

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

Safae Ait Hamou-ou-Brahim ¹

Soukaina Zaoui ^{2,*}

Haiwei Zhou ³

Dechun Huang ⁴

*Corresponding author

¹ Doctoral Student, Business School, Hohai University, Nanjing, China. safae.ahb@gmail.com

² Doctoral Student, Business School, Hohai University, Nanjing, China. soukaina.zaoui12@gmail.com

³ Professor, Business School, Jiangning Campus, Hohai University, Nanjing, China. hwzhou@hhu.edu.cn

⁴ Professor, Business School, Jiangning Campus, Hohai University, Nanjing, China. huangdechun@hhu.edu.cn

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 the consumer, during the post pandemic, on consumer purchasing intention, for companies to innovate and differentiate their offered advertisements 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 (Funk & Ndubisi, 2006; Hultén, 2011; 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 intentions. 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 online purchase intention is the situation where a customer is willing to be involved in an online transaction (Ling et al., 2010; Pavlou, 2003). It helps determine the strength of the 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 of that same

same behavior (Ajzen and Fishbein, 1970). Thus, understanding online purchase intentions of customers helps to predict their behaviour towards a certain product or service.

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). 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

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 advertisements play a crucial role in attracting attention and trigger more emotional reactions.

The level of Color Activation (Physiological and Psychological Dimensions) :

The level of activation is apprehended 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). According 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 colors 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).

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 consumers will be forced to make reasonable choices and warm colors when they will be encouraged to make impulse purchases. Therefore, colors have an effect on consumers' behavior. Red, for example, is an exciting color, while blue reflects calmness, relaxation, simplicity and peace. Thus, the colors influence rise the importance to understand the color perception of consumers and its impact on the purchase intention.

Perceptual illusions.

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

H1. The perception of products color used in online advertisements has a positive effect on consumer purchase intention.

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": emotional stability, extraversion, agreeableness, openness-to-experience or intellect, and conscientiousness (Goslin et al., 2003; John et al. 2008; McCrae 2009).

Building on that progress in personality psychology, research on consumer personality has been similarly developed (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:

Gosling et al. (2003) developed an extremely brief measure of the Big-Five personality dimensions called the 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. Each bipolar factor (e.g., Extraversion vs. Introversion) summarizes several more specific aspects (e.g., Sociability), which, in turn, refers to a large number of more specific traits (e.g., talkative, outgoing) (Goslin et al., 2003). The Big-Five framework suggests that differences in human personality can be classified into five broad, empirically derived dimensions: Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experiences.

Therefore, analyzing patterns of personality traits and their effects is crucial for understanding consumer behavior (Lissitsa & Kol, 2019). Lissitsa and Kol (2019) showed, in their study, the link between the big five personality traits and shopping intentions of hedonic products among four generational cohorts: baby boomers, generations X, Y, and Z. Moreover

He et al. (2018) state that some personality dimensions had a significant influence on consumer purchase intention of products related to electronic vehicles directly and indirectly. Therefore:

H2. Consumer personality has a positive effect on his/her purchase intention.

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

Gender:

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). In conventional buying, researchers found that emotional factors are more important than functional concerns for women, while it is the opposite for men (Dittmar et al., 2004). 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 (Papyrina, 2015). Regarding the reaction of women to advertising information, a non-linear relationship exists between the number of arguments and effectiveness of advertising. Unlike men, women adopt a more detailed and selective approach with respect to advertising information (Kempf et al. 2006; Papyrina, 2015).

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) 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 with details and pay 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 by 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 than men (Schahn and Holzer, 1990).

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 (Budac & Baltador, 2014; Phau & Leng, 2008) or the older age groups of consumers (Amatulli et al., 2015). Therefore, age is a significant demographic factor that groups attitudes, motivations, and other psychological traits (Diehl and Hay, 2011). 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 (Rocha et al., 2005), while young consumers desire to express their strong uniqueness for personalized fashion products. 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 and gender, seem to have the power to moderate the existing relationships between the independent and dependent variables. In fact, 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 et al., 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:

