 5.30 shows that the contribution to those colour responses was dominated various groups of buyers.

Table 5.31 provides the totals and shows that heavy buyers responded to the most items while only six items were contributed to most by light buyers (pq1, pq2, pq4, wom1, wom4, a1).

## Table 5.31: Descriptive Statistics Colour Responses and Buyers Proportion of Bogra Doi (Total)

| | Colour | Proportion of Buyers | Mean |
|---|---|---|---|
| c1 (preference) | Total | non buyers | 4.17 |
| | | light buyers | 4.68 |
| | | medium buyers | 4.54 |
| | | **heavy buyers** | **4.93** |
| c2 (likeability) | Total | non buyers | 4.06 |
| | | light buyers | 4.53 |
| | | medium buyers | 4.41 |
| | | **heavy buyers** | **4.55** |
| pq1 (quality) | Total | non buyers | 4.40 |
| | | **light buyers** | **4.87** |
| | | medium buyers | 4.53 |
| | | heavy buyers | 4.83 |
| pq2 (safety) | Total | non buyers | 4.35 |
| | | **light buyers** | **4.75** |
| | | medium buyers | 4.58 |
| | | heavy buyers | 4.71 |
| pq3 (appearance) | Total | non buyers | 4.18 |
| | | light buyers | 4.67 |
| | | medium buyers | 4.57 |
| | | **heavy buyers** | **4.81** |
| pq4 (value) | Total | non buyers | 4.25 |
| | | **light buyers** | **4.69** |
| | | medium buyers | 4.61 |
| | | heavy buyers | 4.56 |
| pi1 (likely of buying) | Total | non buyers | 3.70 |
| | | light buyers | 4.64 |
| | | medium buyers | 4.45 |
| | | **heavy buyers** | **4.89** |
| pi2 (definitely of buying) | Total | non buyers | 4.01 |
| | | light buyers | 4.73 |
| | | medium buyers | 4.44 |
| | | **heavy buyers** | **4.89** |
| pi3 (consider of buying) | Total | non buyers | 4.10 |
| | | light buyers | 4.73 |
| | | medium buyers | 4.66 |
| | | **heavy buyers** | **4.83** |
| wom1 (frequent of speaking) | Total | non buyers | 3.80 |
| | | **light buyers** | **4.41** |
| | | medium buyers | 4.07 |
| | | heavy buyers | 4.18 |
| wom2 (recommend) | Total | non buyers | 3.73 |
| | | light buyers | 4.51 |
| | | medium buyers | 4.05 |
| | | **heavy buyers** | **4.55** |
| wom4 (encourage) | Total | non buyers | 3.79 |
| | | **light buyers** | **4.67** |
| | | medium buyers | 4.10 |
| | | heavy buyers | 4.62 |
| a1 (fits well) | Total | non buyers | 3.95 |
| | | **light buyers** | **4.32** |
| | | medium buyers | 4.17 |
| | | heavy buyers | 4.15 |
| a2 compatible) | Total | non buyers | 4.10 |
| | | light buyers | 4.38 |
| | | medium buyers | 4.22 |
| | | **heavy buyers** | **4.42** |
| a3 (positive) | Total | non buyers | 4.29 |
| | | light buyers | 4.31 |
| | | medium buyers | 4.16 |
| | | **heavy buyers** | **4.43** |
| a4 (palatable) | Total | non buyers | 3.96 |
| | | light buyers | 4.19 |
| | | medium buyers | 3.92 |
| | | **heavy buyers** | **4.38** |
| a5 (highly prefer) | Total | non buyers | 4.04 |
| | | light buyers | 4.28 |
| | | medium buyers | 4.28 |
| | | **heavy buyers** | **4.62** |

#### 5.7.1.3 Descriptive Statistics of Colour and Gender Responses

This section discusses the results of the descriptive statistics of the analysis of the relationship between colour responses and gender, which are presented in Table 5.32.

**Table 5.32: Descriptive Statistics Gender and Responses to Colour of Bogra Doi Package**

| | Colour | Gender | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| Preference (c1) | maroon or red | **male** | **5.15** | 1.524 | 135 |
| | | female | 4.96 | 1.644 | 85 |
| | | Total | 5.08 | 1.570 | 220 |
| | cream or light yellow | male | 3.94 | 1.714 | 135 |
| | | **female** | **3.99** | 1.729 | 85 |
| | | Total | 3.96 | 1.716 | 220 |
| | Orange | male | 5.05 | 1.463 | 135 |
| | | **female** | **5.07** | 1.653 | 85 |
| | | Total | 5.06 | 1.535 | 220 |
| | Yellow | **male** | **4.23** | 1.559 | 135 |
| | | female | 4.05 | 1.738 | 85 |
| | | Total | 4.16 | 1.629 | 220 |
| Likeability (c2) | maroon or red | **male** | **5.08** | 1.446 | 135 |
| | | female | 4.74 | 1.677 | 85 |
| | | Total | 4.95 | 1.545 | 220 |
| | cream or light yellow | male | 3.73 | 1.547 | 135 |
| | | **female** | **3.94** | 1.686 | 85 |
| | | Total | 3.81 | 1.602 | 220 |
| | Orange | **male** | **4.99** | 1.404 | 135 |
| | | female | 4.93 | 1.765 | 85 |
| | | Total | 4.96 | 1.549 | 220 |
| | yellow | **male** | **3.96** | 1.592 | 135 |
| | | female | 3.81 | 1.694 | 85 |
| | | Total | 3.90 | 1.630 | 220 |
| Quality (pq1) | maroon or red | **male** | **5.07** | 1.479 | 135 |
| | | female | 5.04 | 1.467 | 85 |
| | | Total | 5.06 | 1.472 | 220 |
| | cream or light yellow | male | 4.01 | 1.738 | 135 |
| | | **female** | **4.27** | 1.592 | 85 |
| | | Total | 4.11 | 1.684 | 220 |
| | orange | **male** | **5.13** | 1.408 | 135 |
| | | female | 5.06 | 1.553 | 85 |
| | | Total | 5.10 | 1.463 | 220 |
| | yellow | **male** | **4.30** | 1.667 | 135 |
| | | female | 4.29 | 1.587 | 85 |
| | | Total | 4.30 | 1.633 | 220 |
| Safety (pq2) | maroon or red | **male** | **4.90** | 1.457 | 135 |
| | | female | 4.76 | 1.548 | 85 |
| | | Total | 4.85 | 1.491 | 220 |
| | cream or light yellow | male | 4.13 | 1.629 | 135 |
| | | **female** | **4.25** | 1.495 | 85 |
| | | Total | 4.18 | 1.576 | 220 |
| | orange | male | 4.96 | 1.384 | 135 |
| | | **female** | **5.04** | 1.426 | 85 |
| | | Total | 4.99 | 1.398 | 220 |
| | yellow | **male** | **4.44** | 1.605 | 135 |
| | | female | 4.39 | 1.513 | 85 |
| | | Total | 4.42 | 1.567 | 220 |
| Appearance (pq3) | maroon or red | **male** | **5.16** | 1.507 | 135 |
| | | female | 4.89 | 1.581 | 85 |
| | | Total | 5.06 | 1.538 | 220 |
| | cream or light yellow | male | 3.99 | 1.682 | 135 |
| | | **female** | **4.16** | 1.646 | 85 |
| | | Total | 4.06 | 1.667 | 220 |
| | orange | **male** | **5.07** | 1.431 | 135 |
| | | female | 5.06 | 1.628 | 85 |
| | | Total | 5.06 | 1.507 | 220 |
| | yellow | male | 4.07 | 1.619 | 135 |
| | | **female** | **4.08** | 1.685 | 85 |
| | | Total | 4.08 | 1.641 | 220 |
| Value (pq4) | maroon or red | **male** | **5.07** | 1.436 | 135 |
| | | female | 4.93 | 1.502 | 85 |
| | | Total | 5.01 | 1.460 | 220 |
| | cream or light yellow | male | 4.00 | 1.588 | 135 |
| | | **female** | **4.32** | 1.424 | 85 |
| | | Total | 4.12 | 1.532 | 220 |
| | orange | **male** | **4.96** | 1.349 | 135 |
| | | female | 4.82 | 1.505 | 85 |
| | | Total | 4.90 | 1.409 | 220 |
| | yellow | **male** | **4.30** | 1.516 | 135 |
| | | female | 4.21 | 1.520 | 85 |
| | | Total | 4.26 | 1.515 | 220 |
| Likely of buying (pi1) | maroon or red | **male** | **4.82** | 1.564 | 135 |

| | Colour | Gender | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | female | 4.71 | 1.617 | 85 |
| | | Total | 4.78 | 1.582 | 220 |
| | cream or light yellow | male | 3.90 | 1.611 | 135 |
| | | **female** | **4.00** | 1.690 | 85 |
| | | Total | 3.94 | 1.639 | 220 |
| | orange | **male** | **4.81** | 1.502 | 135 |
| | | **female** | **4.81** | 1.735 | 85 |
| | | Total | 4.81 | 1.592 | 220 |
| | yellow | male | 4.16 | 1.661 | 135 |
| | | **female** | **4.27** | 1.775 | 85 |
| | | Total | 4.20 | 1.703 | 220 |
| Definitely of buying (pi2) | maroon or red | **male** | **5.08** | 1.446 | 135 |
| | | female | 4.67 | 1.672 | 85 |
| | | Total | 4.92 | 1.546 | 220 |
| | cream or light yellow | male | 3.93 | 1.622 | 135 |
| | | **female** | **4.19** | 1.637 | 85 |
| | | Total | 4.03 | 1.628 | 220 |
| | orange | male | 4.87 | 1.343 | 135 |
| | | **female** | **4.96** | 1.658 | 85 |
| | | Total | 4.90 | 1.470 | 220 |
| | yellow | male | 4.10 | 1.580 | 135 |
| | | **female** | **4.26** | 1.670 | 85 |
| | | Total | 4.16 | 1.613 | 220 |
| Consider of buying (pi3) | maroon or red | **male** | **5.06** | 1.534 | 135 |
| | | female | 4.81 | 1.658 | 85 |
| | | Total | 4.96 | 1.584 | 220 |
| | cream or light yellow | male | 4.15 | 1.717 | 135 |
| | | **female** | **4.29** | 1.624 | 85 |
| | | Total | 4.20 | 1.680 | 220 |
| | orange | **male** | **5.09** | 1.453 | 135 |
| | | female | 4.96 | 1.735 | 85 |
| | | Total | 5.04 | 1.565 | 220 |
| | yellow | male | 4.23 | 1.648 | 135 |
| | | **female** | **4.27** | 1.569 | 85 |
| | | Total | 4.25 | 1.614 | 220 |
| Frequent of speaking (wom1) | maroon or red | **male** | **4.50** | 1.506 | 135 |
| | | female | 4.46 | 1.750 | 85 |
| | | Total | 4.49 | 1.600 | 220 |
| | cream or light yellow | male | 3.67 | 1.648 | 135 |
| | | **female** | **3.82** | 1.656 | 85 |
| | | Total | 3.73 | 1.649 | 220 |
| | orange | male | 4.54 | 1.402 | 135 |
| | | **female** | **4.56** | 1.665 | 85 |
| | | Total | 4.55 | 1.506 | 220 |
| | yellow | male | 3.75 | 1.568 | 135 |
| | | **female** | **3.91** | 1.729 | 85 |
| | | Total | 3.81 | 1.630 | 220 |
| Recommend (wom2) | maroon or red | **male** | **4.66** | 1.594 | 135 |
| | | female | 4.44 | 1.658 | 85 |
| | | Total | 4.57 | 1.619 | 220 |
| | cream or light yellow | male | 3.62 | 1.803 | 135 |
| | | **female** | **3.94** | 1.628 | 85 |
| | | Total | 3.75 | 1.741 | 220 |
| | orange | **male** | **4.64** | 1.563 | 135 |
| | | female | 4.58 | 1.679 | 85 |
| | | Total | 4.61 | 1.605 | 220 |
| | yellow | male | 3.79 | 1.658 | 135 |
| | | **female** | **3.89** | 1.800 | 85 |
| | | Total | 3.83 | 1.711 | 220 |
| Encourage (wom4) | maroon or red | **male** | **4.61** | 1.593 | 135 |
| | | female | 4.55 | 1.666 | 85 |
| | | Total | 4.59 | 1.618 | 220 |
| | cream or light yellow | male | 3.96 | 1.878 | 135 |
| | | **female** | **4.01** | 1.687 | 85 |
| | | Total | 3.98 | 1.803 | 220 |
| | orange | **male** | **4.74** | 1.425 | 135 |
| | | female | 4.52 | 1.784 | 85 |
| | | Total | 4.65 | 1.573 | 220 |
| | yellow | **male** | **3.90** | 1.723 | 135 |
| | | female | 3.85 | 1.715 | 85 |
| | | Total | 3.88 | 1.716 | 220 |
| Fits well (a1) | maroon or red | male | 4.72 | 1.752 | 135 |
| | | **female** | **4.80** | 1.703 | 85 |
| | | Total | 4.75 | 1.730 | 220 |
| | cream or light yellow | male | 3.66 | 1.775 | 135 |
| | | **female** | **4.01** | 1.855 | 85 |
| | | Total | 3.80 | 1.810 | 220 |
| | orange | male | 4.50 | 1.506 | 135 |
| | | **female** | **4.71** | 1.798 | 85 |
| | | Total | 4.58 | 1.624 | 220 |
| | yellow | male | 3.54 | 1.714 | 135 |
| | | **female** | **3.67** | 1.686 | 85 |
| | | Total | 3.59 | 1.700 | 220 |
| Compatible (a2) | maroon or red | **male** | **4.83** | 1.678 | 135 |
| | | female | 4.73 | 1.672 | 85 |
| | | Total | 4.79 | 1.672 | 220 |
| | cream or light yellow | male | 3.70 | 1.745 | 135 |
| | | **female** | **4.05** | 1.838 | 85 |
| | | Total | 3.84 | 1.785 | 220 |
| | orange | male | 4.67 | 1.490 | 135 |
| | | **female** | **4.79** | 1.793 | 85 |
| | | Total | 4.72 | 1.611 | 220 |
| | yellow | **male** | **3.79** | 1.617 | 135 |
| | | female | 3.65 | 1.616 | 85 |
| | | Total | 3.74 | 1.614 | 220 |
| Positive (a3) | maroon or red | **male** | **4.84** | 1.711 | 135 |
| | | female | 4.81 | 1.680 | 85 |

| | Colour | Gender | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | Total | 4.83 | 1.695 | 220 |
| | cream or light yellow | male | 3.73 | 1.806 | 135 |
| | | **female** | **3.91** | 1.804 | 85 |
| | | Total | 3.80 | 1.803 | 220 |
| | orange | male | 4.64 | 1.610 | 135 |
| | | **female** | **4.66** | 1.887 | 85 |
| | | Total | 4.65 | 1.718 | 220 |
| | yellow | male | 3.69 | 1.834 | 135 |
| | | **female** | **3.80** | 1.778 | 85 |
| | | Total | 3.73 | 1.810 | 220 |
| Palatable (a4) | maroon or red | male | 4.46 | 1.799 | 135 |
| | | **female** | **4.59** | 1.801 | 85 |
| | | Total | 4.51 | 1.797 | 220 |
| | cream or light yellow | male | 3.44 | 1.802 | 135 |
| | | **female** | **3.81** | 1.918 | 85 |
| | | Total | 3.59 | 1.852 | 220 |
| | orange | male | 4.45 | 1.619 | 135 |
| | | **female** | **4.46** | 1.868 | 85 |
| | | Total | 4.45 | 1.716 | 220 |
| | yellow | **male** | **3.71** | 1.799 | 135 |
| | | female | 3.61 | 1.890 | 85 |
| | | Total | 3.67 | 1.831 | 220 |
| Highly prefer (a5) | maroon or red | **male** | **5.00** | 1.804 | 135 |
| | | female | 4.88 | 1.707 | 85 |
| | | Total | 4.95 | 1.764 | 220 |
| | cream or light yellow | male | 3.60 | 1.771 | 135 |
| | | **female** | **3.82** | 1.935 | 85 |
| | | Total | 3.69 | 1.835 | 220 |
| | orange | **male** | **4.89** | 1.596 | 135 |
| | | female | 4.72 | 1.823 | 85 |
| | | Total | 4.82 | 1.685 | 220 |
| | yellow | **male** | **3.67** | 1.881 | 135 |
| | | female | 3.59 | 1.860 | 85 |
| | | Total | 3.64 | 1.869 | 220 |

The results show us that the colours maroon and orange, most popular colours for Bogra Doi package, received varying contributions from male and female participants. Maroon was supported mostly by male respondents, whereas, cream and yellow were supported by both genders to varying degrees.

Table 5.33 reveals that in total, the highest contribution to the items was almost equally divided between males and females despite the number of males respondents (135) being much greater than the number of female respondents (85). This means that no gender acted as the stronger contributor and both genders must be regarded as influencing the results equally.

**Table 5.33: Descriptive Statistics Gender and Responses to Colour of Bogra Doi Package (Total)**

| | Gender | Mean |
|---|---|---|
| c1 (preference) | **male** | **4.59** |
| | female | 4.52 |
| c2 (likeability) | **male** | **4.44** |
| | female | 4.36 |
| pq1 (quality) | male | 4.63 |
| | **female** | **4.66** |
| pq2 (safety) | **male** | **4.61** |

| | Gender | Mean |
|---|---|---|
| | **female** | **4.61** |
| pq3 (appearance) | **male** | **4.57** |
| | female | 4.55 |
| pq4 (value) | **male** | **4.58** |
| | female | 4.57 |
| pi1 (likely of buying) | male | 4.42 |
| | **female** | **4.45** |
| pi2 (definitely of buying) | male | 4.50 |
| | **female** | **4.52** |
| pi3 (consider of buying) | **male** | **4.63** |
| | female | 4.59 |
| wom1 (frequent of speaking) | male | 4.11 |
| | **female** | **4.19** |
| wom2 (recommend) | male | 4.18 |
| | **female** | **4.21** |
| wom4 (encourage) | **male** | **4.31** |
| | female | 4.23 |
| a1 (fits well) | male | 4.10 |
| | **female** | **4.30** |
| a2 compatible) | male | 4.25 |
| | **female** | **4.30** |
| a3 (positive) | male | 4.22 |
| | **female** | **4.29** |
| a4 (palatable) | male | 4.02 |
| | **female** | **4.12** |
| a5 (highly prefer) | **male** | **4.29** |
| | female | 4.25 |

Table 5.34 presents the findings of calculations using the percentage difference formula. The results reveal that there were no differences in terms gender and responses about the colour of the Bogra Doi package except for one item a4 (how palatable the package) with 10.2% difference. Consistent with the findings in Bakpia study, this means that gender had no influence on colour responses about the Bogra Doi package.

