Does gender have an impact on the color preferences in fashion products?

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ABSTRACT

This paper is part of a project that aims to identify consumers' color preferences in fashion products. The results presented in this work are part of a survey developed in 2019. In fashion products, colors are responsible for adding value through emotional and aesthetic aspects, these preferences being essential points to build a marketable and attractive product. However, through history and cultures, it was noticed that certain colors, when applied to clothes, were positively seen in a society when worn only by men and others only by women. Thus, this paper aims to identify how color preferences in fashion products change as the differences between genders are observed. The survey was conducted with 252 volunteers, 176 of whom were female, and 76 were male respondents; the results were analyzed using the IBM SPSS. As a result, a greater focus on the female gender in pinks and lilaceous hue was understood, while a lower preference for greenish hues. As for the male gender, the preferred hues were bluish, while the least preferred were pinks and lilaceous. It was concluded that genders play a certain role in color preferences in fashion products, identifying socially constructed characteristics through the history of colors as being responsible for those tendencies. It was possible to corroborate the social notion of the female gender preferring pinks hues and the masculine gender presenting tendencies of preferences to the bluish ones and a high refusal to the pinks and lilaceous – seen as women colors.

1. Introduction

Colors are found in everything around us, from the artifacts to the clothes to the skin of the people (Farina, 2006). Therefore, an element of fundamental importance for the development of any product (Baxter, 2011). The colors are presented as the first factor of perception in a visual stimulus (Pina, 2009). In fashion, the color becomes even more indispensable, being used to develop garments, accessories and shoes (Treptow, 2013).

Pina (2009) argues that color is an edifying element that can transmit sensations. Therefore, the color is used as a basis for fashion collections development. In this way, the fashion collections are designed to attract the customer, and, in several cases, "the power of attraction does not depend only on color and light, but also on psychological effects" (Farina, 2006:137).

The human being ends up preferring a certain color over another because of empathy. In fashion collections, colors are used as a trend and as a way to demonstrate emotions, color semantics (Pina, 2009). The relationship between the subject and color been positive or negative is directly linked to the environment in which they live and other factors such as age, education, and the individual's gender categorization (Farina, 2006).

Gender becomes the focus of this paper when it is understood that it has evidence of strong levels of difference in color preferences (Ellis and Ficek, 2001). It is based on this that we emphasize the need to enter into these discussions bringing out as an object of study so pertinent for use and practical application of colors: fashion (Jones, 2005; Altıntaş and Ağaç, 2008).

Regarding color preferences in fashion/clothing products, Zhang (2013: 476) found black to be the most accepted color in the Chinese environment, "The survey of style and color shows that black if fit for all styles and accepted by 90 % of the male and female". In studies focused on children aged 6 to 8 years, it was determined that the colors preferred most by the girls for all garment types were magenta, red-violet, red, and red-orange, and the colors preferred by the boys for all garment types were black, blue, cyan, and yellow (Kilinç, 2011).

This work is based on the need to pay attention to the subjective preferences of products' aesthetic-symbolic content to future fashion users (Löbach, 2001). This information allows us to create products that have a greater affective connection with consumers, avoiding product waste at the time of sale. Also, it allows us to create a starting point to identify the core of tendency to color preferences in our society. Color preferences in design products have been identified in other works as one of the main means of influencing consumers' purchasing decisions, realizing their relevance (Yu et al., 2017; Yu et al., 2018; Luo et al., 2019).

Based on previously evidences that shows there are gender differences in color preferences (Yu et al., 2020), it is understood that the social role that each gender has played for years in the chain of a society configures important delimitations in the ways they live, behave and consume products (Silverman et al., 2007). Furthermore, this study is necessary to verify whether there are signs of the reflex of socio-cultural categorization of gender in human cognition of molding subjective preferences in colors when in a scenario of selecting fashion products.

1.1. *A brief background on color theory and color preferences*

Relevant to color theories and to better understand the treaties proposed in this research, it is important to note that colors are composed of three essential attributes that configure their existence: hue, chroma, and lightness (Holtzschue, 2011). Thus, a) hue is configured as another word to describe what each color is, as well as being able to characterize a set of similar colors; b) chroma refers to the level of gray that exists in its composition; c) lightness refers to the level of the brightness of the color (Zhang et al., 2019).

