Gender and Cultural Effects on Consumer Colour-Purchase Decisions

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ABSTRACT

Understanding the reason why consumers choose to buy products in one colour rather than another is important to retailers and designers. A relationship between individual general colour preference and product-colour choice may predict consumers' purchase decisions. This could give a small but important advantage to the market, and help to indicate when a multi-colour product design strategy makes sense.

This paper is concerned with whether a consumer's general colour preference could influence their purchase decisions, and the relationship between them. In this study, two psychophysical experiments have been carried out (an online survey and a laboratory experiment). In both experiments, participants were presented with products (54 in total) in a range of different colours (6 colours in each product), and asked to indicate which colour product they would prefer to buy. After this, participants were asked about their personal general preferred colour.

A strong relationship between consumer general colour preferences and their purchase decisions was found. Participants tended to choose products in a colour that was the same as their personal preferred colour, but it was found that the strength of this relationship varied across different product categories. The study also confirmed findings from the literature that people generally prefer cool colours to warm colours but that there were some gender and culture differences such that females and Chinese participants prefer slightly warmer hues than males and UK participants. Also, colour-performance or colour-function factors have slightly greater influence on males and Chinese participants rather than females and UK participants.

KEYWORDS: colour preferences, purchase decision, design

INTRODUCTION

Colour preference *per se* has been studied by many researchers [3] that although there are some general trends, for instance, people tend to prefer cool colours and to dislike warm, and individual colour preferences vary from person to person [1, 2]. There are also some studies that show that gender [4], culture [8] and context [6] may affect colour preferences. Consumer decision making can be characterised as a consumer's approach to making a choice [7]. The visual elements of a product, or even its packaging, potentially affect consumer purchase decisions as it provides an attractive method to convey messages about product attributes at the point of sale. Indeed, colour is one of the most important elements of visual merchandising and can influence consumer behaviour and consumer purchase decisions [5, 10]. Numerous studies have explored the relationship between colour and product preference [11]. Although some studies have considered whether differences in colour preferences between different cultural and gender groups could be used to affect purchase preferences, their role in purchase decisions is less clear. This paper is concerned with whether a consumer's colour preference could influence their purchase decisions, and the relationship between them. It is concerned with whether gender or culture may affect colour preference or consumers' purchase decisions.

EXPERIMENTAL

In this study, six colours patches (red, orange, yellow, green, blue and purple) were selected to determine participants' individual colour preference; the colours have almost identical saturation and brightness so that the only variable was hue (the work may later be extended to include saturation and brightness as study factors). The

display was colour characterised; however, coloured patches were defined by sRGB values, the actual colours that were displayed on our monitor were measured using a Minolta CS100A colorimeter and these are reported in Table 1 for the colour squares by using CIELAB values.

Table 1. The sRGB and CIELAB colour coordinates of the six basic colour patches.

Coloured Squares	Red			Orange			Yellow			Green			Blue			Purple		
sRGB	255	0	0	255	127	0	255	255	0	0	255	0	0	0	255	127	0	255
CIELAB	40.01	55.08	58.27	49.84	28.88	64.20	72.35	-17.18	80.75	63.85	-68.14	69.37	17.65	75.93	-89.76	29.46	61.16	-63.54

In this study, 54 products were selected (see Table 2) all of which were household kitchen and bathroom products, which are typically used every day. Each of the 54 products was digitally manipulated in Adobe Photoshop to create images in each of the six colours (red, orange, yellow, green, blue and purple). Figure 1 illustrates the coloured images for two products and also the six colour patches that were used to determine participants' individual colour preferences.

Table 2. The 54 products that were used in the study.

Table Cleaner	Toilet Gel	Shampoo	Cleaner	Bowl Set	Dustpan
Shower Gel	Dental Floss	Iron	Facial Cleaner	Kettle	Candle
Condom	Deodorant	Toilet Tissue	Hair Dryer	Pan	Picnic Box
Bin	Mouthwash	Tissue	Shave Splash	Scissors	Bottle Opener
Bathroom Set	Soap Bar	Sanitary Towel	Towels	Slice Toaster	Hair Brush
Coffee Maker	Toner	Face Brush	Opener	Stew Pot	Water Maker
Facial Cream	Hand Cream	Toothpaste	Tableware	Tooth Brush	Steam Cleaner
Washing Up Liquid	Laundry Detergent	Iron Casserole Pot	Hair Treatment	Bulb	Gift Set
Hand Wash Gel	Cleaning Sponge	Espresso Maker	Makeup-Remover	Chair	Mug

Two experiments were employed in this study, an online survey and a laboratory experiment. In both experiments participants were showed the six coloured images for each product in turn (the order were presented randomly for each participant), and asked to investigate which colour they would like to choose if asked to select a product to purchase. In the laboratory experiment, participants were additionally asked to indicate, for each product, to what extent they think colour could be related to the products' performance and function. Participants did this by selecting from a 5-point Likert scale (where one extreme was no relationship with functionality/performance and the other extreme was 100% relationship with functionality/performance). At the end of each experiment, participants were asked which colour patches they prefer most.

Figure 1: The coloured images for two of the products in each of the six colour options and the six colour patches that were used to determine colour preference.