**Table 5.34: Percentage of Differences of Gender Responses toward Colours of Bogra Doi Package**

| | Maroon | | % of | Cream | | % of | Orange | | % of | Yellow | | % of |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | F | differences | M | F | differences | M | F | differences | M | F | differences |
| c1 | 5.15 | 4.96 | 3.8 | 3.94 | 3.99 | 1.3 | 5.05 | 5.07 | 0.4 | 4.23 | 4.05 | 4.3 |
| c2 | 5.08 | 4.74 | 6.9 | 3.73 | 3.94 | 5.5 | 4.99 | 4.93 | 1.2 | 3.96 | 3.81 | 3.9 |
| pq1 | 5.07 | 5.04 | 0.6 | 4.01 | 4.27 | 6.3 | 5.13 | 5.06 | 1.4 | 4.30 | 4.29 | 0.2 |
| pq2 | 4.90 | 4.76 | 2.9 | 4.13 | 4.25 | 2.9 | 4.96 | 5.04 | 1.6 | 4.44 | 4.39 | 1.1 |
| pq3 | 5.16 | 4.89 | 5.4 | 3.99 | 4.16 | 4.2 | 5.07 | 5.06 | 0.2 | 4.07 | 4.08 | 0.2 |
| pq4 | 5.07 | 4.93 | 2.8 | 4.00 | 4.32 | 7.7 | 4.96 | 4.82 | 2.9 | 4.30 | 4.21 | 2.1 |
| pi1 | 4.82 | 4.71 | 2.3 | 3.90 | 4.00 | 2.5 | 4.81 | 4.81 | 0 | 4.16 | 4.27 | 2.6 |
| pi2 | 5.08 | 4.67 | 8.4 | 3.93 | 4.19 | 6.4 | 4.87 | 4.96 | 1.8 | 4.10 | 4.26 | 3.8 |
| pi3 | 5.06 | 4.81 | 5.1 | 4.15 | 4.29 | 3.3 | 5.09 | 4.96 | 2.6 | 4.23 | 4.27 | 0.9 |
| wom1 | 4.50 | 4.46 | 0.9 | 3.67 | 3.82 | 4.0 | 4.54 | 4.56 | 0.4 | 3.75 | 3.91 | 4.2 |
| wom2 | 4.66 | 4.44 | 4.8 | 3.62 | 3.94 | 8.5 | 4.64 | 4.58 | 1.3 | 3.79 | 3.89 | 2.6 |
| wom4 | 4.61 | 4.55 | 1.3 | 3.96 | 4.01 | 1.3 | 4.74 | 4.52 | 4.8 | 3.90 | 3.85 | 1.3 |
| a1 | 4.72 | 4.80 | 1.7 | 3.66 | 4.01 | 9.1 | 4.50 | 4.71 | 4.6 | 3.54 | 3.67 | 3.6 |
| a2 | 4.83 | 4.73 | 2.1 | 3.70 | 4.05 | 9.0 | 4.67 | 4.79 | 2.5 | 3.79 | 3.65 | 3.8 |
| a3 | 4.84 | 4.81 | 0.6 | 3.73 | 3.91 | 4.7 | 4.64 | 4.66 | 0.4 | 3.69 | 3.80 | 2.9 |
| a4 | 4.46 | 4.59 | 2.9 | 3.44 | 3.81 | **10.2** | 4.45 | 4.46 | 0.2 | 3.71 | 3.61 | 2.7 |
| a5 | 5.00 | 4.88 | 2.4 | 3.60 | 3.82 | 5.9 | 4.89 | 4.72 | 3.5 | 3.67 | 3.59 | 2.2 |

No differences of gender responses toward colour of package if % of differences less than 10%

Table 5.34 shows that there were no differences between male and female responses toward colours of Bogra Doi packages.

#### 5.7.1.4 Descriptive Statistics of Colour and Age Responses

The statistical results of the other demographic item, age of respondent and response about the colour of the Bogra Doi package are presented in Table 5.35.

**Table 5.35: Descriptive Statistics Age and Responses to Colour of Bogra Doi Package**

| | Colour | Age | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| preference (c1) | maroon or red | 18-24 | 5.02 | 1.635 | 108 |
| | | 25-30 | 4.82 | 1.628 | 45 |
| | | 31-35 | 5.38 | 1.895 | 13 |
| | | 36-40 | 5.05 | 1.356 | 20 |
| | | **41-45** | **5.64** | 1.447 | 14 |
| | | 46-50 | 5.33 | 1.231 | 12 |
| | | over 50 | 5.50 | .756 | 8 |
| | cream or light yellow | **18-24** | **4.31** | 1.780 | 108 |
| | | 25-30 | 4.09 | 1.276 | 45 |
| | | 31-35 | 3.38 | 1.660 | 13 |
| | | 36-40 | 3.30 | 1.949 | 20 |
| | | 41-45 | 3.29 | 1.729 | 14 |
| | | 46-50 | 3.67 | 1.923 | 12 |
| | | over 50 | 2.75 | .707 | 8 |
| | orange | 18-24 | 4.92 | 1.647 | 108 |
| | | 25-30 | 4.71 | 1.487 | 45 |
| | | 31-35 | 4.92 | 1.320 | 13 |
| | | 36-40 | 5.30 | 1.593 | 20 |
| | | 41-45 | 5.57 | .852 | 14 |
| | | 46-50 | 6.08 | .900 | 12 |
| | | **over 50** | **6.13** | .991 | 8 |
| | yellow | 18-24 | 4.16 | 1.714 | 108 |
| | | 25-30 | 3.93 | 1.724 | 45 |
| | | 31-35 | 4.15 | 1.281 | 13 |
| | | 36-40 | 4.40 | 1.536 | 20 |
| | | **41-45** | **4.57** | 1.342 | 14 |
| | | 46-50 | 4.17 | 1.586 | 12 |
| | | over 50 | 4.13 | 1.458 | 8 |
| likeability (c2) | maroon or red | 18-24 | 4.95 | 1.608 | 108 |
| | | 25-30 | 4.60 | 1.601 | 45 |
| | | 31-35 | 5.23 | 1.641 | 13 |
| | | 36-40 | 4.95 | 1.468 | 20 |
| | | 41-45 | 5.36 | 1.336 | 14 |
| | | 46-50 | 5.08 | 1.379 | 12 |
| | | **over 50** | **5.50** | .756 | 8 |
| | cream or light yellow | **18-24** | **4.00** | 1.691 | 108 |
| | | 25-30 | 3.98 | 1.252 | 45 |
| | | 31-35 | 3.77 | 1.787 | 13 |
| | | 36-40 | 3.15 | 1.814 | 20 |
| | | 41-45 | 3.50 | 1.557 | 14 |
| | | 46-50 | 3.58 | 1.564 | 12 |
| | | over 50 | 2.88 | .835 | 8 |
| | orange | 18-24 | 4.78 | 1.654 | 108 |
| | | 25-30 | 4.67 | 1.446 | 45 |
| | | 31-35 | 5.00 | 1.528 | 13 |
| | | 36-40 | 4.95 | 1.504 | 20 |
| | | 41-45 | 5.71 | .726 | 14 |
| | | 46-50 | 6.00 | 1.206 | 12 |
| | | **over 50** | **6.25** | .886 | 8 |
| | yellow | 18-24 | 3.86 | 1.688 | 108 |
| | | 25-30 | 3.69 | 1.690 | 45 |
| | | **31-35** | **4.38** | 1.895 | 13 |
| | | 36-40 | 4.25 | 1.372 | 20 |
| | | 41-45 | 4.14 | 1.351 | 14 |
| | | 46-50 | 3.67 | 1.670 | 12 |
| | | over 50 | 3.88 | 1.126 | 8 |
| quality (pq1) | maroon or red | **18-24** | **5.23** | 1.444 | 108 |
| | | 25-30 | 4.64 | 1.626 | 45 |
| | | 31-35 | 5.08 | 1.706 | 13 |
| | | 36-40 | 5.15 | 1.565 | 20 |
| | | 41-45 | 5.00 | 1.177 | 14 |
| | | 46-50 | 5.08 | 1.311 | 12 |
| | | over 50 | 4.88 | .835 | 8 |
| | cream or light yellow | 18-24 | 4.33 | 1.793 | 108 |
| | | 25-30 | 3.91 | 1.474 | 45 |
| | | 31-35 | 3.92 | 1.605 | 13 |
| | | 36-40 | 3.65 | 1.725 | 20 |
| | | 41-45 | 4.00 | 1.519 | 14 |
| | | **46-50** | **4.75** | 1.712 | 12 |
| | | over 50 | 2.88 | .641 | 8 |
| | orange | 18-24 | 5.00 | 1.541 | 108 |
| | | 25-30 | 4.62 | 1.419 | 45 |
| | | 31-35 | 5.31 | 1.316 | 13 |
| | | 36-40 | 5.30 | 1.525 | 20 |

| | Colour | Age | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | 41-45 | 5.71 | .825 | 14 |
| | | 46-50 | 5.92 | 1.165 | 12 |
| | | **over 50** | **6.13** | .641 | 8 |
| | yellow | 18-24 | 4.31 | 1.649 | 108 |
| | | 25-30 | 3.80 | 1.660 | 45 |
| | | 31-35 | 4.46 | 1.450 | 13 |
| | | 36-40 | 4.30 | 1.658 | 20 |
| | | 41-45 | 4.86 | 1.231 | 14 |
| | | **46-50** | **5.17** | 1.642 | 12 |
| | | over 50 | 4.38 | 1.685 | 8 |
| safety (pq2) | maroon or red | 18-24 | 4.88 | 1.551 | 108 |
| | | 25-30 | 4.62 | 1.642 | 45 |
| | | 31-35 | 4.92 | 1.847 | 13 |
| | | 36-40 | 4.95 | 1.234 | 20 |
| | | 41-45 | 4.79 | 1.311 | 14 |
| | | **46-50** | **5.33** | .985 | 12 |
| | | over 50 | 4.63 | .518 | 8 |
| | cream or light yellow | 18-24 | 4.31 | 1.573 | 108 |
| | | 25-30 | 4.13 | 1.375 | 45 |
| | | **31-35** | **4.54** | 1.330 | 13 |
| | | 36-40 | 3.60 | 1.875 | 20 |
| | | 41-45 | 4.29 | 1.684 | 14 |
| | | 46-50 | 4.33 | 1.670 | 12 |
| | | over 50 | 3.13 | 1.727 | 8 |
| | orange | 18-24 | 4.86 | 1.430 | 108 |
| | | 25-30 | 4.58 | 1.323 | 45 |
| | | 31-35 | 5.31 | 1.437 | 13 |
| | | 36-40 | 5.20 | 1.542 | 20 |
| | | 41-45 | 5.64 | 1.008 | 14 |
| | | **46-50** | **5.75** | 1.055 | 12 |
| | | **over 50** | **5.75** | 1.035 | 8 |
| | yellow | 18-24 | 4.43 | 1.596 | 108 |
| | | 25-30 | 4.16 | 1.758 | 45 |
| | | 31-35 | 4.62 | 1.325 | 13 |
| | | 36-40 | 4.35 | 1.496 | 20 |
| | | **41-45** | **4.86** | 1.406 | 14 |
| | | 46-50 | 4.75 | 1.545 | 12 |
| | | over 50 | 4.38 | .916 | 8 |
| appearance (pq3) | maroon or red | 18-24 | 5.19 | 1.536 | 108 |
| | | 25-30 | 4.51 | 1.727 | 45 |
| | | 31-35 | 5.15 | 1.345 | 13 |
| | | 36-40 | 5.00 | 1.487 | 20 |
| | | **41-45** | **5.50** | 1.506 | 14 |
| | | 46-50 | 5.17 | 1.267 | 12 |
| | | **over 50** | **5.50** | .756 | 8 |
| | cream or light yellow | **18-24** | **4.27** | 1.727 | 108 |
| | | 25-30 | 4.13 | 1.618 | 45 |
| | | 31-35 | 3.62 | 1.805 | 13 |
| | | 36-40 | 3.70 | 1.658 | 20 |
| | | 41-45 | 3.79 | 1.424 | 14 |
| | | 46-50 | 4.17 | 1.337 | 12 |
| | | over 50 | 2.75 | 1.282 | 8 |
| | orange | 18-24 | 4.80 | 1.599 | 108 |
| | | 25-30 | 4.62 | 1.370 | 45 |
| | | 31-35 | 5.77 | 1.423 | 13 |
| | | 36-40 | 5.55 | 1.538 | 20 |
| | | 41-45 | 5.93 | .475 | 14 |
| | | **46-50** | **6.08** | .996 | 12 |
| | | over 50 | 5.75 | .707 | 8 |
| | yellow | 18-24 | 4.06 | 1.670 | 108 |
| | | 25-30 | 3.91 | 1.607 | 45 |
| | | **31-35** | **4.38** | 1.387 | 13 |
| | | 36-40 | 4.20 | 1.881 | 20 |
| | | 41-45 | 4.00 | 1.569 | 14 |
| | | 46-50 | 4.25 | 2.006 | 12 |
| | | over 50 | 4.25 | 1.035 | 8 |
| value (pq4) | maroon or red | 18-24 | 5.11 | 1.403 | 108 |
| | | 25-30 | 4.56 | 1.765 | 45 |
| | | 31-35 | 5.15 | 1.573 | 13 |
| | | 36-40 | 5.15 | 1.424 | 20 |
| | | **41-45** | **5.29** | .994 | 14 |
| | | 46-50 | 5.00 | 1.414 | 12 |
| | | over 50 | 5.25 | .707 | 8 |
| | cream or light yellow | 18-24 | 4.32 | 1.570 | 108 |
| | | 25-30 | 4.11 | 1.434 | 45 |
| | | 31-35 | 3.85 | 1.463 | 13 |
| | | 36-40 | 3.80 | 1.824 | 20 |
| | | 41-45 | 3.43 | 1.453 | 14 |
| | | **46-50** | **4.33** | 1.371 | 12 |
| | | over 50 | 3.63 | .916 | 8 |
| | orange | 18-24 | 4.71 | 1.454 | 108 |
| | | 25-30 | 4.69 | 1.294 | 45 |
| | | 31-35 | 5.08 | 1.498 | 13 |
| | | 36-40 | 5.25 | 1.446 | 20 |
| | | 41-45 | 5.71 | 1.069 | 14 |
| | | 46-50 | 5.17 | 1.586 | 12 |
| | | **over 50** | **5.75** | .463 | 8 |
| | yellow | 18-24 | 4.23 | 1.526 | 108 |
| | | 25-30 | 4.04 | 1.623 | 45 |
| | | **31-35** | **4.62** | 1.502 | 13 |
| | | 36-40 | 4.35 | 1.725 | 20 |
| | | 41-45 | 4.57 | 1.453 | 14 |
| | | 46-50 | 4.33 | 1.155 | 12 |
| | | over 50 | 4.50 | .926 | 8 |
| likely of buying (pi1) | maroon or red | 18-24 | 4.73 | 1.538 | 108 |
| | | 25-30 | 4.44 | 1.739 | 45 |
| | | 31-35 | 5.00 | 1.354 | 13 |
| | | 36-40 | 4.70 | 1.625 | 20 |