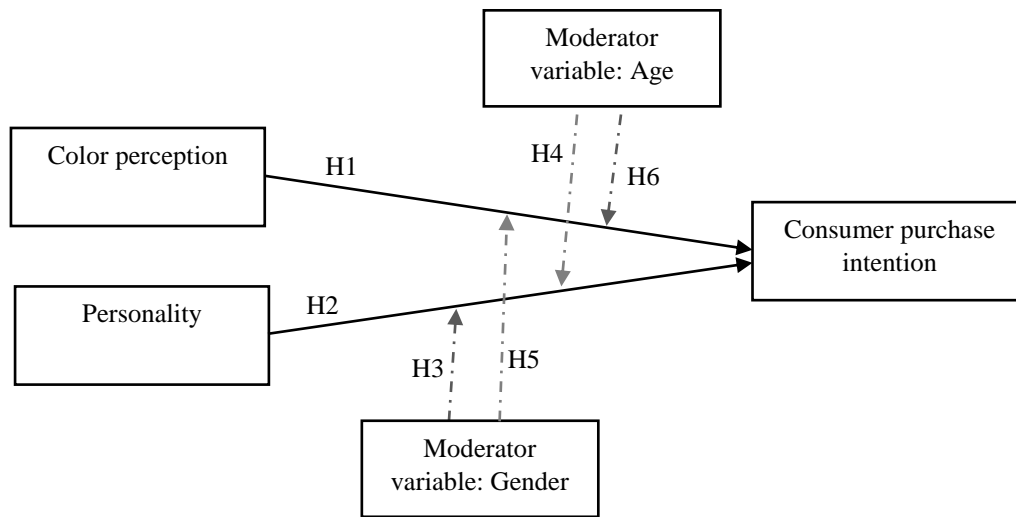
H3. Gender exerts its moderating impact on the relationship between consumer personality and his/her purchase intention.

H4. Age moderates the relationship between consumer's personality and his/her purchase intention.

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

H6. Age moderates the relationship between color perception and consumer 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 the following figure 1.



Source: This study
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 consumer personality on the purchase intention. 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 statements 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 about 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 to make it easier for respondents who did not speak English since French is the second spoken language in Morocco. In addition, two experts from e-commerce textile 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 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 Bernstein, 1994). The measurement of the dependent variable (Consumer purchase intention) consists of items developed based on constructs used in the studies of Chen and Barnes (2007), 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 and clothing 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 a significant growth in the e-commerce sector. Consequently, this sector has the potential of benefiting from understanding the impact of colors of products displayed in the advertisements and the personality of the consumers from all genders and ages in their purchase intention during the post pandemic. Sample selection was carried out using a database of 53 e-commerce textile and clothing companies in the region of Grand Casablanca in Morocco. We drew a sample of 320 customers 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).

Table 1: Items measures

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 influence ,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

Source: This study

EMPIRICAL RESULTS:

Table 2: Results of reliability, convergent and discriminant validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Colors	0,866	0,898	0,902	0,652
Purchase intention	0,753	0,790	0,838	0,567
Personality	0,788	0,804	0,853	0,541

Source: This study

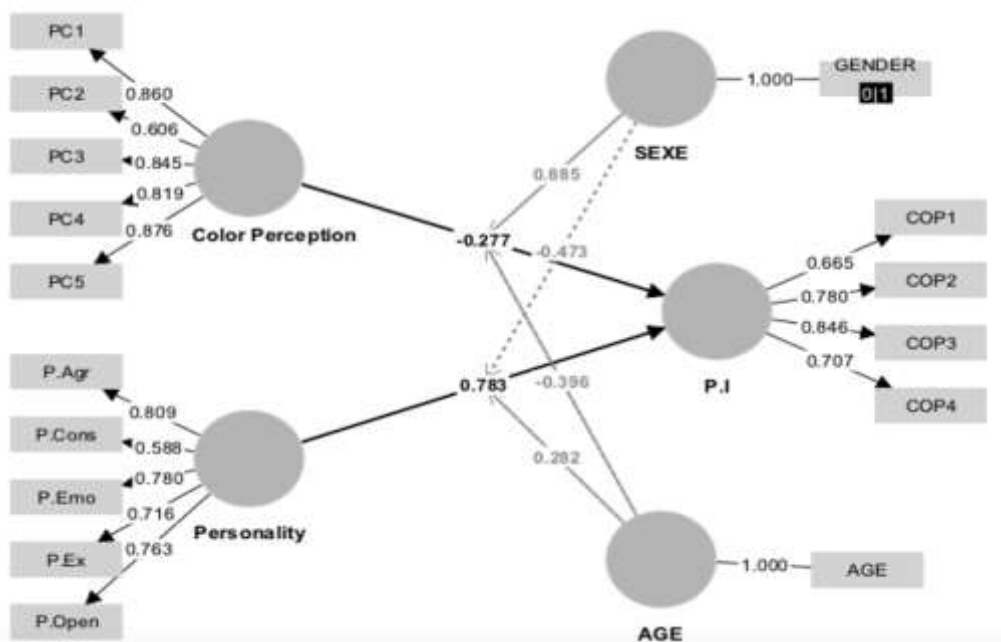
To identify the internal consistencies of various statements framed in the research work, Cronbach's Alpha was used. As seen from the above table (Table 2), the value of Cronbach is greater than 0,7 for all the dimensions, which indicates sufficient internal consistencies of the statements framed in research work and shows that the data collected is reliable (Lin and Huang, 2008).

