## The influence of product color displayed on online advertisements and consumer personality on purchase intention: the moderating role of age and gender.

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**ABSTRACT**

Consumer purchasing patterns has been affected by COVID-19 health Crisis. Thus, companies must adapt to this change by focusing on understanding the different variables affecting the post pandemic purchase intentions of consumers. Therefore, the basic objective of this study is the development of an integrated framework to investigate the impact of the colors used for products on online advertisement and the consumer personality on the purchase intention of customers in the context of post pandemic. This study will also focus on highlighting the moderating role of age and gender on the relationship between the three constructs. Data were collected from customers of 53 Moroccan textile companies operating in the E-commerce industry. The data was analyzed, and the theoretical model was validated using Partial least square (PLS) and structural equation model (SEM). The findings show that: the color of the product displayed in the advertisement has a high impact on the purchase intention of consumers; the personality of the consumer impact positively the purchase intention of the consumer, and finally, color of the product displayed on the advertisement has a bigger impact on the purchase intention of young people than old people while age doesn’t have any significant impact on the relationship between personality and purchase intention. The contribution of this study is to emphasize the roles of understanding the use of colors in advertising and the personality of consumers, during the post pandemic, on consumer purchasing intention, so that companies can innovate and differentiate their offered advertisement to meet the needs and survive the crisis.

**Keywords:** Color perception, advertising, consumer’s personality, purchase intention, post pandemic COVID-19.

**INTRODUCTION:**

Nowadays, the globalization and the competition over consumers push companies to search for creative methods to influence and attract more consumers. Therefore, companies are obliged to go beyond the classical marketing tools. Sensory marketing is one of the new marketing concepts that was introduced in the marketing literature for the past few years. This concept suggests using human senses to create the emotional characteristics of product and to secure strong relations with a consumer (Hultén, 2011; Funk & Ndubisi, 2006; Kosslyn & Thompson, 2003). It also suggests the use of colors to create a competitive advantage, reinforce loyalty, and increase number of intentions to shop again. Thus, understanding the consumer’s color perception towards products can have a powerful impact on driving his purchase intention. In addition, understanding aspects such as the consumer’s personality will help the company to understand the consumer and his purchase intensions. He et al. (2018) in his study related to electronic vehicles products, argue that some dimensions of consumer’s personality have a significant influence on consumer purchase intention of products.

However, with the increase of digital development of new technologies, and after the COVID-19 pandemic crisis, consumers became more oriented to shop using online platforms. This obliged companies to focus more on creating and developing online advertisement to target more consumers. Consequently, the object of this study is to research empirically the consumer’s color perception and his personality depending on two demographic factors: gender and age.

**THEORETICAL BACKGROUND, MODEL, AND HYPOTHESIS:**

The consumer's purchase intention

The concept of purchase intention and more specifically online purchase intention is one of the intensive research areas in the existing literature. The consumer's intention to buy online in the online shopping environment helps determine the strength of a consumer's intention to perform a specific shopping behavior through the Internet (Salisbury et al., 2001). Furthermore, the reasoned action theory suggested that consumer behavior can be predicted from intentions that correspond directly in terms of action, goal, and context to that consumer behavior (Ajzen and Fishbein, 1980). Furthermore, Heijdein et al. (2001) define online purchase intention by the threshold at which the consumer is inclined to purchase a product or service from a specific website, while for Ling et al., 2010 online purchase intention is the situation in which a customer is ready to engage in an online transaction.

Moreover, according to (Pavlou, 2003) purchase intention is the situation which manifests when a consumer is willing and intends to become involved in online transactions. Chen & Barnes (2007) argue that online transactions have three different characteristics: The interactions use extensive technology, the uncertain, temporal, impersonal character of the online transaction environment, and the open, unpredictable, and technological infrastructures during the processes of online transactions (Ba and Pavlou, 2002; Pavlou, 2003).

Furthermore, in this study, three items were chosen from the literature to measure consumers' online purchase intention (Chen & Barnes, 2007; Gefen, 2000; Gefen & Straub, 2004; Pavlou, 2003; Shim et al., 2001; Zwass, 1998). These elements include:

* Willingness to transact with the company’s online shop in the near future.
* The intention to use the retailer’s online shop.
* Prediction to use the retailer’s online site in the future.