| | Colour | Age | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | 41-45 | 5.29 | 1.684 | 14 |
| | | 46-50 | 5.17 | 1.749 | 12 |
| | | **over 50** | **5.63** | .518 | 8 |
| | cream or light yellow | 18-24 | 3.98 | 1.824 | 108 |
| | | 25-30 | 4.13 | 1.325 | 45 |
| | | 31-35 | 3.77 | 1.235 | 13 |
| | | 36-40 | 3.35 | 1.663 | 20 |
| | | 41-45 | 4.00 | 1.468 | 14 |
| | | **46-50** | **4.42** | 1.782 | 12 |
| | | over 50 | 3.25 | .886 | 8 |
| | orange | 18-24 | 4.59 | 1.719 | 108 |
| | | 25-30 | 4.31 | 1.362 | 45 |
| | | 31-35 | 5.31 | 1.316 | 13 |
| | | 36-40 | 4.95 | 1.605 | 20 |
| | | 41-45 | 5.79 | .893 | 14 |
| | | 46-50 | 5.92 | .996 | 12 |
| | | **over 50** | **6.13** | .835 | 8 |
| | yellow | 18-24 | 4.17 | 1.780 | 108 |
| | | 25-30 | 4.00 | 1.679 | 45 |
| | | **31-35** | **4.62** | 1.502 | 13 |
| | | 36-40 | 4.40 | 1.847 | 20 |
| | | 41-45 | 4.50 | 1.605 | 14 |
| | | 46-50 | 4.25 | 1.815 | 12 |
| | | over 50 | 4.00 | .756 | 8 |
| definitely of buying (pi2) | maroon or red | 18-24 | 4.81 | 1.613 | 108 |
| | | 25-30 | 4.69 | 1.474 | 45 |
| | | 31-35 | 5.38 | 1.193 | 13 |
| | | 36-40 | 4.85 | 1.843 | 20 |
| | | 41-45 | 5.29 | 1.437 | 14 |
| | | 46-50 | 5.25 | 1.422 | 12 |
| | | **over 50** | **6.00** | .000 | 8 |
| | cream or light yellow | **18-24** | **4.21** | 1.713 | 108 |
| | | 25-30 | 4.04 | 1.413 | 45 |
| | | 31-35 | 3.92 | 1.320 | 13 |
| | | 36-40 | 3.40 | 1.957 | 20 |
| | | **41-45** | **4.21** | 1.626 | 14 |
| | | 46-50 | 3.83 | 1.642 | 12 |
| | | over 50 | 3.25 | .707 | 8 |
| | orange | 18-24 | 4.77 | 1.655 | 108 |
| | | 25-30 | 4.53 | 1.036 | 45 |
| | | 31-35 | 5.08 | 1.382 | 13 |
| | | 36-40 | 4.90 | 1.483 | 20 |
| | | 41-45 | 5.64 | 1.082 | 14 |
| | | 46-50 | 5.83 | 1.115 | 12 |
| | | **over 50** | **5.88** | .835 | 8 |
| | yellow | 18-24 | 4.10 | 1.669 | 108 |
| | | 25-30 | 3.89 | 1.555 | 45 |
| | | **31-35** | **4.85** | 1.405 | 13 |
| | | 36-40 | 4.35 | 1.694 | 20 |
| | | 41-45 | 4.50 | 1.653 | 14 |
| | | 46-50 | 4.42 | 1.676 | 12 |
| | | over 50 | 4.00 | 1.069 | 8 |
| consider of buying (pi3) | maroon or red | 18-24 | 4.85 | 1.582 | 108 |
| | | 25-30 | 4.64 | 1.734 | 45 |
| | | 31-35 | 5.54 | 1.391 | 13 |
| | | 36-40 | 4.95 | 1.395 | 20 |
| | | 41-45 | 5.43 | 1.697 | 14 |
| | | 46-50 | 5.42 | 1.564 | 12 |
| | | **over 50** | **5.88** | .641 | 8 |
| | cream or light yellow | **18-24** | **4.44** | 1.836 | 108 |
| | | 25-30 | 4.33 | 1.331 | 45 |
| | | 31-35 | 3.62 | 1.325 | 13 |
| | | 36-40 | 3.60 | 1.698 | 20 |
| | | 41-45 | 4.07 | 1.639 | 14 |
| | | 46-50 | 4.00 | 1.758 | 12 |
| | | over 50 | 3.25 | 1.035 | 8 |
| | orange | 18-24 | 4.86 | 1.769 | 108 |
| | | 25-30 | 4.53 | 1.290 | 45 |
| | | 31-35 | 5.23 | 1.092 | 13 |
| | | 36-40 | 5.35 | 1.496 | 20 |
| | | 41-45 | 5.86 | .663 | 14 |
| | | **46-50** | **6.17** | .937 | 12 |
| | | over 50 | 6.13 | .835 | 8 |
| | yellow | 18-24 | 4.24 | 1.690 | 108 |
| | | 25-30 | 3.93 | 1.657 | 45 |
| | | **31-35** | **4.69** | 1.251 | 13 |
| | | 36-40 | 4.50 | 1.638 | 20 |
| | | 41-45 | 4.57 | 1.505 | 14 |
| | | 46-50 | 4.50 | 1.567 | 12 |
| | | over 50 | 3.75 | .886 | 8 |
| frequent of speaking (wom1) | maroon or red | 18-24 | 4.57 | 1.676 | 108 |
| | | 25-30 | 4.22 | 1.717 | 45 |
| | | 31-35 | 4.69 | 1.437 | 13 |
| | | 36-40 | 4.25 | 1.713 | 20 |
| | | 41-45 | 4.71 | 1.326 | 14 |
| | | 46-50 | 4.42 | 1.084 | 12 |
| | | **over 50** | **4.75** | 1.035 | 8 |
| | cream or light yellow | 18-24 | 3.94 | 1.771 | 108 |
| | | 25-30 | 3.69 | 1.459 | 45 |
| | | 31-35 | 3.54 | 1.391 | 13 |
| | | 36-40 | 3.55 | 1.761 | 20 |
| | | 41-45 | 3.07 | 1.385 | 14 |
| | | **46-50** | **4.00** | 1.477 | 12 |
| | | over 50 | 2.50 | 1.195 | 8 |
| | orange | 18-24 | 4.45 | 1.721 | 108 |
| | | 25-30 | 4.31 | 1.203 | 45 |
| | | 31-35 | 4.54 | 1.198 | 13 |
| | | 36-40 | 4.55 | 1.538 | 20 |

| | Colour | Age | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | 41-45 | 5.00 | 1.038 | 14 |
| | | **46-50** | **5.33** | 1.073 | 12 |
| | | over 50 | 5.25 | 1.165 | 8 |
| | yellow | 18-24 | 3.80 | 1.750 | 108 |
| | | 25-30 | 3.80 | 1.632 | 45 |
| | | **31-35** | **4.00** | 1.472 | 13 |
| | | **36-40** | **4.00** | 1.717 | 20 |
| | | 41-45 | 3.50 | 1.019 | 14 |
| | | **46-50** | **4.00** | 1.595 | 12 |
| | | over 50 | 3.50 | 1.195 | 8 |
| recommend (wom2) | maroon or red | 18-24 | 4.58 | 1.681 | 108 |
| | | 25-30 | 4.22 | 1.608 | 45 |
| | | 31-35 | 5.00 | 1.472 | 13 |
| | | 36-40 | 4.55 | 1.669 | 20 |
| | | 41-45 | 5.00 | 1.569 | 14 |
| | | 46-50 | 4.50 | 1.446 | 12 |
| | | **over 50** | **5.13** | 1.246 | 8 |
| | cream or light yellow | **18-24** | **4.03** | 1.826 | 108 |
| | | 25-30 | 3.91 | 1.395 | 45 |
| | | 31-35 | 3.54 | 1.330 | 13 |
| | | 36-40 | 3.05 | 1.761 | 20 |
| | | 41-45 | 3.21 | 1.718 | 14 |
| | | 46-50 | 3.75 | 2.094 | 12 |
| | | over 50 | 2.00 | .926 | 8 |
| | orange | 18-24 | 4.46 | 1.710 | 108 |
| | | 25-30 | 4.33 | 1.398 | 45 |
| | | 31-35 | 4.77 | 1.833 | 13 |
| | | 36-40 | 4.75 | 1.650 | 20 |
| | | 41-45 | 5.07 | 1.072 | 14 |
| | | **46-50** | **5.58** | 1.311 | 12 |
| | | over 50 | 5.38 | 1.408 | 8 |
| | yellow | 18-24 | 3.92 | 1.825 | 108 |
| | | 25-30 | 3.56 | 1.617 | 45 |
| | | **31-35** | **4.23** | 1.691 | 13 |
| | | 36-40 | 4.10 | 1.683 | 20 |
| | | 41-45 | 3.57 | 1.342 | 14 |
| | | 46-50 | 4.17 | 1.697 | 12 |
| | | over 50 | 2.88 | 1.126 | 8 |
| encourage (wom4) | maroon or red | 18-24 | 4.63 | 1.694 | 108 |
| | | 25-30 | 4.20 | 1.502 | 45 |
| | | 31-35 | 4.69 | 1.750 | 13 |
| | | 36-40 | 4.70 | 1.750 | 20 |
| | | 41-45 | 4.93 | 1.385 | 14 |
| | | 46-50 | 4.75 | 1.545 | 12 |
| | | **over 50** | **5.00** | 1.195 | 8 |
| | cream or light yellow | **18-24** | **4.31** | 1.857 | 108 |
| | | 25-30 | 3.98 | 1.515 | 45 |
| | | 31-35 | 3.62 | 1.710 | 13 |
| | | 36-40 | 3.55 | 1.932 | 20 |
| | | 41-45 | 3.57 | 1.828 | 14 |
| | | 46-50 | 3.83 | 1.899 | 12 |
| | | over 50 | 2.25 | 1.165 | 8 |
| | orange | 18-24 | 4.56 | 1.742 | 108 |
| | | 25-30 | 4.40 | 1.304 | 45 |
| | | 31-35 | 4.92 | 1.553 | 13 |
| | | 36-40 | 4.70 | 1.593 | 20 |
| | | 41-45 | 5.07 | 1.269 | 14 |
| | | **46-50** | **5.25** | 1.357 | 12 |
| | | **over 50** | **5.25** | 1.165 | 8 |
| | yellow | 18-24 | 3.90 | 1.844 | 108 |
| | | 25-30 | 3.78 | 1.550 | 45 |
| | | 31-35 | 3.77 | 1.423 | 13 |
| | | **36-40** | **4.35** | 1.663 | 20 |
| | | 41-45 | 3.71 | 1.816 | 14 |
| | | 46-50 | 4.17 | 1.899 | 12 |
| | | over 50 | 3.13 | .835 | 8 |
| fits well (a1) | maroon or red | 18-24 | 4.80 | 1.717 | 108 |
| | | 25-30 | 4.31 | 1.929 | 45 |
| | | 31-35 | 5.31 | 1.437 | 13 |
| | | 36-40 | 4.40 | 1.818 | 20 |
| | | 41-45 | 5.14 | 1.351 | 14 |
| | | 46-50 | 5.00 | 1.706 | 12 |
| | | **over 50** | **5.50** | 1.195 | 8 |
| | cream or light yellow | 18-24 | 4.04 | 1.938 | 108 |
| | | 25-30 | 3.76 | 1.667 | 45 |
| | | 31-35 | 3.46 | 1.664 | 13 |
| | | 36-40 | 3.10 | 1.861 | 20 |
| | | 41-45 | 3.64 | 1.550 | 14 |
| | | **46-50** | **4.25** | 1.485 | 12 |
| | | over 50 | 2.63 | 1.061 | 8 |
| | orange | 18-24 | 4.47 | 1.732 | 108 |
| | | 25-30 | 4.11 | 1.584 | 45 |
| | | 31-35 | 5.15 | 1.519 | 13 |
| | | 36-40 | 4.45 | 1.605 | 20 |
| | | **41-45** | **5.50** | 1.160 | 14 |
| | | 46-50 | 5.33 | .888 | 12 |
| | | over 50 | 5.25 | .886 | 8 |
| | yellow | 18-24 | 3.45 | 1.846 | 108 |
| | | 25-30 | 3.53 | 1.618 | 45 |
| | | 31-35 | 3.92 | 1.441 | 13 |
| | | 36-40 | 3.75 | 1.743 | 20 |
| | | 41-45 | 3.36 | 1.151 | 14 |
| | | **46-50** | **4.50** | 1.243 | 12 |
| | | over 50 | 3.88 | 1.727 | 8 |
| compatible (a2) | maroon or red | 18-24 | 4.80 | 1.733 | 108 |
| | | 25-30 | 4.24 | 1.667 | 45 |
| | | 31-35 | 5.54 | 1.266 | 13 |
| | | 36-40 | 4.70 | 1.750 | 20 |

| | Colour | Age | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | 41-45 | 5.14 | 1.406 | 14 |
| | | 46-50 | 5.17 | 1.697 | 12 |
| | | **over 50** | **5.63** | .744 | 8 |
| | cream or light yellow | **18-24** | **4.07** | 1.980 | 108 |
| | | 25-30 | 3.62 | 1.614 | 45 |
| | | 31-35 | 3.62 | 1.325 | 13 |
| | | 36-40 | 3.35 | 1.814 | 20 |
| | | 41-45 | 3.86 | 1.351 | 14 |
| | | 46-50 | 3.83 | 1.749 | 12 |
| | | over 50 | 3.38 | 1.061 | 8 |
| | orange | 18-24 | 4.60 | 1.729 | 108 |
| | | 25-30 | 4.40 | 1.601 | 45 |
| | | 31-35 | 5.00 | 1.683 | 13 |
| | | 36-40 | 4.65 | 1.496 | 20 |
| | | 41-45 | 5.29 | 1.267 | 14 |
| | | **46-50** | **5.67** | .778 | 12 |
| | | over 50 | 5.38 | .916 | 8 |
| | yellow | 18-24 | 3.59 | 1.788 | 108 |
| | | 25-30 | 3.71 | 1.456 | 45 |
| | | 31-35 | 3.85 | 1.573 | 13 |
| | | 36-40 | 3.90 | 1.553 | 20 |
| | | 41-45 | 3.93 | 1.072 | 14 |
| | | **46-50** | **4.33** | 1.303 | 12 |
| | | over 50 | 4.00 | 1.604 | 8 |
| positive (a3) | maroon or red | 18-24 | 4.81 | 1.743 | 108 |
| | | 25-30 | 4.42 | 1.764 | 45 |
| | | 31-35 | 5.08 | 1.847 | 13 |
| | | 36-40 | 5.10 | 1.586 | 20 |
| | | 41-45 | 5.36 | 1.151 | 14 |
| | | 46-50 | 4.75 | 1.712 | 12 |
| | | **over 50** | **5.50** | 1.309 | 8 |
| | cream or light yellow | 18-24 | 3.97 | 1.897 | 108 |
| | | 25-30 | 3.93 | 1.737 | 45 |
| | | 31-35 | 3.46 | 1.613 | 13 |
| | | 36-40 | 3.45 | 1.791 | 20 |
| | | 41-45 | 3.43 | 1.742 | 14 |
| | | **46-50** | **4.00** | 1.706 | 12 |
| | | over 50 | 2.38 | .744 | 8 |
| | orange | 18-24 | 4.40 | 1.824 | 108 |
| | | 25-30 | 4.53 | 1.517 | 45 |
| | | 31-35 | 4.69 | 1.974 | 13 |
| | | 36-40 | 4.95 | 1.877 | 20 |
| | | 41-45 | 4.93 | 1.072 | 14 |
| | | **46-50** | **5.83** | 1.467 | 12 |
| | | over 50 | 5.50 | .756 | 8 |
| | yellow | 18-24 | 3.66 | 1.915 | 108 |
| | | 25-30 | 4.07 | 1.657 | 45 |
| | | **31-35** | **4.08** | 1.320 | 13 |
| | | 36-40 | 3.45 | 1.791 | 20 |
| | | 41-45 | 3.43 | 1.697 | 14 |
| | | 46-50 | 3.92 | 2.065 | 12 |
| | | over 50 | 3.25 | 1.909 | 8 |
| palatable (a4) | maroon or red | 18-24 | 4.69 | 1.817 | 108 |
| | | 25-30 | 4.02 | 1.936 | 45 |
| | | **31-35** | **5.31** | 1.548 | 13 |
| | | 36-40 | 4.40 | 1.875 | 20 |
| | | 41-45 | 4.21 | 1.528 | 14 |
| | | 46-50 | 4.33 | 1.775 | 12 |
| | | over 50 | 4.63 | .744 | 8 |
| | cream or light yellow | **18-24** | **3.83** | 1.988 | 108 |
| | | 25-30 | 3.44 | 1.700 | 45 |
| | | 31-35 | 3.31 | 1.843 | 13 |
| | | 36-40 | 3.30 | 1.720 | 20 |
| | | 41-45 | 3.71 | 1.541 | 14 |
| | | 46-50 | 3.58 | 1.929 | 12 |
| | | over 50 | 2.00 | .535 | 8 |
| | orange | 18-24 | 4.49 | 1.753 | 108 |
| | | 25-30 | 3.93 | 1.802 | 45 |
| | | 31-35 | 4.92 | 1.441 | 13 |
| | | 36-40 | 4.50 | 1.762 | 20 |
| | | 41-45 | 4.57 | 1.399 | 14 |
| | | **46-50** | **5.25** | 1.545 | 12 |
| | | over 50 | 4.63 | 1.408 | 8 |
| | yellow | 18-24 | 3.74 | 2.006 | 108 |
| | | 25-30 | 3.58 | 1.588 | 45 |
| | | **31-35** | **4.08** | 1.847 | 13 |
| | | 36-40 | 3.65 | 1.496 | 20 |
| | | 41-45 | 3.36 | 1.499 | 14 |
| | | 46-50 | 3.92 | 2.021 | 12 |
| | | over 50 | 2.88 | 1.885 | 8 |
| highly prefer (a5) | maroon or red | 18-24 | 4.93 | 1.833 | 108 |
| | | 25-30 | 4.53 | 2.018 | 45 |
| | | 31-35 | 5.15 | 1.463 | 13 |
| | | 36-40 | 5.15 | 1.565 | 20 |
| | | 41-45 | 5.36 | 1.277 | 14 |
| | | 46-50 | 5.25 | 1.422 | 12 |
| | | **over 50** | **5.75** | 1.165 | 8 |
| | cream or light yellow | **18-24** | **3.87** | 2.037 | 108 |
| | | 25-30 | 3.73 | 1.529 | 45 |
| | | 31-35 | 3.46 | 1.761 | 13 |
| | | 36-40 | 3.40 | 1.847 | 20 |
| | | 41-45 | 3.50 | 1.605 | 14 |
| | | 46-50 | 3.58 | 1.676 | 12 |
| | | over 50 | 2.50 | .926 | 8 |
| | orange | 18-24 | 4.52 | 1.837 | 108 |
| | | 25-30 | 4.60 | 1.483 | 45 |
| | | 31-35 | 5.31 | 1.601 | 13 |
| | | 36-40 | 5.10 | 1.774 | 20 |

| | Colour | Age | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| | | 41-45 | 5.57 | 1.016 | 14 |
| | | 46-50 | 5.50 | .905 | 12 |
| | | **over 50** | **6.38** | .518 | 8 |
| | yellow | 18-24 | 3.66 | 2.015 | 108 |
| | | 25-30 | 3.49 | 1.753 | 45 |
| | | 31-35 | 3.92 | 1.847 | 13 |
| | | 36-40 | 3.40 | 1.667 | 20 |
| | | 41-45 | 3.64 | 1.823 | 14 |
| | | **46-50** | **4.17** | 1.697 | 12 |
| | | over 50 | 3.50 | 1.690 | 8 |

By categorising 18-30 years old respondents as the young group, 31-45 years as middle-aged, and over 46 years as old, findings revealed that old respondents predominantly indicated the colours maroon and orange for the Bogra Doi package. However, some of the categories were dominated by other respondents: the middle-aged group dominated in the categories preference (c1) (mean value = 5.64), appearance (pq3) (mean value = 5.50), value (pq4) (mean value =5.29), palatable (a4) (mean value = 5.31) for colour maroon, and (a1) (mean value = 5.50) for colour orange. The young group of consumers dominated quality (pq1) (mean value = 5.23) for maroon. Two other colours (cream and yellow) were dominated variously by three different categories of consumers (young, middle-aged, and old). These findings are not consistent with the findings of the Bakpia examination that the middle-aged consumers monopolised most of the responses toward colour yellow as the most popular colour of the Bakpia package.

Table 5.36 provides all the means relating to age of respondents and the colour of Bogra Doi package.

