

## INFLUENCE OF COSMETIC PACKAGING' COLOR ON PRICE PERCEPTION AND CONSUMER PREFERENCES

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**Abstract:** during the purchasing process, the consumer confronts several packaging designs of different colors carrying or conveying sensory messages; the consumer then interprets these messages and it's at this moment which several factors intervene (affective, effective and conative elements). In this research, we focus more specifically on the vision, sense generated first by the consumer at the perception of a product' packaging design. For this, we chose a cosmetic product packaging (deodorant) for our study, we will present images of packaging in different colors to participants, and after they have to answer to a questionnaire. Thus, we will study the perception and the preferences of colors according to the consumer gender, the colors impact on the perception of products price, and information's memorization.

**Key words:** Design, Color, Product, Price perception, Associative learning, Consumer behaviour.

**JEL classification:** M31, L66, M39

### 1. Introduction

Color is a major element in the choice of any design, but does the chosen color reveal something about the consumer? Is he influenced by colors? And if so, is there a way for marketers to use this influence? During the purchasing process, the consumer confronts several product designs of different colors carrying sensory messages, so the consumer interprets these messages and it's at this moment that several factors intervene. In this research, we focus more specifically on the vision, sense generated first by the consumer at the perception of a packaging. Thus, we will study the color impact on the perception of products price and information' memorization. Also, we will see the influence of associative learning in the consumer choice and decisions. The main objective of our research is to provide answers to the following questions: How does the design' color influence consumer behavior? On which criteria will one design be chosen over another by the consumer? What role and importance does design' color play in the consumer's purchasing choice?!

The aesthetic aspect of a product is a pleasure source for the consumer. The design influence is an important factor for the product success. As a result, the appearance of a packaging is one of the main motivations for the purchase. Thus, the color of design is one of the essential elements to awaken the visual sense of the consumer. It produces a form of attraction, communicates the brand values and evokes emotions towards the product. As a result, a number of studies have focused on the influence of color in general and the influence of the product color itself on consumers. However, very little research has been done on the influence of packaging design' color. Some researchers study packaging by opting for an analytical approach. They study the influence of one or more components on consumer reactions: size and shape (Wansink and others, 2003); shape and color (Sohier, 2009); visual information and form (Garber and others, 2008). (Vila and Ampuero, 2007) studied the color, shape, images and typography of the packaging to define the positioning strategies of a product according to the chosen positioning and the targets. The authors show that whatever may be the targets, the color seems the most relevant element to define a positioning.

### 2. Literature review

Colors help us to process, remember and memorize informations more effectively. It is one of the most immediate ways of conveying messages. Colors stimuli work in synergy with all senses, symbolize concepts and thoughts, express imagination, recall a moment or a place and evoke an emotional response (Umamaheswari, 2013). Each color has a meaning which varies from one

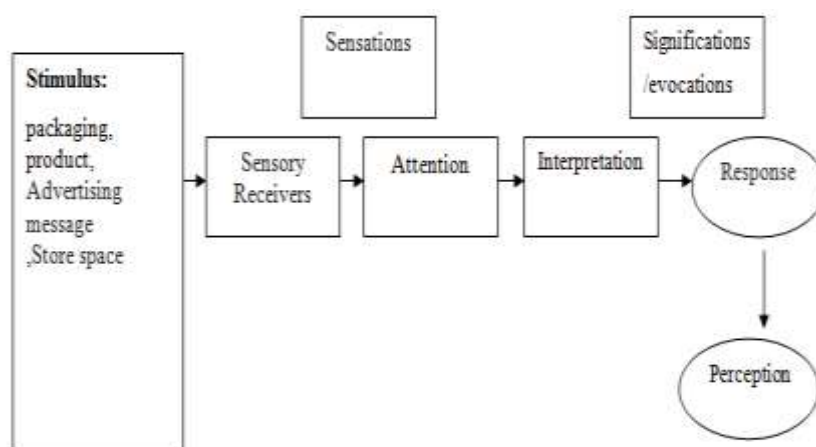
consumer to another. Color influences the way we view and process informations. It improves the ability to remember words and images and it is considered as a vital factor in memory retention. The consumer uses a different color to highlight each subject, to identify specific products by theme and by detail. (Nicholson, 2003) postulates that the color of an object would be stored in the visual memory. Indeed, based on these statements, it would appear that consumers form mental images of the products and the packaging that they are confronted with. When they see them, they memorize them as images, which will enable them to visualize the products when they have disappeared from their field of vision. A mental image is much easier to remember than its auditory or textual equivalent.