The perception of color

According to Bernard Roullet et al. (2003, p. 1) color is “an environmental or contextual variable that influences affective states or cognitive processes, whether or not using cultural or symbolic biases”. However, recently, color has occupied an important place in advertising. According to Pantin-Sohier and Brée (2004), a colorful advertisement activates the affective dimensions, unlike the cognitive dimensions which will be activated when faced with a black and white advertisement. Furthermore, Mayol and Gay (2008) assume that colors used in ads plays a crucial role in attracting attention and triggers more emotional reactions than a black and white ad. Dupont (1993) showed that a color advertisement enhances the product and attracts attention.

Divard and Urien (2001) consider that three aspects of the process of color perception deserve to be highlighted: These are the level of activation related to the activity, the ability of colors to attract attention and their ability to generate perceptual illusions.

* + 1. The level of color activation (physiological and psychological dimensions).

The level of activation is apprehended depending on the case through indicators of a physiological or psychological nature. For the physiological dimension of color, authors highlight the dynamogenic power of color (which increases with its wavelength). Accordig to Nakshian (1964) and Wilson (1966) red color has a more stimulating effect on the body as it induces higher levels of activation and attract the attention. Therefore, red is described as more stimulating and exciting and captures respondents' attention. For the psychological dimension of color, authors emphasize the capability of colrs to provoke emotions. Color activates affective dimensions (Dooley and Harkins, 1970), and individuals who select warm colors have shorter reaction times and seem more receptive to stimuli, while the ones who choose cold colors tend to be more selective in their responses and choices Bjerstedt (1960).

* + 1. Ability of colors to attract attention (marketing dimension).

The main role of colors in the field of marketing is to attract the attention of consumers, both at the point of sale and in communication. Bellizzi and Hite (1992) shows the importance of using cool colors in stores when customers will be forced to make reasonable choices and warm colors when it comes to encouraging impulse purchases. Therefore, colors have an effect on consumer’s behavior. Red, for example, is an exciting color, while blue reflects calmness and relaxation and simplicity and peace. Thus, the colors influence rise the importance to understand the color perception of consumers and its impact on the purchase intention.

* + 1. Perceptual illusions.

The volume of an object or a room can appear larger or smaller depending on whether it is light or dark (Kwallek, 1996; Devismes, 2000). Size of certain shapes or objects can also be overestimated depending on whether they have warm (yellow, red) or cold (blue, green) colors (Déribéré, 2000).

In addition, color is able to modify the perception of the weight and size of objects (Bevan and Dukes, 1953; Warden and Flynn, 1926). Therefore, we have the following hypothesis :

H2. The perception of color of products used in online advertisements has a positive effect on consumer purchase intent.

Personality:

Personality traits are defined as enduring, cross-situational consistencies in behavioral and response patterns (McCrae, 2009). In personality psychology, individual differences are well summarized within five broad, high-level traits or “domains”: neuroticism (vs. emotional stability), extraversion, agreeableness, openness-to-experience or intellect, and conscientiousness (John et al. 2008; McCrae 2009).

Building on that progress in personality psychology, research on consumer personality has been similarly developped (Bosnjak et al. 2007; Endler and Rosenstein 1997). Research has found strong relationships between personality traits and consumers’ specific cognitive and emotional responses to advertisements (Haugtvedt et al. 1992; Mooradian 1996). In that context, Ozbek et al. (2014) consider that personality is linked to different responses against the similar instances.

**Personality measurement:** TIPI Gosling et al. (2003)

Gosling et al. (2003) developed an extremely brief measure of the Big-Five personality dimensions Ten Item Personality Measure (TIPI). The TIPI is a 10-item measure of the Big Five (or Five-Factor Model) dimensions. The Big-Five framework is a hierarchical model of personality traits with five broad factors, which represent personality at the broadest level of abstraction. Each bipolar factor (e.g., Extraversion vs. Introversion) summarizes several more specific facets (e.g., Sociability), which, in turn, subsume a large number of more specific traits (e.g., talkative, outgoing) (Goslin et al., 2003).The Big-Five framework suggests that most individual differences in human personality can be classified into five broad, empirically derived domains :