## Table 5.36: Descriptive Statistics (Mean) Age and Responses to Colour of Bogra Doi Package (Total)

| | Colour | Age | Mean |
|---|---|---|---|
| c1 (preference) | Total | 18-24 | 4.60 |
| | | 25-30 | 4.39 |
| | | 31-35 | 4.46 |
| | | 36-40 | 4.51 |
| | | 41-45 | 4.77 |
| | | **46-50** | **4.81** |
| | | over 50 | 4.63 |
| c2 (likeability) | Total | 18-24 | 4.40 |
| | | 25-30 | 4.23 |
| | | 31-35 | 4.60 |
| | | 36-40 | 4.33 |
| | | **41-45** | **4.68** |
| | | 46-50 | 4.58 |
| | | over 50 | 4.62 |
| pq1 (quality) | Total | 18-24 | 4.72 |
| | | 25-30 | 4.24 |
| | | 31-35 | 4.69 |
| | | 36-40 | 4.60 |
| | | **41-45** | **4.89** |
| | | 46-50 | 5.23 |
| | | over 50 | 4.56 |
| pq2 (safety) | Total | 18-24 | 4.62 |
| | | 25-30 | 4.37 |
| | | 31-35 | 4.85 |
| | | 36-40 | 4.52 |
| | | **41-45** | **4.89** |
| | | 46-50 | 5.04 |
| | | over 50 | 4.47 |
| pq3 (appearance) | Total | 18-24 | 4.58 |
| | | 25-30 | 4.29 |
| | | 31-35 | 4.73 |
| | | 36-40 | 4.61 |
| | | 41-45 | 4.80 |
| | | **46-50** | **4.92** |
| | | over 50 | 4.56 |
| pq4 (value) | Total | 18-24 | 4.59 |
| | | 25-30 | 4.35 |
| | | 31-35 | 4.67 |
| | | 36-40 | 4.64 |
| | | 41-45 | 4.75 |
| | | 46-50 | 4.71 |
| | | **over 50** | **4.78** |
| pi1 (likely of buying) | Total | 18-24 | 4.37 |
| | | 25-30 | 4.22 |
| | | 31-35 | 4.67 |
| | | 36-40 | 4.35 |
| | | 41-45 | 4.89 |
| | | **46-50** | **4.94** |
| | | over 50 | 4.75 |
| pi2 (definitely of buying) | Total | 18-24 | 4.47 |
| | | 25-30 | 4.29 |
| | | 31-35 | 4.81 |
| | | 36-40 | 4.38 |
| | | **41-45** | **4.91** |
| | | 46-50 | 4.83 |
| | | over 50 | 4.78 |
| pi3 (consider of buying) | Total | 18-24 | 4.60 |
| | | 25-30 | 4.36 |
| | | 31-35 | 4.77 |
| | | 36-40 | 4.60 |
| | | 41-45 | 4.98 |
| | | **46-50** | **5.02** |
| | | over 50 | 4.75 |
| wom1 (frequent of speaking) | Total | 18-24 | 4.19 |
| | | 25-30 | 4.01 |
| | | 31-35 | 4.19 |
| | | 36-40 | 4.09 |
| | | 41-45 | 4.07 |
| | | **46-50** | **4.44** |
| | | over 50 | 4.00 |
| wom2 (recommend) | Total | 18-24 | 4.25 |
| | | 25-30 | 4.01 |
| | | 31-35 | 4.38 |
| | | 36-40 | 4.11 |
| | | 41-45 | 4.21 |
| | | **46-50** | **4.50** |
| | | over 50 | 3.84 |
| wom4 (encourage) | Total | 18-24 | 4.35 |
| | | 25-30 | 4.09 |
| | | 31-35 | 4.25 |
| | | 36-40 | 4.32 |
| | | 41-45 | 4.32 |
| | | **46-50** | **4.50** |
| | | over 50 | 3.91 |
| a1 (fits well) | Total | 18-24 | 4.19 |
| | | 25-30 | 3.93 |
| | | 31-35 | 4.46 |
| | | 36-40 | 3.93 |
| | | 41-45 | 4.41 |
| | | **46-50** | **4.77** |
| | | over 50 | 4.31 |

| | Colour | Age | Mean |
|---|---|---|---|
| a2 (compatible) | Total | 18-24 | 4.27 |
| | | 25-30 | 3.99 |
| | | 31-35 | 4.50 |
| | | 36-40 | 4.15 |
| | | 41-45 | 4.55 |
| | | **46-50** | **4.75** |
| | | over 50 | 4.59 |
| a3 (positive) | Total | 18-24 | 4.21 |
| | | 25-30 | 4.24 |
| | | 31-35 | 4.33 |
| | | 36-40 | 4.24 |
| | | 41-45 | 4.29 |
| | | **46-50** | **4.62** |
| | | over 50 | 4.16 |
| a4 (palatable) | Total | 18-24 | 4.19 |
| | | 25-30 | 3.74 |
| | | **31-35** | **4.40** |
| | | 36-40 | 3.96 |
| | | 41-45 | 3.96 |
| | | 46-50 | 4.27 |
| | | over 50 | 3.53 |
| a5 (highly prefer) | Total | 18-24 | 4.24 |
| | | 25-30 | 4.09 |
| | | 31-35 | 4.46 |
| | | 36-40 | 4.26 |
| | | 41-45 | 4.52 |
| | | **46-50** | **4.62** |
| | | over 50 | 4.53 |

In total, Table 5.37 reveals that most of the colour responses about the Bogra Doi package were contributed by middle-aged and old groups of consumers. This outcome is not very different from the results of the statistical analysis of the age of respondents and their response to colour of the Bogra Doi package where the most noticeable colour responses were contributed by middle-aged and old categories of consumers, except for one item (pq1 – quality for colour maroon).

**Table 5.37: Percentage of Differences of Age Responses toward Colours of Bogra Doi**

| | Maroon | | | % of differences | | | Cream | | | % of differences | | | Orange | | | % of differences | | | Yellow | | | % of differences | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Young | middle | old | M-Y | O-M | O-Y | young | middle | old | M-Y | O-M | O-Y | young | middle | old | M-Y | O-M | O-Y | young | middle | old | M-Y | O-M | O-Y |
| c1 | 4.9 | 5.4 | 5.4 | 9.7 | 0.0 | 9.7 | 4.2 | 3.3 | 3.2 | **24.0** | 3.1 | 27.0 | 4.8 | 5.3 | 6.1 | 9.9 | **14.0** | **23.9** | 4.0 | 4.4 | 4.2 | 9.5 | 4.7 | 4.9 |
| c2 | 4.8 | 5.2 | 5.3 | 8.0 | 1.9 | 9.9 | 4.0 | 3.5 | 3.2 | **13.3** | 9.0 | 22.2 | 4.7 | 5.2 | 6.1 | **10.1** | **15.9** | **25.9** | 3.8 | 4.3 | 3.8 | **12.3** | **12.3** | 0.0 |
| pq1 | 4.9 | 5.1 | 5.0 | 4.0 | 2.0 | 2.0 | 4.1 | 3.9 | 3.8 | 5.0 | 2.6 | 7.6 | 4.8 | 5.4 | 6.0 | **11.8** | **10.5** | **22.2** | 4.1 | 4.5 | 4.8 | 9.3 | 6.5 | **15.7** |
| pq2 | 4.8 | 4.9 | 5.0 | 2.1 | 2.0 | 4.1 | 4.2 | 4.1 | 3.7 | 2.4 | **10.3** | **12.7** | 4.7 | 5.4 | 5.8 | **13.9** | 7.1 | **21.0** | 4.3 | 4.6 | 4.6 | 6.7 | 0.0 | 6.7 |
| pq3 | 4.9 | 5.2 | 5.3 | 5.9 | 1.9 | 7.8 | 4.2 | 3.7 | 3.5 | **12.7** | 5.6 | **18.2** | 4.7 | 5.8 | 5.9 | **21.0** | 1.7 | **22.6** | 4.0 | 4.2 | 4.2 | 4.9 | 0.0 | 4.9 |
| pq4 | 4.8 | 5.2 | 5.1 | 8.0 | 1.9 | 6.1 | 4.2 | 3.7 | 4.0 | **12.7** | 7.8 | 4.9 | 4.7 | 5.3 | 5.5 | **12.0** | 3.7 | **15.7** | 4.1 | 4.5 | 4.4 | 9.3 | 2.2 | 7.1 |
| pi1 | 4.6 | 5.0 | 5.4 | 8.3 | 7.7 | **16.0** | 4.1 | 3.7 | 3.8 | **10.3** | 2.7 | 7.6 | 4.5 | 5.4 | 6.0 | **18.2** | **10.5** | **28.6** | 4.1 | 4.5 | 4.1 | 9.3 | 9.3 | 0.0 |
| pi2 | 4.8 | 5.2 | 5.6 | 8.0 | 7.4 | **15.4** | 4.1 | 3.8 | 3.5 | 7.6 | 8.2 | **15.8** | 4.7 | 5.2 | 5.9 | **10.1** | **12.6** | **22.6** | 4.0 | 4.6 | 4.2 | **14.0** | 9.1 | 4.9 |
| pi3 | 4.7 | 5.3 | 5.7 | **12.0** | 7.3 | **19.2** | 4.4 | 3.8 | 3.6 | **14.6** | 5.4 | **20.0** | 4.7 | 5.5 | 6.2 | **15.7** | **12.0** | **27.5** | 4.1 | 4.6 | 4.1 | **11.5** | **11.5** | 0.0 |
| wom1 | 4.4 | 4.6 | 4.6 | 4.4 | 0.0 | 4.4 | 3.8 | 3.4 | 3.3 | **11.1** | 3.0 | **14.1** | 4.4 | 4.7 | 5.3 | 6.6 | **12.0** | **18.6** | 3.8 | 3.8 | 3.8 | 0.0 | 0.0 | 0.0 |
| wom2 | 4.4 | 4.9 | 4.8 | **10.8** | 2.1 | 8.7 | 4.0 | 3.3 | 2.9 | **19.2** | **12.9** | **31.9** | 4.4 | 4.9 | 5.5 | **10.8** | **11.5** | **22.2** | 3.7 | 4.0 | 3.5 | 7.8 | **13.3** | 5.6 |
| wom4 | 4.4 | 4.8 | 4.9 | 8.7 | 2.1 | **10.8** | 4.1 | 3.6 | 3.0 | **13.0** | **18.2** | **31.0** | 4.5 | 4.9 | 5.3 | 8.5 | 7.8 | **16.3** | 3.8 | 3.9 | 3.7 | 2.6 | 5.3 | 2.7 |
| a1 | 4.6 | 5.0 | 5.3 | 8.3 | 5.8 | **14.1** | 3.9 | 3.4 | 3.4 | **13.7** | 0.0 | **13.7** | 4.3 | 5.0 | 5.3 | **15.1** | 5.8 | **20.8** | 3.5 | 3.7 | 4.2 | 5.6 | **12.7** | **18.2** |
| a2 | 4.5 | 5.1 | 5.4 | **12.5** | 5.7 | **18.2** | 3.8 | 3.6 | 3.6 | 5.4 | 0.0 | 5.4 | 4.5 | 5.0 | 5.5 | **10.5** | 9.5 | **20.0** | 3.7 | 3.9 | 4.2 | 5.3 | 7.4 | **12.7** |
| a3 | 4.6 | 5.2 | 5.1 | **12.2** | 1.9 | **10.3** | 4.0 | 3.4 | 3.2 | **16.2** | 6.1 | **22.2** | 4.5 | 4.9 | 5.7 | 8.5 | **15.1** | **23.5** | 3.9 | 3.7 | 3.6 | 5.3 | 2.7 | 8.0 |
| a4 | 4.4 | 4.6 | 4.5 | 4.4 | 2.2 | 2.2 | 3.6 | 3.4 | 2.8 | 5.7 | **19.4** | **25.0** | 4.2 | 4.7 | 4.9 | **11.2** | 4.2 | **15.4** | 3.7 | 3.7 | 3.4 | 0.0 | 8.5 | 8.5 |
| a5 | 4.7 | 5.2 | 5.5 | **10.1** | 5.6 | **15.7** | 3.8 | 3.5 | 3.0 | 8.2 | **15.4** | **23.5** | 4.6 | 5.3 | 5.9 | **14.1** | **10.7** | **24.8** | 3.6 | 3.7 | 3.8 | 2.7 | 2.7 | 5.4 |

No differences of gender responses toward colour of package if % of differences less than 10%

Table 5.37 displays the percentage differences of the relationship between age and colour responses. Differences are evident throughout the findings, except for the differences column between middle-aged and old in the case of maroon. The column shows us that there are no ten percent differences in their responses toward maroon. Consistent with the results of the statistical analysis of the age of respondents and their response to colour, maroon responses were dominated mainly by groups of middle-aged and old consumers.

### 5.7.2 Multivariate Test

This sub section deals with the multivariate tests in regard to the colour of Bogra Doi package to analyse the differences in responses between the groups. The four multivariate tests: Wilks's $\Lambda$, Pillai's *V*, Hotelling's *T*, and Roy's $\theta$ were computed, but Pillai's Trace or Wilks' Lambda are preferred by most researchers because they are less sensitive to violation of the assumption of covariance matrices. Roy's Largest Root is normally ignored by almost any standard, because, as mentioned earlier, the results have many false claims of significance when assumptions are violated and poor power in the relatively diffuse no centrality in the field of behavioural science. Computed using given alpha .05, Table 5.38 shows us that by combining all the responses together, the colour of Bogra Doi package significantly affected those responses (see bold values in column of significance). Pillai's Trace test of Table 5.38 reveals that approximately 6% variability of package colour across all items and variables are being accounted by the groups colour. Similar findings of the behavioural aspects occurred. Table 5.39 shows that the colour of the package and buyers proportion significantly influenced consumers' responses simultaneously. However, when colour and buyers proportion are joined to influence the responses simultaneously, a non-significant relationship is revealed.

**Table 5.38: Multivariate Tests for Colour Responses (Bogra Doi)**

| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| Colour | Pillai's Trace | .192 | 3.458 | 51.000 | 2586.000 | **.000** | .064 |
| | Wilks' Lambda | .814 | 3.592 | 51.000 | 2561.163 | **.000** | .066 |
| | Hotelling's Trace | .222 | 3.730 | 51.000 | 2576.000 | **.000** | .069 |
| | Roy's Largest Root | .186 | 9.445 | 17.000 | 862.000 | **.000** | .157 |

Computed using alpha=.05

**Table 5.39: Multivariate Tests for Colour Responses and Buyers Proportion (Bogra Doi)**

| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| Colour | Pillai's Trace | .148 | 2.590 | 51.000 | 2550.000 | **.000** | .148 |
| | Wilks' Lambda | .857 | 2.639 | 51.000 | 2525.437 | **.000** | .857 |
| | Hotelling's Trace | .162 | 2.689 | 51.000 | 2540.000 | **.000** | .162 |
| | Roy's Largest Root | .122 | 6.112 | 17.000 | 850.000 | **.000** | .122 |
| propbuyers | Pillai's Trace | .154 | 2.698 | 51.000 | 2550.000 | **.000** | .154 |
| | Wilks' Lambda | .854 | 2.705 | 51.000 | 2525.437 | **.000** | .854 |
| | Hotelling's Trace | .163 | 2.712 | 51.000 | 2540.000 | **.000** | .163 |
| | Roy's Largest Root | .084 | 4.206 | 17.000 | 850.000 | **.000** | .084 |
| colour * propbuyers | Pillai's Trace | .193 | 1.102 | 153.000 | 7704.000 | .186 | .193 |
| | Wilks' Lambda | .822 | 1.104 | 153.000 | 6807.120 | .182 | .822 |
| | Hotelling's Trace | .200 | 1.106 | 153.000 | 7616.000 | .178 | .200 |
| | Roy's Largest Root | .060 | 3.037 | 17.000 | 856.000 | **.000** | .060 |

Computed using alpha=.05

**Table 5.40: Multivariate Tests for Colour Responses and Gender (Bogra Doi)**

| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| colour | Pillai's Trace | .177 | 3.165 | 51.000 | 2574.000 | **.000** | .177 |
| | Wilks' Lambda | .828 | 3.274 | 51.000 | 2549.255 | **.000** | .828 |
| | Hotelling's Trace | .202 | 3.386 | 51.000 | 2564.000 | **.000** | .202 |
| | Roy's Largest Root | .169 | 8.521 | 17.000 | 858.000 | **.000** | .169 |
| gender | Pillai's Trace | .018 | .926 | 17.000 | 856.000 | .542 | .018 |
| | Wilks' Lambda | .982 | .926 | 17.000 | 856.000 | .542 | .982 |
| | Hotelling's Trace | .018 | .926 | 17.000 | 856.000 | .542 | .018 |
| | Roy's Largest Root | .018 | .926 | 17.000 | 856.000 | .542 | .018 |
| colour * gender | Pillai's Trace | .044 | .749 | 51.000 | 2574.000 | .906 | .044 |
| | Wilks' Lambda | .957 | .748 | 51.000 | 2549.255 | .907 | .957 |
| | Hotelling's Trace | .045 | .748 | 51.000 | 2564.000 | .907 | .045 |
| | Roy's Largest Root | .024 | 1.198 | 17.000 | 858.000 | .259 | .024 |

Computed using alpha=.05

**Table 5.41: Multivariate Tests for Colour Responses and Age (Bogra Doi)**

| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| colour | Pillai's Trace | .200 | 3.513 | 51.000 | 2514.000 | **.000** | .200 |
| | Wilks' Lambda | .806 | 3.666 | 51.000 | 2489.712 | **.000** | .806 |
| | Hotelling's Trace | .234 | 3.824 | 51.000 | 2504.000 | **.000** | .234 |
| | Roy's Largest Root | .201 | 9.890 | 17.000 | 838.000 | **.000** | .201 |
| Age | Pillai's Trace | .155 | 1.315 | 102.000 | 5046.000 | **.019** | .155 |
| | Wilks' Lambda | .853 | 1.325 | 102.000 | 4772.942 | **.017** | .853 |
| | Hotelling's Trace | .163 | 1.335 | 102.000 | 5006.000 | **.014** | .163 |
| | Roy's Largest Root | .073 | 3.610 | 17.000 | 841.000 | **.000** | .073 |
| colour * age | Pillai's Trace | .298 | .844 | 306.000 | 14484.000 | .977 | .298 |
| | Wilks' Lambda | .738 | .845 | 306.000 | 10421.042 | .976 | .738 |
| | Hotelling's Trace | .311 | .847 | 306.000 | 14180.000 | .974 | .311 |
| | Roy's Largest Root | .085 | 4.021 | 18.000 | 852.000 | **.000** | .085 |

Computed using alpha=.05

Tables 5.40 and 5.41 provide multivariate tests results regarding demographic items, gender and age. Based on the significance values in sig. column of Table 5.40, there was no significant influence in the relationship between gender and responses when combined together (in the four different multivariate tests). However, Table 5.41 shows that a significant influence appeared in the relationship between age and responses when they are combined together. By contrast, the combination of colour and gender (Table 5.40) as well as colour and age (Table 5.41) showed no significant influence in the relationship between those and responses (simultaneously).