(Grossman, 1999) argue that consumer' preferences depend on two things: prior positive experience and associative learning. Either the preference for a color would come from a previous positive experience with that color, or the preference would come from learning that certain colors are more appropriate than others for such type of product. Colors convey psychological messages that vary from one person to another. These messages influence the perception of the product itself, which generates emotions, cognitive responses, and different attitudes from one consumer to another. The design influence is an important factor for the product success. As a result, the appearance of a packaging is one of the main motivations for the purchase. Thus, the color of design is one of the essential elements to awaken the visual sense of the consumer. It attracts, communicates the brand values and evokes emotions towards the product. As a result, a number of studies have focused on the influence of color in general and the influence of the product color itself.

However, very little research has been done on the influence of packaging design' color. Some researchers study the influence of one or more components on consumer reactions: size and shape (Wansink and others, 2003); shape and color (Sohier, 2009); visual information and form (Garber and others, 2008). (Sohier and Brée, 2004) studied the influence of red and blue colors of mineral water bottles. The blue bottle is considered more sophisticated and exciting than the red bottle. Design' color also influences the perceptions of the price and the quality of the product. According to (Gallen and Sirieix, 2007), the characteristics attributed to a product vary according to the color of the packaging. According to literature data, the experience of consumer with different designs, allows him to associate them with certain given colors and to judge them appropriately. Experience and habit make the consumer automatically link certain colors to certain product designs. Any color changing will influence the consumer's judgment for this product. According to (Ingarao, 2004), the consumer has mental images of the design he has been confronted with; for the consumer, these representations are symbolized by a prototype that comes from his previous experience with the product' design (Crilly and others, 2004). Consumers can make comparisons between a design and their visual references. These depend on the personal experience of each consumer. Indeed, the consumer would compare the product design itself with its product category stereotypes (Crilly and others, 2004).

### **3. Methodology**

The proposed theoretical model explains how colors affect consumer behavior. However, the effect of color on the latter sometimes passes through other variables such as judgments which themselves develop mainly according to the consumer age and gender, his culture and his previous experience with colors; so these judgments will later influence the choice as well as the consumer behavior. In this research, variables maintained for consumer responses are: cognitive responses; emotional reactions; memorization; and beliefs. The conceptual models that guide research into the influence of color on consumer behavior are stimulus-organism-response models, including the perceptual process model (Figure 1).



**Fig. no.1: the perceptual process model**

(Sources: Solomon and others, 2010, p.119)

According to the informations gathered in the literature, we were able to determine that the designs' are estimated very differently according to the consumers who evaluate them. Thus, the color plays a key role in the appreciation and the choice of a design. The purpose of this research is therefore to study the impact of the color on the perception of the product attributes (price), and information memorization. Our hypotheses stem from literature data on the relationship between packaging design, colors and their influence on consumer behavior. Several hypotheses have been proposed to answer our research question: What is the influence of design' color on the product perception?

**The hypotheses proposed are the following:**

- H.1: Color preference influences the choice of design.
- H.2: Color' choice of design varies according to gender.
- H.3: The color of packaging design influences the product price perception.
- H.4: The color of packaging design influences the perception of the products attributes.
- H.5: Previous consumer experience determines its color / design associations.
- H.6: Colors influence information's' memorization.

In order to determine the impact of design' color on consumer behavior, a quantitative survey was conducted to establish a link between colors and their influence on the perception of the product. For this, we studied the design packaging of cosmetic product (deodorants). The study is conducted on a multicultural population of 203 individuals, women, and men of different age, nationalities and professions.