Therefore, analyzing patterns of personality traits and their effects is essential for understanding consumer behaviors ([Lissitsa](https://link.springer.com/article/10.1007/s10660-019-09381-4" \l "auth-Sabina-Lissitsa) &  [Kol](https://link.springer.com/article/10.1007/s10660-019-09381-4#auth-Ofrit-Kol) ,2019). [Lissitsa](https://link.springer.com/article/10.1007/s10660-019-09381-4#auth-Sabina-Lissitsa) and  [Kol](https://link.springer.com/article/10.1007/s10660-019-09381-4#auth-Ofrit-Kol) (2019) showed in their study the link between the Big Five personality traits and m-shopping intentions of hedonic products among four generational cohorts: baby boomers and Generations X, Y, and Z. Moreover He et al. (2018) states that some dimensions of personality had a significant influence on consumer purchase intention of products related to electronic vehicles directly and indirectly. Therefore:

H2. Personality has a positive effect on consumer purchase intent.

The moderating role of gender in the relationship between personality and purchase intention:

**Gender: (He et al. 2018)**

### Gender differences have been observed with respect to information processing and behavioral responses (Xue et al. 2020), as it is an influential variable in consumer behavior research.

From a psychological perspective, women’s trust depends on emotions and men’s trust depends on cognition, which is consistent with the empathizing–systemizing theory ([Riedl et al., 2010](https://www.frontiersin.org/articles/10.3389/fpsyg.2020.00248/full" \l "B43)). In conventional buying, research has found that emotional factors are more important than functional concerns for women, while it is the opposite for men ([Dittmar et al., 2004](https://www.frontiersin.org/articles/10.3389/fpsyg.2020.00248/full#B17)). Therefore, there are significant differences in the way men and women process information. Men tend to handle advertising information in a heuristic manner, while women are the opposite (Kempf et al., 2006; Papyrina, 2015) Regarding the reaction of women to advertising information, a non-linear relationship exists between the number of arguments and effectiveness of advertising. Women adopt a more detailed and selective approach with respect to advertising information ([Papyrina, 2019](https://www.frontiersin.org/articles/10.3389/fpsyg.2020.00248/full" \l "B41)).

Additionally, research showed women to be thorough processors of information as they analyze objective as well as subjective product attributes; in the contrary,  [Kempf et al. (2006)](https://www.frontiersin.org/articles/10.3389/fpsyg.2020.00248/full" \l "B31) note that men exhibit a tendency of applying off-the-shelf information to establish brand judgments. Thus, men use heuristic strategies to process, while women process information in more detail and devote more attention to small cues.

Some researchers such as (He al.,2018) state the moderating role of gender on the effect of some personality traits on purchase intention. Men and women behave differently, and this difference can be explained because of the different socialization process that men and women undergo (Blocker and Eckberg, 1997; Davidson and Freudenburg, 1996). Moreover, previous research found that women have a more positive attitude towards some products (environment friendly products) than men (Schahn and Holzer, 1990; Tarrant and Cordell, 1997; Lee, 2009).

Age:

Studies have shown that there have been significant differences among age groups in terms of perceptions and attitudes towards products, and specifically luxury brands (Hauck and Stanforth, 2007; Schade et al., 2016). Studies in the literature focus either on the younger (Siew Leng and Phau, 2008; Tsai et al., 2013; Xu et al., 2015) or the older age groups of customers (Amatulli et al., 2015; Shukla, 2008). Therefore, age is a significant demographic factor that groups attitudes, motivations, and other psychological drives (Diehl and Hay, 2011; Gutman, 1982). A study by Hellevik (2002) describes that “differences in value orientation between age groups are larger than the differences found for any other social background variable” (p. 286). Thus, the product choice for old consumers is generally limited and there is a high demand for better fashion products in the market for this age group (Rocha et al., 2005; Zhang et al., 2002), while young consumers desire to express their strong uniqueness for personalized fashion products (Solomon, 2003). Similarly, Schade et al. (2016) showed that further research should consider age as a moderator in various relationships.