### 5.7.3 Tests of Between-Subjects Effects

The tests of between-subjects effects revealed the details of which effects differed from which responses. The relationships between the responses and behavioural and demographic aspects of buyers proportion, gender, and age were individually calculated as shown in Tables 5.42 – 5.43. Table 5.42 presents the results of the between-subjects effects of colour responses computing various values of variables (preference and likeability, perceived quality, intention to purchase, word-of-mouth type communication, and consumers' association of colour).

**Table 5.42: Tests of Between-Subjects Effects for Colour Responses (Bogra Doi)**

| Source | Dependent Variable | F | Sig. |
|---|---|---|---|
| Colour | c1 (preference) | 29.233 | **.000** |
| | c2 (likeability) | 35.732 | **.000** |
| | pq1 (quality) | 23.686 | **.000** |
| | pq2 (safety) | 13.662 | **.000** |
| | pq3 (appearance) | 28.636 | **.000** |
| | pq4 (value) | 20.176 | **.000** |
| | pi1 (likely of buying) | 15.456 | **.000** |
| | pi2 (definitely of buying) | 20.178 | **.000** |
| | pi3 (consider of buying) | 17.169 | **.000** |
| | wom1 (frequent of speaking) | 16.322 | **.000** |
| | wom2 (recommend) | 17.144 | **.000** |
| | wom4 (encourage) | 12.589 | **.000** |
| | a1 (fits well) | 24.305 | **.000** |

| Source | Dependent Variable | F | Sig. |
|---|---|---|---|
| | a2 (compatible) | 24.782 | **.000** |
| | a3 (positive) | 22.914 | **.000** |
| | a4 (palatable) | 16.564 | **.000** |
| | a5 (highly prefer) | 34.711 | **.000** |

Computed using alpha=.05

Table 5.42 shows that computing in a given alpha .05 and with the resulting significance values .000 in each of the whole response items, colour had a significant impact on the responses. Table 5.43 provides the results of the between-subjects effects for buyers proportion and colour responses.

**Table 5.43: Tests of Between-Subjects Effects for Colour Responses and Buyers Proportion**

| Source | Dependent Variable | F | Sig. |
|---|---|---|---|
| Colour | c1 (preference) | 16.146 | **.000** |
| | c2 (likeability) | 23.008 | **.000** |
| | pq1 (quality) | 13.972 | **.000** |
| | pq2 (safety) | 7.357 | **.000** |
| | pq3 (appearance) | 16.294 | **.000** |
| | pq4 (value) | 9.537 | **.000** |
| | pi1 (likely of buying) | 8.604 | **.000** |
| | pi2 (definitely of buying) | 11.524 | **.000** |
| | pi3 (consider of buying) | 9.607 | **.000** |
| | wom1 (frequent of speaking) | 7.234 | **.000** |
| | wom2 (recommend) | 9.024 | **.000** |
| | wom4 (encourage) | 6.778 | **.000** |
| | a1 (fits well) | 16.334 | **.000** |
| | a2 (compatible) | 15.933 | **.000** |
| | a3 (positive) | 13.465 | **.000** |
| | a4 (palatable) | 9.407 | **.000** |
| | a5 (highly prefer) | 20.971 | **.000** |
| propbuyers | c1 (preference) | **4.785** | **.003** |
| | c2 (likeability) | **3.025** | **.029** |
| | pq1 (quality) | **4.057** | **.007** |
| | pq2 (safety) | 2.267 | .079 |
| | pq3 (appearance) | **3.728** | **.011** |
| | pq4 (value) | **2.889** | **.035** |
| | pi1 (likely of buying) | **13.514** | **.000** |
| | pi2 (definitely of buying) | **8.444** | **.000** |
| | pi3 (consider of buying) | **5.850** | **.001** |
| | wom1 (frequent of speaking) | **4.916** | **.002** |
| | wom2 (recommend) | **9.379** | **.000** |
| | wom4 (encourage) | **11.860** | **.000** |
| | a1 (fits well) | 1.435 | .231 |
| | a2 (compatible) | 1.195 | .311 |
| | a3 (positive) | .802 | .493 |

| Source | Dependent Variable | F | Sig. |
|---|---|---|---|
| | a4 (palatable) | 2.269 | .079 |
| | a5 (highly prefer) | 1.809 | .144 |
| colour * propbuyers | c1 (preference) | **2.493** | **.008** |
| | c2 (likeability) | 1.488 | .148 |
| | pq1 (quality) | 1.833 | .059 |
| | pq2 (safety) | **2.166** | **.022** |
| | pq3 (appearance) | **2.229** | **.018** |
| | pq4 (value) | **2.526** | **.007** |
| | pi1 (likely of buying) | 1.757 | .073 |
| | pi2 (definitely of buying) | 1.602 | .110 |
| | pi3 (consider of buying) | **2.400** | **.011** |
| | wom1 (frequent of speaking) | **2.770** | **.003** |
| | wom2 (recommend) | **2.191** | **.021** |
| | wom4 (encourage) | **1.941** | **.043** |
| | a1 (fits well) | .590 | .806 |
| | a2 (compatible) | .835 | .584 |
| | a3 (positive) | 1.034 | .411 |
| | a4 (palatable) | .664 | .742 |
| | a5 (highly prefer) | 1.725 | .079 |

Computed using alpha=.05

In terms of safety (pq2), buyers proportion had no significant impact on the response (ρ = .079) which is higher that the given alpha .05. However, when combined with colour, there was a significant effect on the response (ρ = .022). The opposite outcome occurred in relation to the response of how definitely consumers buy the product (pi2). The buyers proportion significantly affected the "definitely buying" item (sig. values .000), with no significant effect when combined with colour (.110 or over a given alpha).

**Table 5.44: Tests of Between-Subjects Effects for Colour Responses and Gender (Bogra Doi)**

| Source | Dependent Variable | F | Sig. |
|---|---|---|---|
| colour | c1 (preference) | **27.416** | **.000** |
| | c2 (likeability) | **32.221** | **.000** |
| | pq1 (quality) | **21.205** | **.000** |
| | pq2 (safety) | **12.626** | **.000** |
| | pq3 (appearance) | **25.711** | **.000** |
| | pq4 (value) | **17.586** | **.000** |
| | pi1 (likely of buying) | **13.930** | **.000** |
| | pi2 (definitely of buying) | **17.293** | **.000** |
| | pi3 (consider of buying) | **14.974** | **.000** |
| | wom1 (frequent of speaking) | **14.675** | **.000** |
| | wom2 (recommend) | **14.654** | **.000** |
| | wom4 (encourage) | **11.377** | **.000** |
| | a1 (fits well) | **22.612** | **.000** |
| | a2 (compatible) | **23.115** | **.000** |

| Source | Dependent Variable | F | Sig. |
|---|---|---|---|
| | a3 (positive) | **20.916** | **.000** |
| | a4 (palatable) | **15.360** | **.000** |
| | a5 (highly prefer) | **31.599** | **.000** |
| gender | c1 (preference) | .449 | .503 |
| | c2 (likeability) | .549 | .459 |
| | pq1 (quality) | .116 | .734 |
| | pq2 (safety) | .000 | .989 |
| | pq3 (appearance) | .048 | .827 |
| | pq4 (value) | .008 | .930 |
| | pi1 (likely of buying) | .041 | .839 |
| | pi2 (definitely of buying) | .050 | .823 |
| | pi3 (consider of buying) | .171 | .679 |
| | wom1 (frequent of speaking) | .439 | .508 |
| | wom2 (recommend) | .086 | .769 |
| | wom4 (encourage) | .395 | .530 |
| | a1 (fits well) | 2.643 | .104 |
| | a2 (compatible) | .209 | .648 |
| | a3 (positive) | .348 | .555 |
| | a4 (palatable) | .656 | .418 |
| | a5 (highly prefer) | .084 | .772 |
| colour * gender | c1 (preference) | .314 | .816 |
| | c2 (likeability) | 1.109 | .345 |
| | pq1 (quality) | .501 | .682 |
| | pq2 (safety) | .288 | .834 |
| | pq3 (appearance) | .685 | .562 |
| | pq4 (value) | 1.142 | .331 |
| | pi1 (likely of buying) | .221 | .882 |
| | pi2 (definitely of buying) | 1.884 | .131 |
| | pi3 (consider of buying) | .609 | .609 |
| | wom1 (frequent of speaking) | .207 | .891 |
| | wom2 (recommend) | 1.004 | .390 |
| | wom4 (encourage) | .232 | .874 |
| | a1 (fits well) | .248 | .863 |
| | a2 (compatible) | .937 | .422 |
| | a3 (positive) | .141 | .935 |
| | a4 (palatable) | .647 | .585 |
| | a5 (highly prefer) | .509 | .676 |

Computed using alpha=.05

Table 5.44 shows us that no single significant relationship occurred between gender and responses individually. Table 5.45 provides the results of the between-subjects effects for age and colour responses.

**Table 5.45: Tests of Between-Subjects Effects for Colour Responses and Age (Bogra Doi)**

| Source | Dependent Variable | F | Sig. |
|---|---|---|---|
| colour | c1 (preference) | **33.372** | **.000** |
| | c2 (likeability) | **33.558** | **.000** |
| | pq1 (quality) | **19.933** | **.000** |
| | pq2 (safety) | **14.012** | **.000** |
| | pq3 (appearance) | **29.840** | **.000** |
| | pq4 (value) | **18.375** | **.000** |
| | pi1 (likely of buying) | **18.563** | **.000** |
| | pi2 (definitely of buying) | **21.559** | **.000** |
| | pi3 (consider of buying) | **24.042** | **.000** |
| | wom1 (frequent of speaking) | **16.187** | **.000** |
| | wom2 (recommend) | **22.468** | **.000** |
| | wom4 (encourage) | **16.141** | **.000** |
| | a1 (fits well) | **20.264** | **.000** |
| | a2 (compatible) | **20.466** | **.000** |
| | a3 (positive) | **23.460** | **.000** |
| | a4 (palatable) | **14.704** | **.000** |
| | a5 (highly prefer) | **32.761** | **.000** |
| age | c1 (preference) | .795 | .574 |
| | c2 (likeability) | 1.011 | .416 |
| | pq1 (quality) | **3.568** | **.002** |
| | pq2 (safety) | 2.037 | .058 |
| | pq3 (appearance) | 1.614 | .140 |
| | pq4 (value) | 1.072 | .378 |
| | pi1 (likely of buying) | **2.593** | **.017** |
| | pi2 (definitely of buying) | **2.185** | **.042** |
| | pi3 (consider of buying) | 1.905 | .077 |
| | wom1 (frequent of speaking) | .646 | .694 |
| | wom2 (recommend) | 1.123 | .347 |
| | wom4 (encourage) | .927 | .475 |
| | a1 (fits well) | **2.357** | **.029** |
| | a2 (compatible) | **2.186** | **.042** |
| | a3 (positive) | .445 | .849 |
| | a4 (palatable) | **2.243** | **.037** |
| | a5 (highly prefer) | 1.035 | .401 |
| colour * age | c1 (preference) | **1.842** | **.018** |
| | c2 (likeability) | 1.578 | .059 |
| | pq1 (quality) | 1.121 | .325 |
| | pq2 (safety) | .848 | .643 |
| | pq3 (appearance) | **1.766** | **.025** |
| | pq4 (value) | 1.164 | .285 |
| | pi1 (likely of buying) | 1.290 | .186 |
| | pi2 (definitely of buying) | 1.193 | .260 |
| | pi3 (consider of buying) | **1.841** | **.018** |
| | wom1 (frequent of speaking) | .949 | .518 |
| | wom2 (recommend) | **1.736** | **.029** |
| | wom4 (encourage) | 1.265 | .203 |
| | a1 (fits well) | 1.270 | .200 |
| | a2 (compatible) | .855 | .635 |
| | a3 (positive) | 1.467 | .094 |
| | a4 (palatable) | .772 | .735 |
| | a5 (highly prefer) | 1.257 | .209 |

Computed using alpha=.05

Table 5.45 reveals that in the matter of quality (pq1), age affected the responses significantly (ρ = .002) and acted differently when combined together with colour, with sig. value .325 or higher than a given alpha .05. In terms of preference (c1), age had no significant impact with

sig. value .574, which is much higher than a given alpha .05. The contrary result was obtained when combined with colour (ρ = .018). This result is consistent with the Bakpia investigation results that revealed that age had no significant impact on the consumers' preference but became the opposite when combined with colour.

## 5.8 Summary

This chapter has presented the detailed analyses of the data regarding the colour of the packages of two different local food products, Bakpia and Bogra Doi. The package colours were examined in terms of their relationship with various consumers' responses. A behavioural aspect (buyers proportion) and two different demographic elements (gender and age) were involved.

The findings concerned the gender and age distribution of the participants as related to four different colours. The distribution buyer proportion and the demographic items of gender and age in relation to the colour responses were then reported, followed by the results of the validity, and reliability tests in the introductory study, and the analysis in the pilot study. The results of main study concerned the package colours of Bakpia and Bogra Doi, including the descriptive results regarding buyers proportion, gender, and age and their relationship with colour responses and the sets of multivariate tests which showed how the relationships worked when all the responses combined together. Further, the tests of between-subjects effects were reported to show how the relationships worked with the responses individually. Discussion explaining the complexity and meaning of these results will appear in the next chapter.

# CHAPTER 6 : DISCUSSION

## 6.1 Overview

The previous chapter presented results of the three stages of the quantitative approach performed in this study, outlined the preliminary study, tested the 'goodness' of the measures by the validity and reliability tests, and applied multivariate analysis of variance to complete the analysis of the data. This chapter discusses the findings of the analyses reported in Chapter 5 beginning with the results of the analyses of the first stage of the study and of the validation and reliability tests applied in the second stage of the study. Finally, the results of the main stage of the study are discussed in detail.

## 6.2 Introduction

This study aimed to find out the ways in which different package colours evoke different consumer responses, and the ways in which different groups of buyers respond to different colours of a package. The extent of differences in responses with respect to gender and age as well as among light, medium, heavy, and non-buyers was explored.

The results of the analyses of gender composition and age composition in the responses to Bakpia and Bogra Doi showed that there were more women in the Bakpia investigation, while men were the majority in Bogra Doi investigation. Similarly, in terms of age composition, the other demographic aspect in this study, the youngest group of consumers, within the age range of 18-24 years, were the majority in both investigations.

Buyers' responses to package colours (of Bakpia and Bogra Doi) were also examined in terms of their classification into light, medium, heavy, and non-buyer. Results show that medium buyers formed the highest number of participants in the Bakpia and Bogra Doi study while the

least number of participants comprised non-buyers in the case of Bakpia, and heavy buyers in the case of Bogra Doi.

Blue, yellow, green and red were found to be the four most familiar colours of the Bakpia package, while maroon, cream, orange, and yellow were the most popular colours of the Bogra Doi package. Overall, in the main study, yellow was found to be the most prominent colour of Bakpia package recognition, while maroon and orange were found to be the most noticed colours of Bogra doi package.

### 6.3 Demographic

This study consisted of two different investigations in terms of regional products as the research subjects. In the Bakpia investigation, the participants by chance were 40 percent male respondents and 60 percent female respondents. Most respondents were 18-24 years old and the smallest number of respondents was 46-50 years old. Among them, medium buyers were the largest groups, while non-buyers were the smallest group. In the introductory stage of the Bakpia study, four colours appeared as the most preferred colours of Bakpia package: yellow, green, red, and blue.

In the Bogra Doi investigation, 61.4 percent of respondents were male and 38.6 percent were female. Most of the respondents were 18-24 years old and the fewest respondents were over 50 years old. Among them, medium buyers were the largest group, while the group of heavy buyers was the smallest. Based on the result of preliminary study, four colours were found to be the most popular colours of the Bogra Doi package: maroon, cream, orange, and yellow.

This study of local food products of two distant countries found differences in terms of choice of the favourite colours of the packages. We found that yellow, green, red, and blue were the colours most recognisable for the Bakpia package, while maroon, orange, cream, and yellow

were the most recognisable colours of the Bogra Doi package. Supporting these findings on colour and gender, a previous studies concluded that there are differences in colour preferences and perceptions in terms of gender, age, and culture (Crozier, 1996; Westland & Shin, 2015). Similarly, Dwivedi and Mehrotra (2015) revealed the existence of a relationship with gender and age when it comes to choice of a specific colour. Puccinelli et al. (2013) found that younger consumers are more concerned about the product colour compared older consumers. These findings show that every marketing manager of similar products should consider the demographic aspects of their consumers in terms of marketing their products. With this information, especially cultural background, gender, or age, manager may be able to make a strong decision in developing the product for their target market, which will improve their sales performance in the future.

### 6.4 Light, Medium, and Heavy Buyers

In terms of frequency of purchase, we found that the medium category of buyers in the Bakpia study formed almost fifty percent (largest) of the total number of respondents. Similarly, medium buyers were the majority of Bogra Doi respondents at almost forty five percent of participants. Bakpia and Bogra Doi belong to the last of B. Gordon (1986) five types of gifts as local product souvenirs, such as indigenous foods that are brought home as gifts, local clothing and local crafts. The most common souvenirs are pictorial images, such as the “universal souvenir” postcard. Piece-of-the rock souvenirs are considered the truest metonymic type. These are usually objects or natural materials from the environment, such as grasses, pinecones, or deer heads, which may be created through packaging and transforming processes such as a plastic tube filled with coloured sands, polished rocks made into jewellery or seashells assembled into animals. Another kind of souvenir is acknowledged as symbolic shorthand that is manufactured and coded from the places visited, such as the Eiffel Tower or the Empire State Building. A marker type of souvenir is usually not relevant to a particular

place or event, but inscribes the words related to the place or event, such as a “I Love London” T-shirt.

As indigenous foods, Bakpia of Yogyakarta and Bogra Doi of Bogra City are bought mainly by experienced domestic tourists. Kim and Littrell (2001) found that of three different categories of souvenir: symbolic shorthand, marker, and local product, the tourism experience had a slightly negative effect on purchase intention for symbolic shorthand and for marker, but not for local products. This means that the more experienced tourists are about a place, the more they intend to purchase a local product. In this case, domestic visitors of Yogyakarta and Bogra City tend to visit those locations regularly (once a month or once in two-three months), compared to international visitors.