**3.1. The choice of products**

The study has been conducted on cosmetics packaging (deodorant). The choice of this design packaging will allow us to estimate the colors impact on the evaluation and judgments that generate attitudes on which the consumers decide the approval or the refusal of a given design. The product is used by a large number of people and is very familiar to them; which increases the chances to obtain significant results. These packagings are presented to respondents in form of images modified using the Adobe Photoshop CC (version 2017.0.1) program, in order to remove any mark or symbol that could skew the results.

**3.2. The choice of colors**

We have limited our research to a single design variable which is: color. More specifically, we are interested in the dominant color of the design. We inquired about the predominant colors used for deodorants packaging after having been informed about the predominant colors used for

packaging of deodorants in market. We chose thirteen colors: red, orange, yellow, green, blue, purple, pink, brown, grey, white, black, golden and silver. It will be necessary to present the possible number of colors to be sure that the favorite color of each individual is represented. In addition, some colors may be considered appropriate or not to the products presented.

### 3.3. Tools for data collection

The questionnaire allows the collaboration of a large number of subjects and leads to better results (Kotler, 2009). As a result, the questionnaire would be the most appropriate tool to gather the informations needed to test our research hypotheses that reveal links and influences of certain variables on others. The questionnaires were administered in January 2017 to a multicultural sample of different age groups. In order to avoid false answers, we asked the respondents if they suffered from trichromatic vision problems such as daltonism. The questionnaires were translated into three languages successively: French, English and Arabic; and were distributed locally and also administered online (electronic version) via social networks as well as by email, in order to get the participation of a large number of respondents from different nationalities / cultures. Each component was presented in such a way that the respondent will either have to choose one of the different colors proposed, or make an assessment using Likert scales. To analyze our results, we used the XLSTAT statistical data analysis computer program (2018.1).

## 4. Results

### 4.1. The favorite color

According to the results: we observe that blue color is predominant (22.7%), followed by successively pink (19.7%), red (15.8%), black (14.8%).

Khi-square (11,719); ( $p = 0.039$ ), since the calculated  $p$ -value is less than the significance level  $\alpha = 0.05$ , we must reject the hypothesis  $H_0$  according to which there is no difference in color preference.

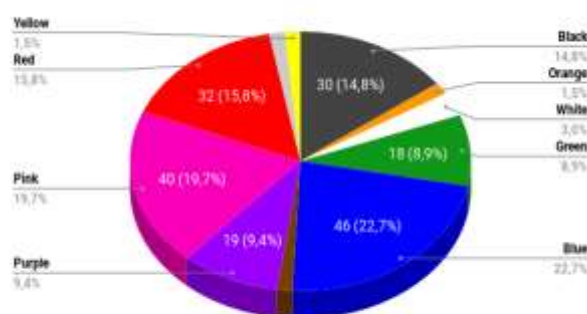


Fig.no.2: favorite colors

Source: Calculated by the author based on data from XLSTAT.

### 4.2. Color and deodorant packaging design

We will see the results related to the question: "when you thought of a deodorant; what color does its packaging design look like? The objective of this question was to study what color the consumer thinks is the most appropriate for a packaging design of a deodorant. Individuals during this stage will use their memory, stored information related to personal preferences as well as previous experiences with such type of product. The following results show which color individuals think is the appropriate one for a deodorant packaging. According to results, the appropriate color for a deodorant packaging is: white (40.4%), blue (16.3%), black (9.9%), grey (5.9%), green, pink and purple (5.4%), silver (3.9%), Golden (2.5%), red (2.5%), yellow, orange and brown (1%).

We studied the relationship between the favorite color and the chosen color of the deodorant. According to the results 31 on 203 participants chose a deodorant packaging color identical to their

favorite chosen color. On 46 people whose blue is the favorite color, 10 chose a similar color packaging. Of 30 having black as a favorite color, 6 chose a packaging color similar to their favorite color. According to the previous results, we can reject our hypothesis 1 according to which color preference influences the choice of the product packaging.