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). The discriminant validity was tested and satisfied using the heterotrait-monotrait ratio (HTMT) criterion, and the HTMT value between any two reflective constructs was <0,9 (Henseler et al., 2015).

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 of 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). Variance inflation factor (VIF) was used to test the multicollinearity 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 seen between personality and consumer purchase intention ($r=0.783$, $p<0,05$), while the correlation between colors perception and consumer purchase intention is insignificant.



Source: This study
Figure 2: Relationship paths

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 females are more inclined to be selective with colors while purchasing products. Thus, their color perception is higher.

Table 3: Results of reliability, convergent and discriminant validity

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 x Colors perception → Purchase intention	-0.396	-0.397	0.119	3.334	0.001	Supported

Source: This study

For the moderating effect of age, H5 and H6 are both supported which show that age moderates the relationship between personality and consumer purchase intention as well as the relationship between colors perception and consumer purchase intention. 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 consumer purchase intention is significantly higher for young customers than old customers. This can be explained by the fact that young consumers 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 consumer personality on his/her 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 that color perception depends on demographic factors of consumers (age, gender) to impact their purchase intention. In addition, this study disclosed that personality of the consumer influences his/her intention to buy, and that this intention can be increased for young consumers more than old consumers. 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/her decision to buy.

Fours of 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 advertisements of these companies impacts the purchase intention of young consumers more than old consumers. 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 consumers. This study also confirmed that personality of consumers impacts their purchase intention. As new technologies become widespread, reaching more consumers 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 consumers' preferences and personalities and add value to stimulate their purchase intention.

IMPLICATIONS AND CONCLUSION:

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 according to the age and gender of their customers while considering the key factor of customers personality. The results of this study can be applied by the Moroccan e-commerce companies to build brand uniqueness as creative advertisers during the post pandemic of COVID 19. Marketing managers have to focus on improving and adsjuting their digital marketing strategy of advertisements according to the age and the gender of the customers. Moreover, e-commerce companies must carefully choose the colors displayed in the advertisement to attract the maximum number of potential consumers.

However, this research has several limitations. This study was conducted using a limited sample size. A larger sample size would probably have allowed a greater generalization of the results .Thus, further studies can consider bigger samples. Moreover, the choice of one type of products (textiles and clothing) is rather limiting in terms of results. A study of at least two different types of products would have allowed better generalization. Another research perspective that could be interesting is to conduct a cross-cultural study to verify whether the moderating role of gender and age is different according to the culture of the individual.

REFERENCES

- Ajzen, I., & Fishbein, M. (1970). The prediction of behavior from attitudinal and normative variables. *Journal of experimental social Psychology*, 6(4), 466-487. [https://doi.org/10.1016/0022-1031\(70\)90057-0](https://doi.org/10.1016/0022-1031(70)90057-0)
- Amatulli, C., Guido, G., & Natarajan, R. (2015). Luxury purchasing among older consumers: exploring inferences about cognitive age, status, and style motivations. *Journal of Business Research*, 68(9), 1945-1952. <https://doi.org/10.1016/j.jbusres.2015.01.004>
- Bellizzi, J. A., & Hite, R. E. (1992). Environmental color, consumer feelings, and purchase likelihood. *Psychology & marketing*, 9(5), 347-363. <https://doi.org/10.1002/mar.4220090502>
- Bevan, W., & Dukes, W. F. (1953). Color as a variable in the judgment of size. *The American journal of psychology*, 66(2), 283-288. <https://doi.org/10.2307/1418734>
- Bjerstedt, A. (1960). Warm-cool color preferences as potential personality indicators: preliminary note. *Perceptual and Motor Skills*, 10(1), 31-34. <https://doi.org/10.2466/pms.1960.10.1.31>
- Blocker, T. J., & Eckberg, D. L. (1997). Gender and environmentalism: Results from the 1993 general social survey. *Social Science Quarterly*, 841-858. <https://www.jstor.org/stable/42863735>
- Bosnjak, M., Galesic, M., & Tuten, T. (2007). Personality determinants of online shopping: Explaining online purchase intentions using a hierarchical approach. *Journal of Business Research*, 60(6), 597-605. <https://doi.org/10.1016/j.jbusres.2006.06.008>