Light buyers were the second largest contributors in both cases. As typically indigenous foods or gift foods that are bought by domestic visitors, Bakpia and Bogra Doi seemed to be popular as well with visitors who were rarely engaged with the products or were buying them approximately once in six months. As the second largest contributors, light buyers of Bakpia and Bogra Doi possibly formed a large segment of consumers of those both products, confirming Romaniuk (2011) prediction that any purchase-frequency distribution in a year typically favors light buyers as the largest segment.

Non-buyers were the fewest participants in the Bakpia study. However, as Romaniuk (2011) suggested, this present investigaton may cause them to reconsider Bakpia as an indigeneous food product and a precious food gift and become light buyers instead

In the case of Bogra Doi, we found that the least number of participants was not from non-buyers but from heavy buyers. Heavy buyers of Bogra Doi or Bakpia might have been composed of purchasers who are not visitors but possibly local residents, who can more easily purchase the product more often than others. Even though they were classified as purchasing

the products more than once a month, they composed only a small part of the segments. Yet, they were more knowledageable and preferred these local products more than other categories of buyers (Zepeda & Deal, 2009), and probably consumed them with great pleasure and comfort.

## 6.5 Four Different Colours for Package

In our preliminary study, four colours, blue, yellow, green, and red, were found to be the four most popular colours for the Bakpia package, while maroon, orange, cream, and yellow were the four most familiar colours for Bogra doi package. This means that these colours were the first colours of the packages that came to the buyers' minds. Yellow, green, and red and blue Bakpia packages convey positive values to consumers in Indonesia, while maroon, orange, cream, and yellow Bogra doi packages convey positive values to consumers in Bangladesh. These values may be commercially appropriate for the packages, based on consumer impressions that these are valuable culinary gifts to impress friends and family members or as value for money. Past studies have found that impressions of package design may include 'high quality,' 'cheap,' evokes happy memories,' 'healthy,' 'stylish,' 'will impress my friend,' or 'value for money,' (Orth, 2005; Orth & Malkewitz, 2008; Orth, McGarry Wolf, & Dodd, 2005). Further, responses such as high quality, healthy, and value for money are desirable across product categories as well as provide generalizable insight (Orth & Malkewitz, 2008).

## 6.6 Colour and Consumers' Responses

Based on the findings of the descriptive statistics regarding the relationship between package colour and consumers' responses, yellow dominated Bakpia consumers' attention, yielding the highest response of all the colours, followed by green, red, and blue. If yellow-packaged Bakpia was not available in the store, then they would pick Bakpia in a green package. This means that yellow was the first choice of package colour that came to consumers' minds and

they would tend to choose the yellow Bakpia package first. The next choice after yellow and green would go to red and blue Bakpia package. Consumers were likely to associate the yellow package of Bakpia more as a local food product than any of the other colours (green, red, and blue). Supporting this, a previous study regarding background colours of a cereal package for children found that since yellow was the most popular colour, children chose yellow as the first option, the colour that was used principally to illustrate the box, followed by red, blue, orange, green, pink, brown, and purple (McNeal & Ji, 2003).

In the case of Bogra Doi, maroon, orange, cream, and yellow were the main colours of choice. In Bangladesh, consumers tended to pick maroon or orange as the first choice whenever they bought Bogra Doi, but maroon received more responses than orange. If a maroon or orange packaged Bogra Doi was not available, they bought a cream or yellow packaged Bogra Doi as the next option. However, inconsistent with the findings in the Bakpia case, the consumers of Bogra Doi revealed two first choices: maroon and orange, and two second choices: cream or yellow. The reason may be that maroon and orange are seen as interchangeable by a majority of the consumers.

In the buyer decision process, Lynch and Srull (1982) concluded that various memory and attention factors cause consumers to recall information about different subsets of attributes for the various choice alternatives. In the cases of Bakpia and Bogra doi, consumers might use their memory of the package colour of this local food to make their purchase choice. There is much literature about the function of colour in consumer recall (Garber et al., 2000; Kahneman, 1973; Kauppinen-Räisänen & Luomala, 2010) and voluntary attention (Kahneman, 1973). Colour is a highly noticeable attribute for presenting image, improving recognition and memory, and increasing the subject's attention (Babolhavaeji, Vakilian, & Slambolchi, 2015; Wichmann, Sharpe, & Gegenfurtner, 2002).

Another theory maintains that the colour yellow of the Bakpia package and the colours maroon/orange of Bogra Doi package function as “extrinsic attributes”, which correlate to the real quality of the product offerings (Dick, Jain, & Richardson, 1996). These colours might function as predictive elements of the good levels of “intrinsic attributes” of the product such as its quality, ingredients, and taste (Dick et al., 1996). A further theory considers that colours act as packaging design elements that influence the perception of product content. Since consumers judge the taste of the food based on colour as well as shape of food package (Becker, van Rompay, Schifferstein, & Galetzka, 2011; A. Gordon et al., 1994; Magnier, Schoormans, & Mugge, 2016) they might perceive that the Bakpia in the yellow colour package and Bogra Doi in the maroon colour taste the best.

## 6.7 Colour Responses and Buyers Proportion

Yellow was the most prominent colour of Bakpia package, engaging mainly the heavy buyers. In other words, the heavy buyers category of consumers showed the highest contribution to colour yellow responses. The highest number of responses to the colour green was from the non-buyer category, while the colours red and blue were selected by various categories of buyers. This means that yellow was the first choice of Bakpia package for heavy buyers, while for people who never buy Bakpia the colour green was at the top of their minds. Similarly, the maroon Bogra Doi package received the most responses from the heavy buyers, while orange received the most responses from the whole range of buyers.

A previous study found that long-term knowledge of the product “has a positive and significant relationship” with the cognitive and affective dimensions of destination image among first-time and repeat tourists respectively (S. Elliot, Papadopoulos, & Kim, 2011). Moreover, consumers tend to evaluate products with which they are familiar more positively or, in other words, familiarity affects product beliefs directly and positively (S. Elliot et al., 2011; Heslop, Papadopoulos, Dowdles, Wall, & Compeau, 2004; Orbaiz & Papadopoulos, 2003). As past

studies have discovered, product knowledge can be classified into product experience, subjective knowledge, and objective knowledge (Brucks, 1985; Park & Moon, 2003). Product experience includes product possession, product-use experience, and information-search experience (Bettman & Park, 1980; Johnson & Russo, 1984; Park & Lessig, 1981, (Park & Moon, 2003). Subjective product knowledge refers to consumers' familiarity with a product, and is related to consumer self-confidence regarding consumer decision making, as well as their ability to process the product attribute information (Brucks, 1985; Park & Moon, 2003). Through subjective knowledge about Bakpia, consumers that are categorised as heavy buyers processed the information of package colour and responded most favourably to the colour yellow. Objective product knowledge represents the schema stored in the long-term memory (Brucks, 1985; Park, 1976; Johnson & Russo, 1984; Raju & Reilly, 1979; Rao & Monroe, 1988; Selnes & Gronhaug, 1986; Sujan, 1985, (Park & Moon, 2003). Using objective knowledge, that is long-term memory about Bakpia, consumers put that knowledge to use by purchasing the product frequently.

With reference to the other colours, non-buyers who chose the green packaged Bakpia were consumers who had never bought the product, but were not entirely unaware of it, as they had heard of it based on the current market situation. This finding is different from a finding by Tregear, Dent, and McGregor (1994) that non-buyers tend to avoid a product (organic food), and have no thoughts about it. An early study by Pessemier, Burger, and Tigert (1967) also found that non-buyers may have a poor opinion of brand, new brand, or even no opinion about a brand and its attributes. Non-buyers of Bakpia might not be residents but they recognised this product from the current market situation. Recently, one of the best local competitors in this industry launched Bakpia with a new local brand, packaged in green.

In Bogra Doi packaging, the colour orange showed as the other prominent package colour, while the colour cream received favourable responses as the second option from a variety of heavy, light, medium and non-buyers category. There were no specific groups of buyer that

constituted the main contributors to the responses for the colour cream. Interestingly, yellow was most supported as second choice for Bogra Doi package by light buyers. This means that for consumers that bought Bogra Doi at least once in six months the yellow package was the first thing that came to their mind and possibly influenced their buying intention. This result may have arisen from the fact that heavy and light buyers differ in terms of attitude. For example, consumers who buy a product very rarely tend not to be as attentive to product attributes (for instance colour of package) as heavy buyers (Dick et al., 1995). These consumers consume and/or buy the product occasionally and grab any colour of package available.

However, of the buyers responding to this Bakpia and Bogra Doi investigation, the category of heavy buyers revealed the strongest relationship between all responses and buyer proportion. Consumers who frequently purchase products favour those products and tend to perceive them positively, which accounts for the differences in responses between heavy, medium and light buyers. It has been found that buyer proportion affects the perception of values placed on the product attributes (Rubio et al., 2015; Rubio, Villaseñor, & Yagüe, 2013). Heavy or larger buyers place greater emphasis on the value of certain brands or products than smaller buyers (Benito et al., 2015). This is because heavy buyers consider themselves to be market experts (Rubio et al., 2015; Williams & Slama, 1995), and purchase products based on complete information regarding intrinsic attributes (e.g. quality and food taste) or prices that further makes them feel secure (Baltas, 1997; González Mieres, María Díaz Martín, & Trespalacios Gutiérrez, 2006; Rubio et al., 2015).

Interestingly, there were no differences regarding the colour of food package between medium buyers and heavy buyers of the most prominent colours in the analysis, i.e. yellow for Bakpia and maroon for Bogra Doi. As discussed in the previous chapter, these colours were the original colours of the Bakpia and Bogra Doi packages respectively. Perhaps the heavy and medium buyers paid more attention to the colours of package because they knew the product

well and could be perceptively selective and restrict the scope of their search (Hausman, 2000; Silayoi & Speece, 2007). The features of the package, in our case, the colour, can signal the uniqueness and originality of the product (Silayoi and Speece (2007).

## 6.8 Colour Responses and Demographic Variables

The demographic analyses explored the details regarding the gender and the range of respondents' ages, and tested whether the young consumers, middle aged or elderly consumers contributed most to buying the products. The following section discusses the results in detail.

### 6.8.1 Gender

Funk and Oly Ndubisi (2006) stated that gender plays a specific role with regard to colour by marginally moderating the relationship between colour preferences and choice. In the Bakpia investigation, it was found that both men and women responded favourably to the colour yellow of Bakpia package, while the three other colours, green, red, and blue, were preferred mostly by male respondents. The results showed that male respondents were more attentive to all the possible colours of the Bakpia package while women were more attentive only to the colour yellow. The women's response may be because yellow was the most prominent colour of package, or because they were regular shoppers for their families and tended to prefer default colours. In contrast, in the Bogra Doi investigation, male and female participants contributed equally to the strongest relationship between consumers' responses and colour of package. This means that both male and female respondents paid equal attention to the matter of colour of Bogra Doi package. A study by Funk and Oly Ndubisi (2006) found that the impact of colour significance on choice is statistically higher for male consumers than for female consumers. They concluded that men select colour based on its significance, while female consumers select colour based on attractiveness and attitudinal matters. Funk and Oly

Ndubisi's (2006) findings may be applicable to the differences in responses based on the gender, to the package colours of Bakpia, as well as male dominance in responses to one of the most prominent colour of Bogra Doi package, that is maroon.

**Differences of Gender Responses toward Colour of Local Food Package**

The findings of the current research are different to an early study regarding gender and consumers' responses to colours by Choungourian (1968). He argued that males significantly prefer blue but females do not significantly prefer blue, while the preference for red does not differ for either sex. In a recent study, Chang and Lin (2010) revealed that young male students prefer yellow and blue and male office workers favour black or gray because of the staidness of those two colours. In contrast, young female students prefer pink and white, whereas female office workers prefer red or purple. Based on these studies, it can be argued that there are significant differences in terms of colour preferences between men and women, whether they are students or office workers.

In contrast, in our study, there was no difference in colour preference between genders for yellow packaging of Bakpia and maroon/orange packaging of Bogra doi. Furthermore, all the other colours (green, red, and blue for Bakpia and cream and yellow for Bogra doi) resulted in no difference between genders in the consumers' responses. Lending support to this current study, other studies have shown no significant differences across genders for colour preferences in general (Sloane, 1968, and Sharpe, 1974 in Liebman, (2015). Similarly, Dwivedi and Mehrotra (2015) argued that differences in gender and age do not show much significance in terms of colour preference. However, other studies have argued that the differences are shown when the colours were object-categorized (Buckalew & Coffield1982, and Sallis & Buckalew 1984, in Liebman, (2015).

Despite the fact that the results revealed both male and female respondents viewed the yellow colour of the Bakpia package favourably, and most male respondents responded most

favourably to the colours green, red, and blue, the results of the descriptive analysis found that there was no difference between genders when it came to colour of package, and therefore, the gender of the respondent had no impact on responses to colour of the package. Similarly, there were no gender differences in terms of responses toward colours of Bogra Doi packages, except for an item regarding palatability of the package. Overall, female and male consumers consumed and/or perceived the product's colour of package similarly.

### 6.8.2 Age

The distribution of the respondents' age in the Bakpia investigation showed that the response to the colour of package was mainly dominated by the middle-aged group of consumers within the age range of 31-45 years. This means that middle-aged consumers led the opinion that the colour yellow is the most noticeable colour of Bakpia package, whereas the three other package colours were dominated variously by young (18-30), middle-aged (31-45), and old consumers (≥ 46). Inconsistent with these findings, the Bogra Doi investigation found that the colours maroon and orange were dominated by older consumers as the most noticeable colours of the Bogra Doi package, while two other colours, yellow and cream, were dominated by a variety of young, middle-aged, and old consumers. This leads to the conclusion that for Bakpia, middle-aged consumers expressed the strongest opinion as regards to the colour of its package, while in the case of Bogra Doi, the older consumers held the strongest opinion on the colour of the package.

**Differences of Range of Age and Responses toward Colour of Local Food Package**

With reference to the relationship between groups of age responses and colour of package, differences existed in the case of Bakpia. While no differences were found between middle-aged and old consumers toward yellow, middle-aged consumers contributed most to yellow responses, followed the old consumers. Consistent with the findings about the colour yellow of the Bakpia package, there were no differences in responses between middle-aged and old

consumers toward the colour maroon of the Bogra Doi package. We can conclude that middle-aged and old consumers of those two food products had similar opinions about prominent package colours; yellow for Bakpia package and maroon for Bogra Doi package.

## 6.9 Multivariate Tests

### 6.9.1 Multivariate Tests for Colour Responses

Based on the multivariate tests of Bakpia's colour responses, the null hypothesis was rejected by showing that each of the four measures (Pillai's Trace, Wilks' Lambda, Hotelling's Trace, Roy's Largest Root) indicated that the set of responses have a highly significant difference (.000). Our conclusion was that by combining all the response items together, the colour of Bakpia package had a significant effect on consumers' responses. In other words, certain colours had a greater impact on the consumers' responses compared to others. Similarly, the four multivariate tests for Bogra Doi showed that colour of Bogra Doi package had a significant impact on consumers' responses. The four popular colours of the packages in each case significantly influenced the consumers' opinion regarding Bakpia and Bogra Doi. This may have been because consumers used their memory to recall the colour of package as the extrinsic product attribute of Bakpia and Bogra Doi, as supported by (Lynch & Srull, 1982) that memory affects consumers' decision making.

### 6.9.2 Multivariate Tests for Colour Responses and Buyers Proportion

The four measure tests of Bakpia package showed that buyers proportion significantly influenced the responses. Yet, when buyers proportion combined together with colour of package, with the respect to all response items, there was no significant influence to the responses. The same results occurred with the multivariate tests for Bogra Doi that

combination of colour of package and buyers proportion evoked non-significant influence to the responses.

### 6.9.3 Multivariate Tests for Colour Responses and Gender

Earlier we reported that there were no gender differences in the relationship between colour of Bakpia and Bogra Doi packages and consumers' responses. Consistently, multivariate tests of gender relationship with the responses displayed no significant impact of gender on all the consumers' responses when they were combined. In summary, in both Bakpia and Bogra Doi cases, gender did not have a significant impact on the set of consumers' responses whether individually or combined together with colour of package. This showed that male and female consumers might have similar opinions about the products.

### 6.9.4 Multivariate Tests for Colour Responses and Age

Consistent with the finding regarding colour responses and buyers proportion, multivariate tests of colour responses and age showed that in both cases of Bakpia and Bogra Doi, age had a significant impact on a set of responses, but a non-significant influence when colour of package and age were combined with regard to their relationship with a set of responses. This means that the set of responses of young consumers was different from middle-aged or/and old consumers, regarding colour of Bakpia or Bogra Doi package. There is a possibility that certain groups of consumers, whether they are young, middle-aged, or old will respond differently toward certain colours of package.

## 6.10 Tests of Between-Subjects Effects

The colour of the Bakpia and Bogra Doi packages had a significant impact on each of the responses separately. In terms of the relationship between colours of package together with

buyers proportion and the responses individually, buyers proportion in both cases had a significant impact on some responses but no significant impact on the same responses when combined with colour of package or other items. For example, buyers proportion significantly influenced the likeability of buying Bakpia but did not significantly affect the consumers' preference. In contrast, when buyer proportion was combined with colour of Bakpia package, there was a significant difference between those two variables and consumers' preference but there was a non-significant difference between those two variables and consumers' likelihood to buy. In the Bogra Doi case, buyers proportion had no significant impact on safety, but a significant effect when combined with the colour of package. Similar patterns occurred in the relationships between colour of package, age, and consumers' responses. In the case of Bakpia, the behavioural aspect of consumers in terms of their purchase proportion would impact their judgement regarding quality, how frequent they speak about the product, how fit and compatible the package, and how positive the package, whether combined with the colour of package or not. On the other hand, in the Bogra Doi case, how often consumers purchase the product would impact their judgement regarding consumers' preference, appearance, value, consider buying, frequency of speaking about the product, how consumers recommend the product to others and how they encourage others to but the product. This significant influence occurred whether buyers' proportion of Bogra Doi was combined with colour of package or not. In summary, in relation to colours of package, certain groups of buyers and their particular age range considered certain responses in their decision making regarding Bakpia or Bogra doi.