**Table. No. 1 : adequate color chosen for deodorant packaging**

Adequate color	effectifs	Frequency
<b>Black</b>	<b>20</b>	<b>9.9%</b>
Red	05	2.5%
<b>Blue</b>	<b>33</b>	<b>16.3%</b>
Yellow	02	01%
Green	11	5.4%
Pink	11	5.4%
Brown	02	01%
Orange	01	0.5%
Purple	11	5.4%
<b>White</b>	<b>82</b>	<b>40.4%</b>
Grey	12	05.9%
Silver	08	03.9%
Golden	05	02.5%
<b>Total</b>	<b>203</b>	

*Source: Calculated by the author based on data from XLSTAT.*

### 4.3. Deodorant packaging color and gender

The chi-square test and Fisher's test were performed to test whether the preferences and colors chosen for deodorants vary by gender, so we selected the most favorite colors (black, blue, and white) for men and women according to our study. According to test results (chi-square = 32.806,  $p = 0.0001$ ), Fisher's test ( $p = 0.0001$ ). Given that the calculated p-value is less than the significance level  $\alpha = 0.05$ , we must reject the hypothesis  $H_0$ , and retain the alternative hypothesis  $H_2$ , according to which the color' choice of design varies according to gender.

### 4.4. Deodorant packaging Color and price perception

To study the color influence on product judgment and price perception, respondents were asked to choose a color to answer the following question: Which deodorant do you think is expensive? Thus, to measure product price judgments related to design colors, we measured the (expensive) item using Likert scale, ranging from strongly agree to not at all agree. According to results, green and red packagings were considered the cheapest, while the silver and the golden ones were rated as the most expensive.

**Table no.2: Descriptive statistics**

Variable	Obs .	Min.	Max.	Moyenne	Ecart-type
red deodorant is expensive	203	1,000	5,000	2,241	1,237
black deodorant is expensive	203	1,000	5,000	2,857	1,359
blue deodorant is expensive	203	1,000	5,000	2,374	1,185
white deodorant is expensive	203	1,000	5,000	2,704	1,429
orange deodorant is expensive	203	1,000	5,000	1,926	1,043
yellow deodorant is expensive	203	1,000	5,000	1,916	1,047
green deodorant is expensive	203	1,000	5,000	2,054	1,091
pink deodorant is expensive	203	1,000	5,000	2,291	1,335
purple deodorant is expensive	203	1,000	5,000	2,384	1,227
brown deodorant is expensive	203	1,000	5,000	1,931	1,088
golden deodorant is expensive	203	1,000	5,000	3,365	1,440
silver deodorant is expensive	203	1,000	5,000	3,655	1,375

Source: Calculated by the author based on data from XLSTAT.

**Table no. 3: pairwise comparisons.**

Sample	Effectif	Sum of Rank	Mean Rank
I think the yellow deodorant is expensive	203	1020,500	5,027
I think the brown deodorant is expensive	203	1038,500	5,116
I think the orange deodorant is expensive	203	1039,000	5,118
I think the green deodorant is expensive	203	1127,000	5,552
I think the red deodorant is expensive	203	1194,000	5,882
I think the pink deodorant is expensive	203	1237,500	6,096
I think the blue deodorant is expensive	203	1292,000	6,365
I think the purple deodorant is expensive	203	1297,000	6,389
I think the white deodorant is expensive	203	1429,000	7,039

I think the black deodorant is expensive	203	1522,500	7,500
I think the golden deodorant is expensive	203	1776,500	8,751
I think the silver deodorant is expensive	203	1860,500	9,165

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*Source: Calculated by the author based on data from XLSTAT.*

Friedman's test shows that the ranks differ significantly in price, since the calculated p-value ( $<0.0001$ ) is less than the alpha significance level = 0.05, the hypothesis  $H_0$  must be rejected, and we accept the hypothesis 3 according to which the packaging color influences the price perception of the products. Which leads us also to confirm the hypothesis 4 according to which, the color of packaging design influences the perception of the products attributes.