- Budac, C., & Baltador, L. A. (2014). Brand communication challenges in getting young customer engagement. *Procedia Economics and Finance*, 16, 521-525. [https://doi.org/10.1016/S2212-5671\(14\)00833-8](https://doi.org/10.1016/S2212-5671(14)00833-8)
- Chen, Y. H., & Barnes, S. (2007). Initial trust and online buyer behaviour. *Industrial management & data systems*. <https://doi.org/10.1108/02635570710719034>
- Chin, W. W. (1998). Commentary: Issues and opinion on structural equation modeling. *MIS quarterly*, vii-xv. <https://www.jstor.org/stable/249674>
- Davidson, D. J., & Freudenburg, W. R. (1996). Gender and environmental risk concerns: A review and analysis of available research. *Environment and behavior*, 28(3), 302-339. <https://doi.org/10.1177/0013916596283003>
- Déribéré, M. (2000). *La couleur*, 10th edition, PUF. Que sais-je. (In French)
- Diamantopoulos, A., & Siguaw, J. A. (2006). Formative versus reflective indicators in organizational measure development: A comparison and empirical illustration. *British journal of management*, 17(4), 263-282. <https://doi.org/10.1111/j.1467-8551.2006.00500.x>
- Diehl, M., & Hay, E. L. (2011). Self-concept differentiation and self-concept clarity across adulthood: Associations with age and psychological well-being. *The International Journal of Aging and Human Development*, 73(2), 125-152. <https://doi.org/10.2190/AG.73.2.b>
- Dittmar, H., Long, K., & Meek, R. (2004). Buying on the Internet: Gender differences in on-line and conventional buying motivations. *Sex roles*, 50(5), 423-444. <https://doi.org/10.1023/B:SERS.0000018896.35251.c7>
- Divard, R., & Urien, B. (2001). *Le consommateur vit dans un monde en couleurs. Recherche et Applications en Marketing (French Edition)*, 16(1), 3-24. <https://doi.org/10.1177/076737010101600102> (In French)
- Dooley, R. P., & Harkins, L. E. (1970). Functional and attention-getting effects of color on graphic communications. *Perceptual and Motor Skills*, 31(3), 851-854. <https://doi.org/10.2466/pms.1970.31.3.851>
- Endler, N. S., & Rosenstein, A. J. (1997). Evolution of the personality construct in marketing and its applicability to contemporary personality research. *Journal of Consumer Psychology*, 6(1), 55-66. https://doi.org/10.1207/s15327663jcp0601_03
- Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. <https://doi.org/10.1177/002224378101800313>
- Funk, D., & Ndubisi, N. O. (2006). Colour and product choice: a study of gender roles. *Management research news*, 29(1/2), 41-52. <https://doi.org/10.1108/01409170610645439>
- Gefen, D. (2000). E-commerce: the role of familiarity and trust. *Omega*, 28(6), 725-737. [https://doi.org/10.1016/S0305-0483\(00\)00021-9](https://doi.org/10.1016/S0305-0483(00)00021-9)
- Gefen, D., & Straub, D. W. (2004). Consumer trust in B2C e-Commerce and the importance of social presence: experiments in e-Products and e-Services. *Omega*, 32(6), 407-424. <https://doi.org/10.1016/j.omega.2004.01.006>
- Gosling, S. D., Rentfrow, P. J., & Swann Jr, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in personality*, 37(6), 504-528. [https://doi.org/10.1016/S0092-6566\(03\)00046-1](https://doi.org/10.1016/S0092-6566(03)00046-1)
- Hair, J.F. et al. (1992), *Multivariate data analysis*, (3rd ed.), Macmillan, New York.
- Hamouda, M., & Tabbane, R. S. (2014). Impact du BAO électronique sur l'intention d'achat du consommateur: le rôle modérateur de l'âge et du genre. *La Revue Gestion et Organisation*, 6(1), 39-46. <https://doi.org/10.1016/j.rgo.2014.04.001>
- Hauck, W. E., & Stanforth, N. (2007). Cohort perception of luxury goods and services. *Journal of Fashion Marketing and Management: An International Journal*. <https://doi.org/10.1108/13612020710751365>
- Haugtvedt, C. P., & Petty, R. E. (1992). Personality and persuasion: Need for cognition moderates the persistence and resistance of attitude changes. *Journal of Personality and Social psychology*, 63(2), 308. <https://doi.org/10.1037/0022-3514.63.2.308>
- He, X., Zhan, W., & Hu, Y. (2018). Consumer purchase intention of electric vehicles in China: The roles of perception and personality. *Journal of Cleaner Production*, 204, 1060-1069. <https://doi.org/10.1016/j.jclepro.2018.08.260>
- Hellevik, O. (2002). Age differences in value orientation—life cycle or cohort effects?. *International Journal of Public Opinion Research*, 14(3), 286-302. <https://doi.org/10.1093/ijpor/14.3.286>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, 43(1), 115-135. <https://doi.org/10.1007/s11747-014-0403-8>
- Hultén, B. (2011). Sensory marketing: the multi-sensory brand-experience concept. *European business review*, 23(3), 256-273. <https://doi.org/10.1108/09555341111130245>
- John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement, and conceptual issues. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (pp. 114–158). The Guilford Press.
- Kalay, F., & Lynn, G. S. (2016). The impact of organizational structure on management innovation: an empirical research in Turkey. *Journal of Business Economics and Finance*, 5(1), 125-137. <https://doi.org/10.17261/Pressacademia.2016116656>
- Kempf, D., Laczniak, R., and Smith, R. (2006). The effects of gender on processing advertising and product trial information. *Mark. Lett.* 17, 5–16. <https://doi.org/10.1007/s11002-006-3545-8>
- Kosslyn, S. M., & Thompson, W. L. (2003). When is early visual cortex activated during visual mental imagery?. *Psychological bulletin*, 129(5), 723. <https://doi.org/10.1037/0033-2909.129.5.723>