In terms of gender, even though in the table of tests of between-subjects effects for colour responses and gender for Bakpia case, a significant relationship appeared, overall, gender had no significant impact on consumers' responses, whether combined together with colour of package or not. Consistent with the previous discussion regarding gender, there was no significant impact of gender on its relationship with consumers' responses. This means that males and female did not have different opinions regarding the product when judging by its

package colour. While past studies found age to affect the response quality (Groves & Magilavy, 1986; Webster, 1996), in that older respondents were found to have weakness toward interviewer effects than younger respondents, the gender of respondents were not correlated to the effect (Groves & Magilavy, 1986).

In summary, certain groups of consumers based on their age, chose a certain colour which popularly acts as the most prominent colour of the local food package (yellow for Bakpia and maroon for Bogra Doi). In support, a recent study by Dwivedi and Mehrotra (2015) claimed that age like gender did not have much significance regarding colour preference but a relationship exists when it comes to choice of a specific colour. In the cases of Bakpia and Bogra Doi, the specific colours represented the original package of the local food product as a symbol of the city, Yogyakarta of Indonesia and Bogra City of Bangladesh respectively. In other words, buying the product with the specific package colour means that the consumers is giving family and friends a gift that is the perfect symbol of the city they visited. Herbert (1987) explained that originality in the business world is equated with a certain an invention. In this present study, our products were first created by local people as commercial products and first marketed in yellow packages for Bakpia and maroon packages for Bogra Doi. Herbert (1987) argued that originality in the business world refers to something that is used repeatedly by the defender and the further generations of businessman. Our study found that the original colours of Bakpia and Bogra doi were still the most noticeable/identifiable for consumers.

In relation to the fact that there were no differences in the current findings regarding responses of colour of package and gender, the explanation provided by Loureiro and Hine (2002) may be most appropriate. They concluded that the originality and locality of products unique to that locality are important factors in the acceptance value-added packaging. On the other hand, the finding of (Funk & Oly Ndubisi, 2006) that men select colour based on the significance of the colour, while women tend to select the colour on attractiveness and attitudinal bases does not adequately explain the findings in our investigation. The positive acceptance of the colour

yellow as value-addition for the Bakpia package might be based on its originality and locality. Historically, Bakpia was produced and marketed in a box coloured yellow in Yogyakarta. Similarly, Bogra Doi was produced in Bogra City and packaged in maroon containers. This originality of package colour, in the sense that the colours were the first package colours historically, could explain why there were no differences in terms of colour of package responses between male and female consumers.

### 6.11 Originality of the Products

In terms of originality of the product and supporting the current results regarding the locality of Bakpia and Bogra Doi, Pollan (2006) in Little et al. (2010) argument is illuminating. Pollan found that social interactions between producers and consumers relate to the attachment of the local product to its place of origin, which promotes consumer confidence in what they buy. Guthman (2007) in Little et al. (2010) described locality as relying upon defensive forms of localism and/or positional acts of consumption, and this applies especially to high-value goods whether local quality foods or organic foods.

Once again, as yellow and maroon were chosen as the most suitable in the consumers responses toward the package colours of Bakpia and Bogra Doi respectively, the originality of the package colour must have been an important factor in the reason for the colour choice. Here, memory-based choice situations applied, where consumers recalled the original colours of the packages of Bakpia and Bogra Doi package. Research in consumer behaviour where all relevant information is available emphasizes the role of memory-based choice and eschewed the use of a stimulus-based task environment (Lynch & Srull, 1982). Further, the visitors to Yogyakarta and Bogra City identify these cities as the place of origin of Bakpia and Bogra Doi respectively. Visitors occasionally recall particular attributes such as the identity/original colour of these local food packages and create memory-based judgements regarding the products, and finally end with their purchase decision. Supporting the current

findings of a certain colour as the most prominent regardless of the gender of consumer, Hastie and Park (1986) and Lichtenstein and Srull (1985) argued that people use specifically recalled attributes of an object to make memory-based judgements about the object only if they had not form overall evaluations when initially exposed to the specific information. These memory-based judgements are supported by most studies which conclude that judgement is based upon retrieval of a prior summary judgement plus some subset of the original attribute information (Lynch, Marmorstein, & Weigold, 1988).

In regard to types of information, the consumers of the local food Bakpia mainly memorized yellow as the package colour, regardless of which companies produced the product. Similarly, in the case of Bogra Doi, the majority of consumers remembered the colours maroon or orange as the identified image of the product's package. The colour of the package was the most important attribute of the local food product created in the two different regions. This conclusion accords with Lynch and Srull (1982) who found that the information most likely to be recalled is often the information that seemed most significant in terms of one's goal at the time the information was initially received. The goals of visitors to Yogyakarta or Bogra City are the city's uniqueness and values and visitors are eager to buy the best quality gift (based on its originality identified by the colour of package) of the local food product for family and friends. Consumers are aware that yellow and maroon or orange are the colours of the packages of the original products, which are moreover characterised as good quality products through word-of-mouth communication. Consumer associates these colours with certain values, which finally influence their decision making to purchase.

In summary, besides considering the gender or age of consumers, and how frequently the consumers buy the products, the colour of the package as evidence of the originality, locality, and uniqueness of the product play a significant role in influencing consumers' decision-making. As Kupiec and Revell (1998) stated, contemporary consumers of speciality foods seek three different things: premium quality, uniqueness, and superiority. Further, regarding

the colour of package, Kupiec and Revell (1990) argued that distinctive features can be created in speciality products through their physical, sensory and aesthetic attributes such as raw material quality, technology used, organoleptic properties, presentation, packaging, and identification and association of geographic origin with product image. Other authors pointed out that consumers tend to evaluate products according to product attributes through primary drivers of product success such as colour, packaging, sensory features, brand, and price (G. Li, Zhang, & Wang, 2015; Min, Overby, & Im, 2012; Richardson, Dick, & Jain, 1994; E. S.-T. Wang & Yu, 2016).

### 6.12 Suggestions and Recommendations

Attributes of a product influence consumers' choices regarding the available alternatives. Moreover, the choices could involve their attentive behaviour toward a certain package attribute such as "colour: that represents the products' originality and locality as value-addition to the products. As merchandise food from Yogyakarta of Indonesia, consumers and visitors recognised Bakpia through the yellow colour of the boxes. Similarly, as the most popular yoghurt gift from Bogra City, maroon and orange were acknowledged as representing its originality and locality. These matters of locality lead us to a particular market that attract visitors to the city and a special product that symbolizes the place; in other words a niche product for a niche market.

Our investigation regarding the relationship between package colours of Bakpia and Bogra Doi and various consumers' responses, their proportion of buying, and two different demographic items, age and gender, found that packaging was an important point of attention. Colour, as a packaging element, adds value to packaging as added attractiveness for the consumers. Further, for unique products of a specific region, such as Bakpia and Bogra Doi, value-added packaging enhances the consumer attraction to the originality, uniqueness, and locality of the products.

Locality is said to be an increasingly valued attribute in the process of adding value to traditional products (Dimara, Petrou, & Skuras, 2003). It is crucial for differentiation and creation of new niche markets, particularly for products with a well-known reputation (Loureiro & Hine, 2002). Alavoine-Mornas (1997) emphasized that the originality of a product from a typical local area can only effectively lead to differentiation if the clients/consumers is made aware of and is attracted to its value (Alavoine-Mornas, 1997; Fotopoulos & Krystallis, 2003), such as the value-addition created by the yellow colour of the Bakpia package and the maroon colour of the Bogra Doi package.

Appropriately, niche products are sold in specialist shops as opposed to supermarkets (Ng, Chaya, & Hort, 2013). Bakpia and Bogra Doi are sold in local food stores or gift shops, since they are recognised as gifts or souvenirs for family/relatives and friends. For these special kinds of products, identification and meeting the needs of certain kinds of customers can be employed through segmentation. Minor players in the market can use segmentation to gain a foothold in a particular niche. Additionally, targeting can be applied in this kind of market segmentation where customers are aggregated into groups with similar requirements and buying characteristics (Dibb & Simkin, 1991). In relation to our two products, Bakpia and Bogra Doi, the findings show that: (1) demographic items (gender and age) segmented the participants, and (2) targeting categorised consumers into groups through similar requirements (a specific colour preference and likeability, a certain quality, etc.) and buying characteristics (non-buyer, light buyers, medium buyers, or heavy buyers). Attention to these can contribute to successful strategies for gaining a foundation in a specific niche market.

This present study has identified processes that will enhance and develop the niche market of a unique original food product that is well known locally and established by the distinctive colour of the package and specific buying attitudes and consumer demographics. These processes are: (1) the identification of consumers, what they value and how they execute their

decision making based on one component of aesthetic packaging, colour, as an implementation of branding strategy; (2) paying attention to packaging, the lack of which is a weakness in businesses in developing countries. Packaging is a value adding business strategy vital in the creation of niche markets for local, popular products, especially in developing countries where marketing of local products is not well developed, and (3) the application of segmentation for company improvement by the small minor producers/marketers of these unique products.

# CHAPTER 7 : SUMMARY AND CONCLUSION

## 7.1 Overview

This thesis has reported an investigation of the colour of food package in Indonesia and Bangladesh through multivariate tests. The two research questions proposed in this thesis were: How do different package colours vary in terms of consumer responses? How do different groups of buyers respond to different colours of package? The second research question was further developed as two sub questions: To what extent is there a difference in response among light, medium, heavy and non-buyers? To what extent is there a difference in response with respect to gender and age? The basic objective of this research was to understand more about local food package colour, especially in regions where packaging is underrated, such as Indonesia and Bangladesh.

Chapter 2 provided comprehensive information about Bakpia and Bogra Doi, the local food products under study in this project. To achieve the main objective and to address the research questions, the relevant literature was reviewed in Chapter 3. Chapter 4 detailed the three stages of the quantitative approach and provided a short review regarding the methodologies used in past studies. Findings were summarised in the Chapter 5, and the results were discussed in Chapter 6. The present chapter includes a summary of the thesis, the theoretical and practical contributions of the research, limitations of the study, and a few directions for future research.

## 7.2 Thesis Summary

The package is significant for food products, as without the package, food cannot be contained, apportioned, unitized, and protected (Silayoi & Speece, 2004). Although packaging

consists of numerous elements, colour is one of the most stimulating in terms of consumers' choice of product. In the food and beverage industry, the colour of the package has been recognised as contributing to consumers' perception of the product. Further, consumers judge whether or not the ingredients and quality fulfil their expectation based on the colour of the package.

The present study addressed some gaps in past investigations by exploring how the colour of the package as a product's sensory attribute might shape consumers' perceptions and expectations toward the product. The examination of Bakpia of Indonesia and Bogra Doi of Bangladesh, which are products of geographically distant regions, was found helpful in understanding this phenomenon. In this study various consumer responses were examined: colour preferences and likeability, consumers' perceptions of quality, consumers' associations with the package colour, the communication type "word-of-mouth," and purchase intention. The second research question required the examination of one behavioural aspect and two demographic factors. Categorisation of light, medium, heavy buyers, and non-buyers as well as gender and age were explored in terms of two different inquiries: To what extent are there different colours of package in the responses (a) among various category of buyers and (b) with respect to gender and age?

As discussed in Chapter 4, the three steps of the quantitative method employed in the present investigation included a preliminary study to discover the most familiar colours of Bakpia and Bogra Doi package, which then formed the basis of a quasi-experimental study with questionnaires distribution among the participants. Four different colours of package in each region were the focus of the questionnaires, which were tested in a pilot study for validity and reliability as instruments of the main study. The final questionnaire was then applied in the major data collection as the main stage of the current examination. The findings were analysed by a series of multivariate tests and tests of between-subjects effects.

Descriptively, it was seen that most of the Bakpia study participants were female (275 of 458), and the main participants for Bogra Doi study were male (135 of 220). In terms of the age classification of the respondents, young people (18-24) were the majority respondents in both the Bakpia and Bogra Doi investigations. Similarly, medium buyers were in the majority in both the Bakpia study (228 of 458) and the Bogra Doi study (98 of 220).

In the preliminary stage of this study, blue, yellow, green, and red were found to be the most popular colours of the Bakpia package and maroon, cream, orange, and yellow the most familiar colours of the Bogra Doi package. The second stage, the pilot study, tested the validity and reliability of the instrument through a factorial analysis and a reliability test. One item for measuring word-of-mouth communication type, “speak unflatteringly”, was removed from the measurement, due to its failure to rotate in the same component. Once the item was eliminated, the instrument was found to be reliable with Cronbach’s Alpha reaching 0.975.

In the final analysis of the Bakpia data, the null hypothesis was rejected through multivariate tests. We found that the colour of the Bakpia package had a significant effect on consumers’ responses in the same way when all seventeen consumers’ responses were joined together. Further, we found that a particular colour of the package had a larger impact on consumers’ responses compared to other colours. Similar findings occurred in the Bogra Doi examination, where the colour of the package affected consumers’ responses in the same way when all seventeen items were combined together in the investigation. Meanwhile, through the tests of between-subjects effects, in both studies (Bakpia and Bogra Doi), a significant effect occurred in several response items when buyers proportion was combined together with the colour of package, as well as when age was combined together with the colour of package. However, no significant effect appeared on consumers’ responses, whether or not gender was joined together with the colour of package. This result led to the conclusion that there were no significant differences regarding gender influences on the relationship between colour of package and consumers’ responses.

## 7.3 Contribution

This current investigation contributes theoretically as well as practically in the field of marketing, more specifically to packaging and consumer response to packaging.

### 7.3.1 Theoretical Contribution

The inclusion of word- of-mouth type of communication in this research makes a theoretical contribution, as earlier studies focussed on the relationship between colour of package and responses such as shaping image, perception, and choice of product (A. J. Elliot & Maier, 2014), shopper attention (Burke & Leykin, 2014), or intention to purchase (Ares & Deliza, 2010). There was very little consideration of the impact of word-of-mouth communication. This study significantly contributes to an understanding of the relationship of colour of food packaging and WOM together with numerous responses (preference and likeability, quality perception, association of colour, and purchase intention).

Secondly, this study makes a theoretical contribution to the literature on local foods due to its unique focus on the impact of the colour of the package of local foods. Past studies in local foods concentrated on marketing, the tourism sector, and social impact (Buller & Morris, 2004; Ilbery & Kneafsey, 1999, 2000; Ilbery & Maye, 2005; Sims, 2009), and consumers' attitudes and purchase behaviour (Feldmann & Hamm, 2015; Hu et al., 2012; Little et al., 2010; Loureiro & Hine, 2002; Roininen et al., 2006; Tellström et al., 2006).

The other theoretical contribution of this study arises from the application of multivariate analysis and tests of between-subjects effect. In this study, all the responses were determined both individually and together simultaneously, while past studies focused on the individual

effect. This study adds to the discussion regarding the methodologies used in the package colour study and its relationship with consumers' responses.

Further, the classification of Bakpia and Bogra Doi buyers into light, medium, heavy, and non-buyers is significant for the construction of a map of these local food consumers' behaviour in these under-investigated markets. The inclusion of gender and age as variables also contributes in terms of a more subtle investigation of the consumers' opinions toward these local products.

### 7.3.2 Practical Contribution

This present investigation can assist local entrepreneurs in improving their marketing through packaging as one of the marketing tools. A greater awareness that the sensory attributes of food packaging such as colour, shape, or label influence the consumers' perceptions and expectation of the products may lead SMEs to paying more attention to their local food packaging. Secondly, by involving one behavioural aspect, "buyers categorisation", and two demographic items, "age and gender", this thesis introduces the notion of segmentation for the marketing of these local food products that can be considered under-investigated niche products.

Through the various responses in terms of proportion of buying, and two different demographic items, age and gender, this present study found that packaging is an important marketing device for these local foods. A further finding was that colour added value by enhancing the attractiveness of the food package. The colours of the packages of the unique local products, Bakpia and Bogra Doi, contribute value-addition to their packaging and enhance consumers' attraction to the originality, locality, and uniqueness of these products.

As locality is a value-added attribute of traditional products (Dimara et al., 2003), the differentiation resulting from locality might create new niche markets (Loureiro & Hine, 2002). The originality and locality of specific products from typical local areas can only effectively lead to differentiation when consumers are aware of its added value (Alavoine-Mornas, 1997; Fotopoulos & Krystallis, 2003). In the cases of Bakpia and Bogra Doi, value-addition was created by the yellow colour of the Bakpia package and the maroon colour of the Bogra Doi package, as the most well-known and liked colours of the packages.

Further, this study of two different local food products in two distant developing countries, involving a large number of participants, ensured the generalizability of the findings, which could constitute a major contribution toward the marketing processes of small and medium enterprises (SMEs) in these regions. Local companies could learn from the results and address their marketing weaknesses in order to improve their sales performance in the future.

Finally, in support of local governments' efforts in developing regional economic growth, this study contributes to knowledge regarding the marketing of local products. This study confirms the importance of providing local companies with reliable data to assist them in improving their marketing capabilities in both regional and international markets and in training of their management.

## 7.4 Limitations

This study has several limitations which can be addressed in future research. Only one attribute of food package, its colour was examined in this study. Since the sensory attributes of food package include shape, size, and label, all of which influence consumers' responses, a larger study is required to address these attributes together.

The present investigation involved only local food products and made no comparison with other local products such as local beverages or souvenirs. The locality and originality of niche products could be more extensively addressed if a variety of products were studied.

The regions involved in the study were confined to Indonesia and Bangladesh due to several research constraints. An examination of the niche food products of more developing countries would enrich knowledge and discussion regarding the relationship between the colour of local food package and consumers' responses.

## 7.5 Future Research Directions

Based on the limitations outlined in the previous discussion, future research could enrich knowledge by adding other attributes of food packaging such as label (in order to investigate the consumers' responses to ingredients, the expiry date, or other information), shape (in order to examine the consumers' attraction to the product), and size (in order to investigate consumers' expectation of the volume of the product).

Further, it is proposed that future research involve other categories than food products, such as beverages, crafts, or other souvenirs as the unique products of cities or regions. By varying the category of the products, it is expected that the future studies will find more marketing links between the products of local companies and the attributes of their packages. Finally, a study of more regions that aim to improve their local small companies' products will provide knowledge which will contribute to regional economic growth in developing countries.

# Appendices

## Appendix for Chapter 4


### Instrument of Preliminary Study

An Examination Into Colour of Package and Its Impact on Consumer Responses:
A Study From Indonesia and Bangladesh

Please answer the following questions.