These relationships shape people's daily lives and exchanges of values and information with artifacts, serving as a strong element of pre-judgment and instant connection (Holtzschue, 2011).

Entering the field of color psychology, we discuss the effect of colors on individuals' cognition. Sherin (2012:77) says that "A person's response to color and tone can help determine how information is understood and can affect whether a consumer buys a product or uses a client's services". This information is extremely important for the product development area since it deals with consumers' needs and desires (Rathee and Rajain, 2019).

Based on this, we bring up research on color preferences as a valid starting point for identifying patterns of aesthetic-symbolic preferences in consumers' cognition (Singh, 2006; Kilinç, 2011). These researches started in the studies of J. Cohn when the researcher argued that color preferences came from a subjective value that was already born with individuals (Taylor et al., 2013).

At present, the theory with the greatest number of evidences is the ecological valence theory, which seeks to explain color preferences through the positive or negative relationship of human with the artifacts and objects that permeate our daily life, from elements of nature to industrial products (Palmer and Schloss, 2010).

1.2. *Gender differences in color preferences*

One of the first studies developed, in the 40s, determined that men and women tended to prefer colors in the same way, identifying traces of differences only to the orange colors, most preferred by men, and also on the yellow color, most preferred by women (Eysenck, 1941).

However, over time and with the expansion of studies in color preferences, several other studies have emerged to realize the existence of differences in color preferences, formalizing theories (He et al., 2011; Zhang et al., 2019). Later on, it was possible to identify those female children tended to prefer pink more, as women preferred reddish hues; male children and adult men preferred more light-tinted blue (Burkitt et al., 2003; Ling et al., 2006).

One of the main theories that seek to explain the core of color preferences is called Hunter-Gatherer Theory (Regan et al., 2001; Hurlbert and Ling, 2007). Thus, it discusses an existing relationship between the social roles that occupy the feminine gender and the masculine gender within a social organization, focusing on their survival adaptation, ending how this is reflected in color preferences (He et al., 2011). In this sense, this theory identifies the preference of women for warmer colors according to the tasks they tend to perform in a domestic context, such as identifying the quality of fruit based on its red or purple color) (He et al., 2011; Zhang et al., 2019). Meanwhile, the same scenario would tend to apply to the male gender, which, being considered in a context of nature, outside a domestic zone, tends to demonstrate preferences for colors such as blue and green (He et al., 2011; Zhang et al., 2019).

The authors mentioned above still presented a second theory, called Social Structural Theory. In this, color preferences would be related to a search for equality of gender roles in society (He et al., 2011). Based on this theory, Zhang et al. (2019:969) explain that "Men would prefer some stimulating colors such as yellow to increase their sociability, while women would prefer some energetic and disturbing colors such as orange to increase their aggression-hostility". In science, there is evidence that both confirms and refutes the theories.

2. Objectives

This research's main objective is to identify whether there are differences in color preferences in fashion products across binary genres. From this, three research hypotheses were defined to be tested:

H1a. People's gender has a direct impact on how they prefer color in fashion.

H1b. People's gender has a direct impact on how they prefer groups of hues in fashion.

H1c. People's gender has a direct impact on how they prefer color lightness in fashion.

3. Methodology

In terms of its nature, the research is classified as applied, whose main characteristic is the application and use of knowledge in the fashion industry. Classify as exploratory-descriptive research. As for its approach, it is classified as quantitative research (Gil, 2008). Concerning its methodological procedures, it is classified as a survey, "the purpose of a survey is to provide statistical estimates of the characteristics of a target population, some set of people" (Fowler, 2014:8). Thus, we sought to discover the preference profiles in colors for fashion products. "To do that we designate a subset of that population, a sample, from whom we try to collect information (Fowler, 2014:8).