The consumer's socio-demographic characteristics such as age or gender, seem to have the power to moderate the existing relationships between the independent and dependent variables. In fact, a moderating variable essentially acting on the relationship between two other variables, variables such as gender and age can be considered moderating variables that systematically modify the magnitude, intensity, meaning and/or form of the effect of an independent variable on a dependent variable (Sharma, Durand and Gur-Arie, 1981). In other words, the link observed between two variables will be different according to the gender of the individual or even according to his age. It is therefore possible to put forward the following hypotheses:

H3. Gender exerts its moderating impact on the relationship between personality and purchase intention.

H5. Gender exerts its moderating impact on the relationship between color perception and purchase intention.

H4. Age moderates the relationship between personality and purchase intention.

H6. Age moderates the relationship between color perception and purchase intention.

Based on hypotheses, it is therefore possible to assume that gender and age represent two moderating variables that can have an impact on the relation between color perception of products in advertisements and consumer purchase intention.

This relationship is represented schematically in the conceptual model of the following figure 1.

H6

H4

H5

H3

H2

H1

Color perception

Purchase intention

Personality

Moderator variable:

Gender

Moderator variable:

Age

**Figure 1: Theoretical model**

**METHODOLOGY AND SAMPLING:**

The analytical studies on the purchase intention of the consumer developed in the previous studies cited above do not allow an exhaustive vision of the impact of the color of the products displayed in the advertisements and the personality on the purchase intention of the customer. In this study, quantitative analysis by empirical study was used to test the conceptual model in Figure 1 and the hypotheses presented above.

For this study, a focus group discussion comprising 20 customers 8 males and 12 females was conducted. The collected information were analyzed through content analysis, and statement were generated and grouped under various constructs. Thus, a questionnaire was developed, based on the group discussion and the literature review, and deployed using structured questions to help respondents assess color preferences and personality along with their perceived opinion their purchase intention.

Although the questionnaire was in English, some questionnaires were translated into French using the parallel translation method (Kalay & Lynn, 2014) to avoid language barriers and make it easier for workers who did not speak English since French is the second spoken language in Morocco. In addition, two experts from industry were requested to look at the questionnaire to check for content validity and resolve any difficulties in understanding the questions.

To test the hypotheses, the scales of the variables of this research were derived from the compilation of different studies (table 1), since the use of already existing scales of measurement can present several advantages for the researcher: guaranteeing a certain level of objectivity, saving time, and a possibility of greater generalization (Nunnally and Bernestein, 1994). The measurement of the dependent variable, purchase consists of items developed based on constructs used in the studies of Chen and Barnes (2007), Zwass (1998), Gefen (2000), Shim et al. (2001), Pavlou (2003) and Gefen and Straub (2004). Measurement items of personality come from the study of Gosling et al. (2003) who developed an extremely brief measure of the Big-Five personality dimensions Ten Item Personality measure (TIPI). Perception of colors was measured using items developed from the studies of Divard & Urien (2001) and Pantin-Sohier & Brée (2004). Gender and age group were used as moderator variables. For the gender we had two categories (Male and female), and the group of age was defined as young (26 years and below) and old (27 years and above).

This empirical study was conducted on Textile E-commerce companies. The textile sector was chosen because it is ranked second in the best-selling online items in Morocco, and the purchase of clothing during the pandemic has experienced significant growth in the e-commerce sector. Consequently, this sector has the potential of benefitting from understanding the impact of colors of products displayed in the advertising and the personality of the customers from all genders and ages in the purchase intention of customers during the post pandemic. Sample selection was carried out using a database of 53 E-commerce companies in the region of Grand Casablanca in Morocco. We drew a sample of 135 customer of different ages and socio-professional categories, using systematic random sampling. After selecting our sample, we contacted each consumer by phone, email and via Facebook to explain the purpose of the survey and request to participate in our study.