- Kwallek, N., Lewis, C. M., Lin-Hsiao, J. W. D., & Woodson, H. (1996). Effects of nine monochromatic office interior colors on clerical tasks and worker mood. *Color Research & Application*, 21(6), 448-458. [https://doi.org/10.1002/\(SICI\)1520-6378\(199612\)21:6<448::AID-COL7>3.0.CO;2-W](https://doi.org/10.1002/(SICI)1520-6378(199612)21:6<448::AID-COL7>3.0.CO;2-W)
- Lin, T. C., & Huang, C. C. (2008). Understanding knowledge management system usage antecedents: An integration of social cognitive theory and task technology fit. *Information & management*, 45(6), 410-417. <https://doi.org/10.1016/j.im.2008.06.004>
- Ling, K. C., Chai, L. T., & Piew, T. H. (2010). The effects of shopping orientations, online trust and prior online purchase experience toward customers' online purchase intention. *International business research*, 3(3), 63.
- Lissitsa, S., & Kol, O. (2021). Four generational cohorts and hedonic m-shopping: association between personality traits and purchase intention. *Electronic Commerce Research*, 21(2), 545-570. <https://doi.org/10.1007/s10660-019-09381-4>
- Mayol, S., & Gay, M. (2008, May). Approche émotionnelle de la couleur lors d'une exposition publicitaire en presse magazine. In *Proceedings of the XI^e Colloque National De La Recherche Dans Les IUT*, Lyon-Villeurbanne, France (pp. 20-23). (in French)
- McCrae, R. R. (2009). The five-factor model of personality traits: Consensus and controversy. *The Cambridge handbook of personality psychology*, 148-161. <https://doi.org/10.1017/CBO9780511596544.012>
- Mooradian, T. A. (1996). Personality and ad-evoked feelings: The case for extraversion and neuroticism. *Journal of the Academy of Marketing Science*, 24(2), 99-109. <https://doi.org/10.1177/0092070396242001>
- Morgan, L. R., & Birtwistle, G. (2009). An investigation of young fashion consumers' disposal habits. *International journal of consumer studies*, 33(2), 190-198. <https://doi.org/10.1111/j.1470-6431.2009.00756.x>
- Nakshian, J. S. (1964). The effects of red and green surroundings on behavior. *The Journal of General Psychology*, 70(1), 143-161. <https://doi.org/10.1080/00221309.1964.9920584>
- Nunnally J, Bernstein I 1994 *Psychometric theory*. McGraw Hill, New York
- Özbek, V., Alnaçık, Ü., Koc, F., Akkılıç, M. E., & Kaş, E. (2014). The impact of personality on technology acceptance: A study on smart phone users. *Procedia-Social and Behavioral Sciences*, 150, 541-551. <https://doi.org/10.1016/j.sbspro.2014.09.073>
- Pantin-Sohier, G., & Joël, B. R. É. E. (2004). L'Influence de la Couleur du Produit sur la Perception des Traits de Personnalité de la Marque. *Revue Française du Marketing*, 196(1/5), 19. (In French)
- Papyrina, V. (2015). Men and women watching and reading: Gender and information processing opportunity effects in advertising. *Journal of Marketing Communications*, 21(2), 125-143. <https://doi.org/10.1080/13527266.2012.731423>
- Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. *International journal of electronic commerce*, 7(3), 101-134. <https://doi.org/10.1080/10864415.2003.11044275>