#### 4.5. Previous experience and deodorant packaging design

Consumers can make comparisons between a design and their visual references. These ones depend on the personal experiences of each consumer. In fact, the consumer would compare the product design itself with its product category stereotypes (Crilly and others, 2004), it would seem that consumers form mental images of design products they are confronted with, once they see them, they memorize them as images, which will allow them to visualize the products when they have disappeared from their field of vision. According to results, (Chi-square = 766.937,  $p = 0.0001$ ). Given that the calculated p-value is below the level of alpha = 0.05, we must reject the hypothesis  $H_0$ , and retain the alternative hypothesis  $H.5$  according to which, previous consumer experience determines its color / design associations. And  $H.6$ : the colors influence informations memorization.

#### 4.6. Hypothesis verification

H.1: Color preference influences the choice of design. Denied

H.2.: Color' choice of design varies according to gender. Confirmed

H.3: The color of packaging design influences the product price perception. Confirmed

H.4: The color of packaging design influences the perception of the products attributes. Confirmed

H.5: Previous consumer experience determines its color / design associations. Confirmed

H.6: Colors influence information's' memorization. Confirmed

#### 5. Discussion of results

The main objective of our research was to study and measure the impact of design color on consumer behavior. Thus, the results obtained confirm the existence of an important influence of color as a design element on the consumer perceptions and judgments towards the product. According to the results obtained, the most favorite color is blue. The results show that people's general preferences for color do not influence their buying choices. We found that consumers choose designs regardless of their favorite color. Citing for example, the fact that blue was chosen as the favorite color in our study, this color was not chosen for the packaging design of the product on offer. Indeed, white is chosen as the favorite and the appropriate color for the deodorant packaging design.

The results obtained highlight the existence of a link between gender and the choice of color of packaging design. Regarding the deodorant packaging, the white color is dominant of which (51.77%) women chose this color, and (14.51%) men, followed by blue chosen by (29.03%) men and (10.63%) women; and black which was chosen by (19.35%) men and (5.67%) women. According to the results obtained, the choice of the packaging color varies according to the type of product, the congruence between the product and its packaging but also according to gender.

Our study shows that the design color influences the perception of the product price. Regarding the deodorant, the green and red colors were considered the cheapest ones, while the silver and golden were considered the most expensive.

The consumer's previous experience with product design allows him to associate them with certain given colors and to judge them appropriately. Experience and habit automatically link certain colors to certain designs. Any color change will influence the consumer's judgment for this product. According to (Ingarao, 2004), the consumer has mental images of the product design he has been confronted with; For the consumer, these representations are symbolized by a prototype that arises from his previous experience with the design product (Crilly and others, 2004); a consumer who buys for example a deodorant whose packaging design is white will therefore tend to buy a deodorant of this color when confronted with a new packaging design. On this fact therefore the prior experience of consumer influences his mental representations and his choice.

## 6. Future research direction

In our next research we will focus on the study of the influence of design color but for another category of products; we want also to enlarge our research and study the impact of culture on color preferences and consumer beliefs and product perceptions. We will study the influence of design color on the product quality perception as well as the taste perception. And try to understand and analyze more the psychological and physiological effect of colors on consumer behavior.

## 7. Conclusion

The importance of color is irrefutable. Following the results obtained, we conclude that color is an essential element in marketing; it influences the product price perception. It also induces beliefs and influences the judgment, as well as the consumer choice.

However, the previous experience with the product and its color seems to play a decisive role in this process. We have shown a link between mental representations, past experience and consumer choice; the obtained results show clearly the impact of design color on consumer behavior, taking into account the product itself because it's the link color / product which seems to be determining in the process of influence.

Design color can give the consumer a global vision of what he can expect when buying the product; marketers should ensure consistency and congruence between the proposed product and its packaging color.

This work leads us to confirm the dominant role of design color on the perception of the product price and its evaluation. It justifies the use of color as the main element of differentiation design when it comes to evaluating, or choosing a product from the consumer. The color of design is a powerful tool that must be taken into consideration when creating a new product. Indeed, it certainly plays an important role in the success or failure of the product.

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