The research was conducted in compliance with certain ethical responsibilities, such as respecting respondents' choices of not responding to questionnaires and protecting their anonymity. The participants were asked to state their perceived opinions about colors of products in advertisement, their personality, and their purchase intentions. Constructs were measured using items on a 7-point Likert type scale ranging from 0 to 7 (0 = strongly disagree, 7 = strongly agree).

|  |  |
| --- | --- |
| Constructs and scale items | Standardized loadings |
| **Purchase intention (PI)** | |
| I have the intention to shop online | 0.665 |
| I am likely to make purchases online in the future | 0.780 |
| I plan to shop online in the future | 0.846 |
| Given the chance, I intend to buy online | 0.707 |
| **The perception of colors (PC)** | |
| Red color’s attraction and caption of attention | 0.860 |
| Warm colors attraction of attention | 0.606 |
| Cold colors attraction of attention | 0.845 |
| Colors of products attract your attention before purchasing | 0.819 |
| Colors of the product influences sometimes your perception of the product’s weight and size | 0.876 |
| **Personality:** **TIPI scale scoring by Gosling et al. (2014)** | |
| Extraversion (Extraverted, enthusiastic/ Reserved, quiet) | 0.763 |
| Agreeableness (Critical, quarrelsome/ Sympathetic, warm) | 0.809 |
| Conscientiousness (Dependable, self-disciplined/ Disorganized, careless) | 0.588 |
| Emotional stability (Anxious, easily upset/ Calm, emotionally stable) | 0.780 |
| Openness to experiences (Open to new experiences, complex / Conventional, uncreative) | 0.763 |

**Table 1: Items measures**

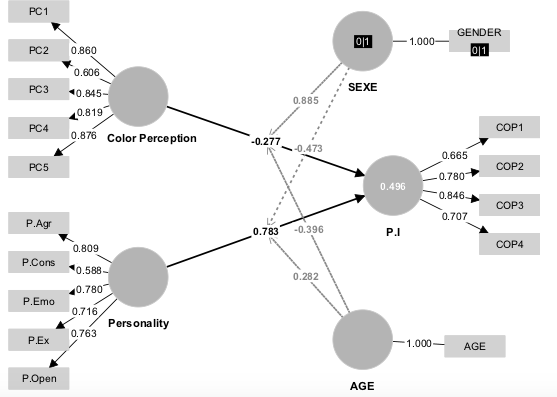
**EMPIRICAL RESULTS:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Cronbach's alpha | Composite reliability (rho\_a) | Composite reliability (rho\_c) | Average variance extracted (AVE) |
| Colors | 0,866 | 0,898 | 0,902 | 0,652 |
| P.I | 0,753 | 0,790 | 0,838 | 0,567 |
| Personality | 0,788 | 0,804 | 0,853 | 0,541 |

**Table 2: Results of reliability, convergent and discriminant validity**

To identify the internal consistencies of various statements framed in the research work, Cronbach’s Alpha was used. As seen from the above table, the value of Cronbach greater than 0,7 for all the dimensions, which indicates sufficient internal consistencies of the statements framed in research work and shows that the data collected are reliable (Lin and Huang, 2008; Nunnally, 1978).

In addition, the convergent and discriminant validity were satisfied. The composite reliability for each construct was greater than 0,7 and the average variance extracted (AVE) was more than the minimum requirement of 0,5 (Fornell & larcker, 1981; Zhang et al.,2014). The discriminant validity was tested and satisified using the heterotrait-monotrait ratio (HTMT) criterion, and the HTMT value between any two reflective constructs was <0,9 (Henseler et al., 2015).



**Figure 2: Relationship paths**

In this study, SmartPLS 4 software was used to apply the partial least square (PLS) method for the development and test of the path model and the estimation of the measurement and structural parameters in the structural equation model (SEM) (Chin, 1998). In addition, the use PLS-SEM was opted following Sosik et al. (2009) suggestion to use the PLS approach due to the relatively small sample size. We used AMOS 16 to conduct confirmatory factor analysis (CFA) to assess the validity and reliability of the constructs (Hair et al.,1992). CFA indicates a good fit for the theoretical model. For this study, the loading factors of the items were greater than 0.4 and ranged from 0.50 to 0.84. This shows that the items are significant according to Straub et al. (2004).

In this study, out of the 6 hypotheses 2 are not supported (Table 3). VIF was used to test the multi-collinearity problem for each construct, and the value of VIF was seen below the threshold of 3.33 (Diamantopoulos and Siguaw, 2006).