- Phau, I., & Leng, Y. S. (2008). Attitudes toward domestic and foreign luxury brand apparel: A comparison between status and non status seeking teenagers. *Journal of Fashion Marketing and Management: An International Journal*. <https://doi.org/10.1108/13612020810857952>
- Riedl, R., Hubert, M., & Kenning, P. (2010). Are there neural gender differences in online trust? An fMRI study on the perceived trustworthiness of eBay offers. *MIS quarterly*, 397-428. <https://doi.org/10.2307/20721434>
- Rocha, M. A. V., Hammond, L., & Hawkins, D. (2005). Age, gender and national factors in fashion consumption. *Journal of Fashion Marketing and Management: An International Journal*. <https://doi.org/10.1108/13612020510620768>
- Salisbury, W. D., Pearson, R. A., Pearson, A. W., & Miller, D. W. (2001). Perceived security and World Wide Web purchase intention. *Industrial Management & Data Systems*. <https://doi.org/10.1108/02635570110390071>
- Schade, M., Hegner, S., Horstmann, F., & Brinkmann, N. (2016). The impact of attitude functions on luxury brand consumption: An age-based group comparison. *Journal of business research*, 69(1), 314-322. <https://doi.org/10.1016/j.jbusres.2015.08.003>
- Schahn, J., & Holzer, E. (1990). Studies of individual environmental concern: The role of knowledge, gender, and background variables. *Environment and behavior*, 22(6), 767-786. <https://doi.org/10.1177/0013916590226003>
- Sharma, S., Durand, R. M., & Gur-Arie, O. (1981). Identification and analysis of moderator variables. *Journal of marketing research*, 18(3), 291-300. <https://doi.org/10.1177/002224378101800303>
- Shim, S., Eastlick, M. A., Lotz, S. L., & Warrington, P. (2001). An online prepurchase intentions model: the role of intention to search. *The Sixth Triennial AMS/ACRA Retailing Conference, 2000. Journal of retailing*, 77(3), 397-416. [https://doi.org/10.1016/S0022-4359\(01\)00051-3](https://doi.org/10.1016/S0022-4359(01)00051-3)
- Sliburyte, L., & Skeryte, I. (2014). What we know about consumers' color perception. *Procedia-Social and Behavioral Sciences*, 156, 468-472. <https://doi.org/10.1016/j.sbspro.2014.11.223>
- Sosik, J. J., Kahai, S. S., & Piovoso, M. J. (2009). Silver bullet or voodoo statistics? A primer for using the partial least squares data analytic technique in group and organization research. *Group & Organization Management*, 34(1), 5-36. <https://doi.org/10.1177/1059601108329198>
- Straub, D., Boudreau, M. C., & Gefen, D. (2004). Validation guidelines for IS positivist research. *Communications of the Association for Information systems*, 13(1), 24. <https://doi.org/10.17705/1CAIS.01324>
- Warden, C. J., & Flynn, E. L. (1926). The effect of color on apparent size and weight. *The American Journal of Psychology*, 37(3), 398-401. <https://doi.org/10.2307/1413626>
- Wilson, S. D. (1966). A Reflection-Diffraction Microscope for Observing Diatoms in Color. *Applied Optics*, 5(10), 1683-1684. <https://doi.org/10.1364/AO.5.001683>
- Xue, J., Zhou, Z., Zhang, L., & Majeed, S. (2020). Do brand competence and warmth always influence purchase intention? The moderating role of gender. *Frontiers in psychology*, 11, 248. <https://doi.org/10.3389/fpsyg.2020.00248>