1. What colour do you like the most?
   ……

2. Any other? (Up to 3)
   ……..
   ……..
   ……..

Please answer the following questions.

1. Related to the Bakpia/Bogra Doi package, what first colour comes in your mind?
   ……

2. What are the others?
   ……..

3. Related to the Bakpia/Bogra Doi package, which of the following colours do you prefer?
   You can choose as many as you want.
   a. red
   b. orange
   c. yellow
   d. green
   e. blue
   f. purple
   g. brown
   h. Any other: ……

If there are any comments regarding this questionnaire, please do so below.
……
……
……
……
.....

THANK YOU VERY MUCH FOR YOUR PARTICIPATION AND CONTRIBUTION

Please indicate one option:

1. Are you 18 years old or above?
   ☐ Yes ☐ No

2. Have you ever consumed or bought Bakpia/Bogra Doi?
   ☐ Yes ☐ No

If you are 18 years old or above, ever consumed or bought Bakpia/Bogra Doi, we welcome you to get involved in this study by completing this questionnaire. The individual level information will be secretly kept.


1. On the scale of 1-7, how would you rate your preferences about the product?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

least preferred most preferred

2. On the scale of 1-7, how would you rate your likeability about the picture?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

least liked most liked

On the scale of 1-7, I think the above Bakpia product is:

inferior quality superior quality

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

very unsafe completely safe

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

inferior quality appearance superior quality appearance

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

low value high value

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bakpia product, I would:

least likely buy it most likely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

definitely not buy it definitely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

not consider buying it consider buying it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bakpia product:

1. I will speak of it much more frequently than any other bakpia.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

2. I will recommend this bakpia.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

3. I will speak unflatteringly of this bakpia to others.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

4. I will encourage others to buy this bakpia product.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

| After you see the picture, please indicate to what extent you agree or disagree about the following statement. | Scale of 1-7, where 1 being *strongly disagree* & 7 being *strongly agree* | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. The above colour of the package fits well with the bakpia product category. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. The colour of the package is compatible with the bakpia product category. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. The colour of the package has positive meaning. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. The colour of the package makes the product more palatable. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I highly prefer the colour of the above package. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

What do you associate the above colour of package with? (For example: “I associate the colour of package with healthiness”, “I associate the colour of package with happiness”, and so on)

……


1. On the scale of 1-7, how would you rate your preferences about the product?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

least preferred most preferred

2. On the scale of 1-7, how would you rate your likeability about the picture?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

least liked most liked

On the scale of 1-7, I think the above Bakpia product is:

inferior quality superior quality

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

very unsafe completely safe

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

inferior quality appearance superior quality appearance

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

low value high value

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bakpia product, I would:

least likely buy it most likely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

definitely not buy it definitely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

not consider buying it consider buying it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bakpia product:

1. I will speak of it much more frequently than any other bakpia.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

2. I will recommend this bakpia.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

3. I will speak unflatteringly of this bakpia to others.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

4. I will encourage others to buy this bakpia product.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

| After you see the picture, please indicate to what extent you agree or disagree about the following statement. | Scale of 1-7, where 1 being *strongly disagree* & 7 being *strongly agree* | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. The above colour of the package fits well with the bakpia product category. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. The colour of the package is compatible with the bakpia product category. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. The colour of the package has positive meaning. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. The colour of the package makes the product more palatable. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I highly prefer the colour of the above package. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

What do you associate the above colour of package with? (For example: “I associate the colour of package with healthiness”, “I associate the colour of package with happiness”, and so on)

……


1. On the scale of 1-7, how would you rate your preferences about the product?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

least preferred most preferred

2. On the scale of 1-7, how would you rate your likeability about the picture?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

least liked most liked

On the scale of 1-7, I think the above Bakpia product is:

inferior quality superior quality

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

very unsafe completely safe

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

inferior quality appearance superior quality appearance

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

low value high value

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bakpia product, I would:

least likely buy it most likely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

definitely not buy it definitely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

not consider buying it consider buying it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bakpia product:

1. I will speak of it much more frequently than any other bakpia.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

2. I will recommend this bakpia.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

3. I will speak unflatteringly of this bakpia to others.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

4. I will encourage others to buy this bakpia product.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

| After you see the picture, please indicate to what extent you agree or disagree about the following statement. | Scale of 1-7, where 1 being *strongly disagree* & 7 being *strongly agree* | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. The above colour of the package fits well with the bakpia product category. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
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| 3. The colour of the package has positive meaning. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. The colour of the package makes the product more palatable. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I highly prefer the colour of the above package. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

What do you associate the above colour of package with? (For example: “I associate the colour of package with healthiness”, “I associate the colour of package with happiness”, and so on)

…….


1. On the scale of 1-7, how would you rate your preferences about the product?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

least preferred most preferred

2. On the scale of 1-7, how would you rate your likeability about the picture?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

least liked most liked

On the scale of 1-7, I think the above Bakpia product is:

inferior quality superior quality

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

very unsafe completely safe

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

inferior quality appearance superior quality appearance

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

low value high value

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bakpia product, I would:

least likely buy it most likely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

definitely not buy it definitely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

not consider buying it consider buying it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bakpia product:

1. I will speak of it much more frequently than any other bakpia.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

2. I will recommend this bakpia.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

3. I will speak unflatteringly of this bakpia to others.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

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4. I will encourage others to buy this bakpia product.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

| After you see the picture, please indicate to what extent you agree or disagree about the following statement. | Scale of 1-7, where 1 being *strongly disagree* & 7 being *strongly agree* | | | | | | |
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| 4. The colour of the package makes the product more palatable. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I highly prefer the colour of the above package. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

What do you associate the above colour of package with? (For example: “I associate the colour of package with healthiness”, “I associate the colour of package with happiness”, and so on)

……

How frequently have you bought a bakpia product in the last six months?

- ☐ More than once a month
- ☐ Once a month
- ☐ Once in two-three months
- ☐ Once in a six months
- ☐ None in the last six months
- ☐ Never

| In the last six months, how frequently have you purchase the following brands of bakpia product | More than once a month | Once a month | Once in two to three months | Once in six months | None in the last six months | Never |
|---|---|---|---|---|---|---|
| 1. Bakpia Kurnia Sari | | | | | | |
| 2. Bakpia Pathok 25 | | | | | | |
| 3. Bakpia Pathok 75 | | | | | | |
| 4. Bakpia dJava | | | | | | |
| 5. Bakpia Merlino | | | | | | |
| 6. Bakpia Kurnia | | | | | | |
| 7. Bakpia Kencana | | | | | | |
| 8. Bakpia Tiga Mutiara | | | | | | |
| 9. Bakpia Raminten | | | | | | |
| 10. Bakpiapia | | | | | | |

What other brand of bakpia have you purchased in the last six months? (You can mention as many as you have purchased)

1. ……
2. ……
3. ……
4. ……
5. ……


A ☐


B ☐


C ☐


D ☐

1. In terms of **preference**, please allocate points out of 10 to the above options of bakpia product so that the sum is 10. For example, if option A is 6 points, then allocate the rest of the points to the remaining four options B, C and D.


A ☐


B ☐


C ☐


D ☐

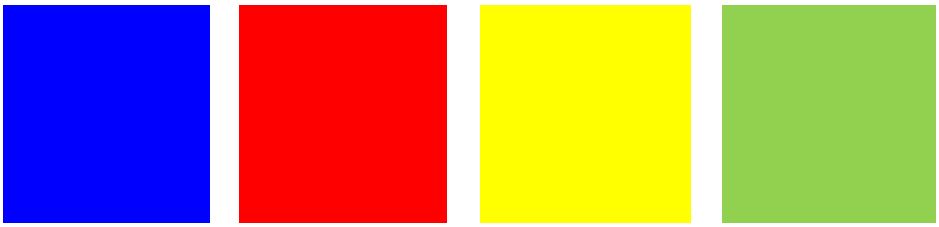
2. In terms of **liking**, please allocate points out of 10 to the above options of bakpia product so that the sum is 10. For example, if option A is 6 points, then allocate the rest of the points to the remaining four options B, C and D.

The following questions relate to your personal information and will not be individually identifiable. The individual level information will be secretly kept and will not be reported as publications.
Please indicate one of the options that most describe your personal information.

1. Gender:
   - ☐ Male
   - ☐ Female
2. Age (years):
   - ☐ 18 – 24
   - ☐ 25 – 30
   - ☐ 31 – 35
   - ☐ 36 – 40
   - ☐ 41 – 45
   - ☐ 46 – 50
   - ☐ Over 50
3. Place of living (based on your identity card):
   - ☐ City of Yogyakarta
   - ☐ Other city in Yogyakarta Special Region Province
   - ☐ Other city in Indonesia
   - ☐ Other country
4. This question is for participants who live in other city than city of Yogyakarta, in the area of Yogyakarta Special Region, Indonesia
   How often do you visit city of Yogyakarta?
   - ☐ Everyday
   - ☐ Many times in a week
   - ☐ Once a week
   - ☐ Many times in a month
   - ☐ Once a month
   - ☐ Once in three months
   - ☐ Once in six months or a year
5. This question is for participants who live in other province than province of Yogyakarta Special Region, in the country of Indonesia
   How often do you visit city of Yogyakarta?
   - ☐ Monthly or more frequently than that
   - ☐ Many times in six months
   - ☐ Once in six months
   - ☐ Many times in a year
   - ☐ Once a year
   - ☐ Once in few years

6. This question is for participants who live in other country than country of Indonesia
   How often do you visit city of Yogyakarta (city in the Yogyakarta Special Region Province, Indonesia)?
   - ☐ Monthly or more frequently than that
   - ☐ Many times in six months
   - ☐ Once in six months

☐ Many times in a year
☐ Once a year
☐ Once in few years



☐ ☐ ☐ ☐

In terms of liking, please allocate points out of 10 to the above options of colour so that the sum is 10. For example, if option A is 6 points, then allocate the rest of the points to the remaining four options B, C and D.

If there are any comments regarding this questionnaire or this research topic, please do so below.

……

……

……

……

THANK YOU VERY MUCH FOR YOUR PARTICIPATION AND CONTRIBUTION


1. On the scale of 1-7, how would you rate your preferences about the product?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

least preferred — most preferred

2. On the scale of 1-7, how would you rate your likeability about the picture?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

least liked — most liked

On the scale of 1-7, I think the above Bogra Dohi product is:

inferior quality — superior quality

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

very unsafe — completely safe

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

inferior quality appearance — superior quality appearance

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

low value — high value

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bogra Dohi product, I would:

least likely buy it — most likely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

definitely not buy it — definitely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

not consider buying it — consider buying it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bogra Dohi product:

1. I will speak of it much more frequently than any other bogra dohi.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

2. I will recommend this bogra dohi.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

3. I will speak unflatteringly of this bogra dohi to others.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

4. I will encourage others to buy this bogra dohi product.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

| After you see the picture, please indicate to what extent you agree or disagree about the following statement. | Scale of 1-7, where 1 being *strongly disagree* & 7 being *strongly agree* | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. The above colour of the package fits well with the bogra dohi product category. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. The colour of the package is compatible with the bogra dohi product category. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. The colour of the package has positive meaning. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. The colour of the package makes the product more palatable. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I highly prefer the colour of the above package. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

What do you associate the above colour of package with? (For example: “I associate the colour of package with healthiness”, “I associate the colour of package with happiness”, and so on)

……


1. On the scale of 1-7, how would you rate your preferences about the product?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

least preferred most preferred

2. On the scale of 1-7, how would you rate your likeability about the picture?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

least liked most liked

On the scale of 1-7, I think the above Bogra Dohi product is:

inferior quality superior quality

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

very unsafe completely safe

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

inferior quality appearance superior quality appearance

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

low value high value

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bogra Dohi product, I would:

least likely buy it most likely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

definitely not buy it definitely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

not consider buying it consider buying it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bogra Dohi product:

1. I will speak of it much more frequently than any other bogra dohi.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

2. I will recommend this bogra dohi.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

3. I will speak unflatteringly of this bogra dohi to others.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

4. I will encourage others to buy this bogra dohi product.

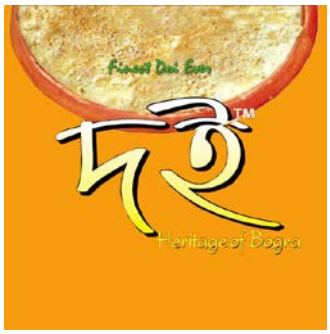
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

| After you see the picture, please indicate to what extent you agree or disagree about the following statement. | Scale of 1-7, where 1 being *strongly disagree* & 7 being *strongly agree* | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. The above colour of the package fits well with the bogra dohi product category. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. The colour of the package is compatible with the bogra dohi product category. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. The colour of the package has positive meaning. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. The colour of the package makes the product more palatable. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I highly prefer the colour of the above package. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

What do you associate the above colour of package with? (For example: “I associate the colour of package with healthiness”, “I associate the colour of package with happiness”, and so on)

……




1. On the scale of 1-7, how would you rate your preferences about the product?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

least preferred most preferred

2. On the scale of 1-7, how would you rate your likeability about the picture?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

least liked most liked

On the scale of 1-7, I think the above Bogra Dohi product is:

inferior quality superior quality

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

very unsafe completely safe

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

inferior quality appearance superior quality appearance

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

low value high value

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bogra Dohi product, I would:

least likely buy it most likely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

definitely not buy it definitely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

not consider buying it consider buying it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bogra Dohi product:

1. I will speak of it much more frequently than any other bogra dohi.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

2. I will recommend this bogra dohi.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

3. I will speak unflatteringly of this bogra dohi to others.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

4. I will encourage others to buy this bogra dohi product.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

| After you see the picture, please indicate to what extent you agree or disagree about the following statement. | Scale of 1-7, where 1 being *strongly disagree* & 7 being *strongly agree* | | | | | | |
|---|---|---|---|---|---|---|---|
| 6. The above colour of the package fits well with the bogra dohi product category. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
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| 8. The colour of the package has positive meaning. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. The colour of the package makes the product more palatable. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. I highly prefer the colour of the above package. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

What do you associate the above colour of package with? (For example: “I associate the colour of package with healthiness”, “I associate the colour of package with happiness”, and so on)

……


1. On the scale of 1-7, how would you rate your preferences about the product?

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|---|---|---|---|---|---|---|

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2. On the scale of 1-7, how would you rate your likeability about the picture?

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|---|---|---|---|---|---|---|

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| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

very unsafe completely safe

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

inferior quality appearance superior quality appearance

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

low value high value

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bogra Dohi product, I would:

least likely buy it most likely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

definitely not buy it definitely buy it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

not consider buying it consider buying it

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

On the scale of 1-7, in relation to above Bogra Dohi product:

1. I will speak of it much more frequently than any other bogra dohi.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

2. I will recommend this bogra dohi.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
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| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

strongly disagree strongly agree

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| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
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| After you see the picture, please indicate to what extent you agree or disagree about the following statement. | Scale of 1-7, where 1 being *strongly disagree* & 7 being *strongly agree* | | | | | | |
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| 3. The colour of the package has positive meaning. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. The colour of the package makes the product more palatable. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I highly prefer the colour of the above package. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

What do you associate the above colour of package with? (For example: “I associate the colour of package with healthiness”, “I associate the colour of package with happiness”, and so on)

……

How frequently have you bought a bogra dohi product in the last six months?

- ☐ More than once a month
- ☐ Once a month
- ☐ Once in two-three months
- ☐ Once in a six months
- ☐ None in the last six months
- ☐ Never

A ☐

B ☐

C ☐

D ☐

1. In terms of **preference**, please allocate points out of 10 to the above options of bogra dohi product so that the sum is 10. For example, if option A is 6 points, then allocate the rest of the points to the remaining four options B, C and D.

A ☐

B ☐

C ☐

D ☐

2. In terms of **liking**, please allocate points out of 10 to the above options of bogra dohi product so that the sum is 10. For example, if option A is 6 points, then allocate the rest of the points to the remaining four options B, C and D.

The following questions relate to your personal information and will not be individually identifiable. The individual level information will be secretly kept and will not be reported as publications.
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1. Gender:
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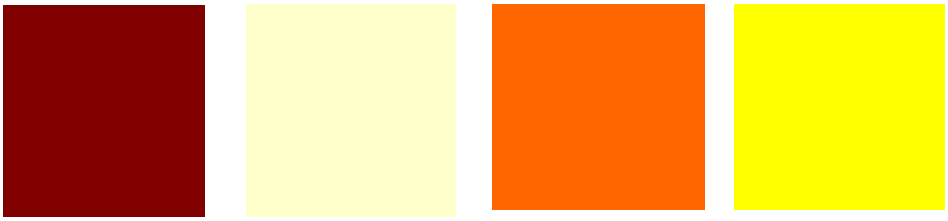
   - ☐ Female
2. Age (years):
   - ☐ 18 – 24
   - ☐ 25 – 30
   - ☐ 31 – 35
   - ☐ 36 – 40
   - ☐ 41 – 45
   - ☐ 46 – 50
   - ☐ Over 50

3. Place of living:
   - ☐ Bogra city
   - ☐ Other city in Bogra District
   - ☐ Other city in Bangladesh
   - ☐ Other country
4. This question is for participants who live in other city than Bogra city, in the area of Bogra district
   How often do you visit Bogra city?
   - ☐ Everyday
   - ☐ Many times in a week
   - ☐ Once a week
   - ☐ Many times in a month
   - ☐ Once a month
   - ☐ Once in three months
   - ☐ Once in six months or a year
5. This question is for participants who live in other district than Bogra district, in the country of Bangladesh
   How often do you visit Bogra city?
   - ☐ Monthly or more frequently than that
   - ☐ Many times in six months
   - ☐ Once in six months
   - ☐ Many times in a year
   - ☐ Once a year
   - ☐ Once in few years

6. This question is for participants who live in other country than Bangladesh
   How often do you visit Bogra city?
   - ☐ Monthly or more frequently than that
   - ☐ Many times in six months
   - ☐ Once in six months

☐ Many times in a year
☐ Once a year
☐ Once in few years



☐ ☐ ☐ ☐

In terms of liking, please allocate points out of 10 to the above options of colour so that the sum is 10. For example, if option A is 6 points, then allocate the rest of the points to the remaining four options B, C and D.

If there are any comments regarding this questionnaire or this research topic, please do so below.

……

……

……

……

THANK YOU VERY MUCH FOR YOUR PARTICIPATION AND CONTRIBUTION

## References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