In addition, the highest correlation was between personality and purchase intention (r=0.783, p<0,05), while the correlation between colors perception and purchase intention is insignificant.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Hypotheses** | **Original sample (O)** | **Sample mean (M)** | **Standard deviation (STDEV)** | **T statistics (O/STDEV)** | **P values** | **Supported/Rejected** |
| **Colors perception → Purchase intention** | **-0.277** | **-0.280** | **0.209** | **1.325** | **0.186** | **Rejected** |
| **Personality → Purchase intention** | **0.783** | **0.794** | **0.173** | **4.534** | **0.000** | **Supported** |
| **Gender x Personality → Purchase intention** | **-0.473** | **-0.499** | **0.373** | **1.266** | **0.206** | **Rejected** |
| **Gender x Colors perception → Purchase intention** | **0.885** | **0.944** | **0.393** | **2.252** | **0.025** | **Supported** |
| **Age x Personality → Purchase intention** | **0.282** | **0.291** | **0.106** | **2.656** | **0.008** | **Supported** |
| **Age r x Colors perception → Purchase intention** | **-0.396** | **-0.397** | **0.119** | **3.334** | **0.001** | **Supported** |

**Table 3: Results of reliability, convergent and discriminant validity**

The outcomes of the hypothesized relationships for testing the moderating effect of gender and age reveal that moderating effect of gender is supported in H4 but not in H3. Thus, gender moderates the relationship between color perception and purchase intention but not the relationship between personality and purchase intention. The impact in the H4 is seen more for females than males. One of the reasons to explain this could be that because females are more inclined to be selective with colors while purchasing products. Thus, their color perception is higher.

For the moderating effect of age, H5 and H6 are both supported which show that age moderates the relationship between personality and PI as well as the relationship between colors perception and PI. This also shows that age moderates the relationship with young customers demonstrating high impact of their personalities and colors perceptions to drive their purchase intention through online platforms compared to old customers. In addition, the relationship between colors perception and PI is significantly higher for young customers than old customers. This can be explained by the fact that young costumers in Morocco are more inclined to new technologies and prefer to use online platform to shop and follow the latest trends of colors and fashion, while old customers still prefer to shop offline.

**DISCUSSION:**

This research includes an analysis to test the influence of colors perception and the customer personality on purchase intention, along with the moderation of gender and age on the relationship between the three variables during the post pandemic of COVID-19 crisis. Our empirical research results presented in this paper revealed color perception depends on demographic factors of customers (age, gender) to impact the purchase intention of the customer. In addition, the study also, disclosed that personality of the customer influences his intention to buy, and that PI can be increased for young customers more than old customers. These results corroborate with the findings of Sliburyte & Skeryte (2014) who argued that the consumers’ color perception depends on the demographical factors (Age, Gender, Education) to influence his decision to buy.

Fours from the 6 hypotheses were significantly supported based on data collected from 320 customers of 53 E-commerce textile companies. Results showed that colors of products displayed on advertisement of these companies impacts the purchase intention of young customers. In other words, companies who integrate vivid colors of products in their advertisement have higher demand in terms of young customers, especially during the post pandemic of COVID-19 crisis where online advertisement are very important to reach customers. This study also confirmed that personality of consumers impacts the purchase intention. As new technologies become widespread, reaching more customers through digital platforms becomes easier. Moreover, the current COVID-19 crisis had a huge impact on the change of personalities of different customers which made the majority of customers dependent on digital platforms for purchasing more than ever before. Therefore, understanding the different aspects of personalities of consumers along with their age and gender is necessary to create customized product colors and chose the adequate ones for advertisement.

Textile E-commerce companies need to focus on carefully chose the product colors displayed on their online advertisement to meet the changes in their customers’ preferences and personalities and add value to stimulate the purchase intention.

**IMPLICATIONS:**

Our empirical research results presented in this paper revealed that companies can successfully reach more customers by carefully choosing the adequate colors of products in their online advertisement taking in consideration their personality. This can be done if companies focus on their color’s choices according to the age and gender of their customers with considering the key factor of customer personality. The results of this study can be applied in the Moroccan context to E-commerce companies to builds brand uniqueness and as creative advertiser during the post pandemic of COVID 19.