The laboratory experiment took place a dark room in the Experience Design Laboratory at the University of Leeds. Stimuli were displayed on a HP DreamColor LP2480zx Professional Display (24-inch Diagonal LCD

Backlit Monitor). The size of each image was 5 × 4 mm displayed on a uniform grey background (CIE L* = 50) and participants viewed the screen from a distance of about 1m.

In the online survey, a total of 173 participants were recruited to participate, comprising of 62 males and 111 females, and 49 UK and 73 Chinese. For the laboratory experiment, 39 participants were recruited to take part in laboratory experiment, including 18 males and 21 females, and 14 UK and 19 Chinese.

RESULTS AND DISCUSSION

In general, for colour preference, the data from both experiments show that females prefer reddish colours (red and purple) and males prefer bluish colours (blue and green) which broadly agrees with Schloss and Palmer [9]. In addition, purple was more strongly preferred by UK participants than by Chinese.

For the data analysis, the percent of times that the chosen product colour is the same as that person's general colour preference is referred to as the *colour consistency rate*. Since there six different colours, chance performance (where there is no relationship between general colour preference and the colour of the product that is selected) is about 17%. Colour consistence rates substantially higher than 17% suggest that participant general colour preference influences their purchase behaviour (colour choice) for that product.

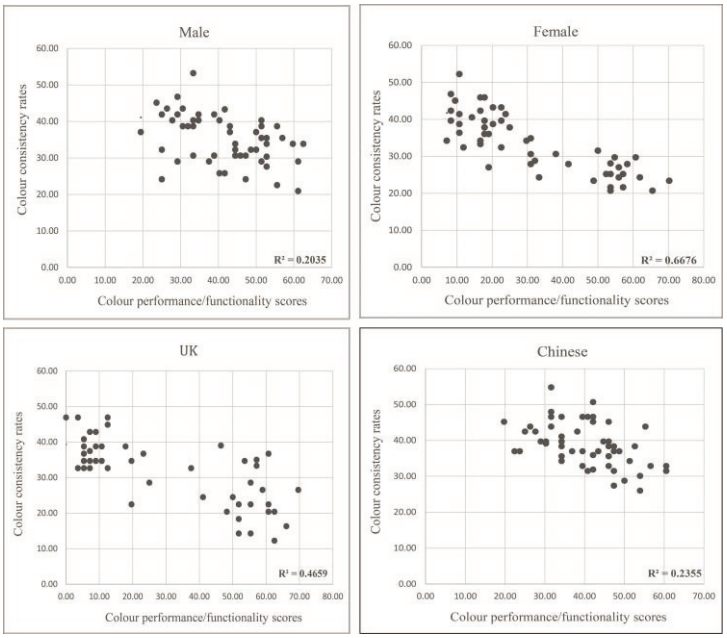

Figure 2: The relationship between colour performance/functionality scores (obtained from the laboratory experiment) and the colour consistency rates (obtained from the online experiment).

In the online experiment the average colour consistency rate was 34.2% and in the laboratory experiment it was 30.1%. In all cases, the consistency rate was higher than 17% (suggesting that colour preference affects product colour choice) and in some cases the colour consistency rate was very high; the highest colour consistency rate online was for the Espresso Maker (48.6%) and the highest colour consistency rate in the laboratory was for the Mug (51.3%). The average colour consistency rates for males and females, and for UK and Chinese participants were all rather similar (29.0%, 31.0%, 30.7% and 30.6% respectively). Most interestingly, there was a relationship between the functionality/performance score (obtained from the 5-point Likert scale) and the colour consistency rate. For products where participants judged colour to be a strong influence on functionality or performance such as for mouthwash (66.7%) and washing up liquid (57.1%) the colour consistency rate was low. For products where colour was weakly related to performance and functionality such as for scissors (13.5%) and can opener (16.0%) the colour consistency rate was high.

Whenever colour implies something about how well the product works or how it smells/tastes for example (*colour-performance* or *colour-function factors*), we suggest that individual colour preferences make little or no impact on consumer purchase decisions. For example, people may buy a yellow washing liquid no matter what their personal general colour preference is because they like the smell of lemons. This could explain why in some studies it has been found that a relatively narrow range of colours is preferred for some products whereas other products are frequently found (and preferred by consumers) in a very wide range of colours. Figure 2 shows the correlation between the colour functionality/performance scores (obtained from the laboratory experiment) with the colour consistency rates (obtained from the online experiment) for different gender (male and female) and nationality (UK and Chinese) groups. The coefficient of male and female, and UK and Chinese are 0.20, 0.67, 0.47 and 0.24 respectively. In other words, colour-performance or colour-function factors may have slightly greater influence on males and Chinese participants rather than females and UK participants.

CONCLUSION

Colour is an important marketing tool for many products. This could give a small but important advantage to the market, and help to indicate when a multi-colour product design strategy makes sense. This study confirmed findings from the literature that people generally prefer cool colours to warm colours but that there were some gender and culture differences such that females and Chinese participants prefer slightly warmer hues than males and UK participants. The data from two experiments suggest that for all of the products tested participants are more likely to indicate that they would purchase a product in their favourite than in a random colour. Product colour preference decisions are often associated with expected performance, reliable function or other factors depending on the type of the products. From the results of the correlation of the colour functionality/performance scores, colour-performance or colour-function factors have slightly greater influence on males and Chinese participants rather than females and UK participants. The work in this study is limited to household kitchen and bathroom products and it is yet to be determined whether the same findings will apply other product categories.

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