3.1. *Participants*

The research sought to understand the color preferences for fashion products among people considering the unique colors, the group of hues, and color lightness. In this way, it was also possible to perceive and discuss the color preferences between men and women. The survey's application was conducted with 252 people participated, 176 of them female and 76 men, aged between 7 and 64 years (Table 1).

Category	*N* = 252
Gender	69,84% = Female
	30,16% = Male
Age	54,76% = 7-20 years old
	35,71% = 21-40 years old
	8,73% = 41-60 years old
	0,79% = 61-64 years old

Table 1. *Profile of survey respondents*

3.2. *Sample of colors*

Based on the color chart developed by Silva (2017; 2020) in her works, the survey's questionnaire had a total of 39 colors presented to the respondents. It was devised into 12 pure colors, 12 colors darkened with 50% black, 12

colors lightened at 50% opacity, and three achromatic colors, arranged and divided into four groups of 5 hues and three lightness, and 1 group of 3 hues and three lightness (Fig. 1).

were subjected to the same visualization conditions of the colors and at the same time optimize the time of application of the questionnaires.
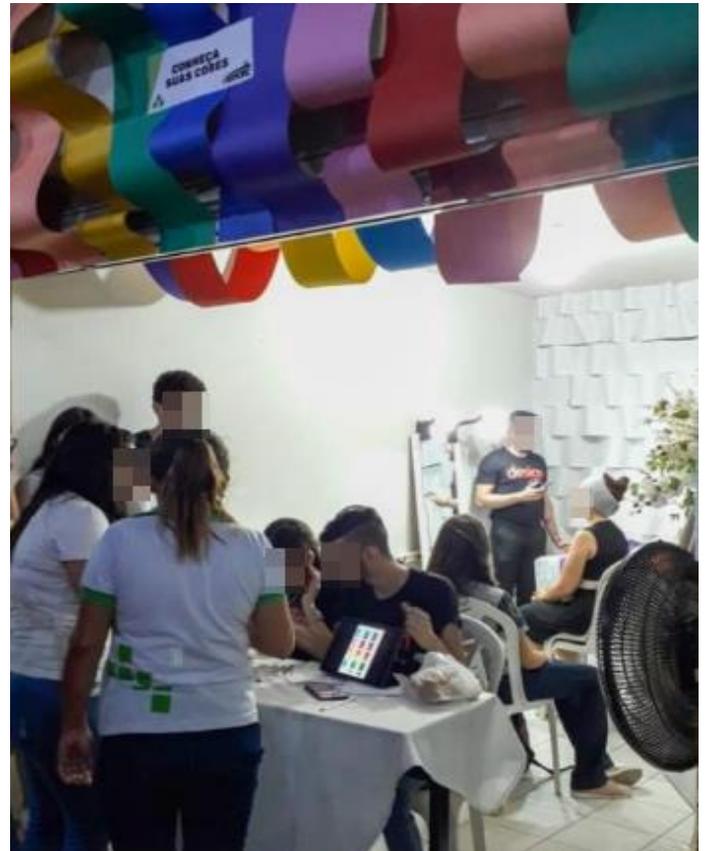
Ranges of colors	Light tones	Main colors	Dark tones
Range 1 Bluish	983	681	486
	503	910	230
	638	713	576
Range 2 Pink and lilaceous	864	524	186
	499	101	995
	321	970	459
Range 3 Yellowish to reddish	874	889	976
	663	307	123
	764	512	624
Range 4 Greenish	515	751	483
	431	425	903
	725	508	817
Range 5 Neutrals	863	192	741

Fig. 1. Colors listed presented to the participants, together with the questionnaire (Silva, 2017; 2020).

Fig. 2. The thematic room where the questionnaire was applied.

3.3. *Survey process*

The survey was conducted in late 2019 during a scientific and technological exhibition held annually by the Federal Institute of Education, Science, and Technology of Rio Grande do Norte, in Brazil. It was decided to create a thematic room on colors at a science fair where the questionnaire was applied to attract a greater number of respondents to the questionnaire. The room was called *"Know Your Colors"* and was designed to analyze the color temperature and contrast of people's skin and relate these variables to the use of colors in clothes and, in return, these people answered our questionnaire (Fig. 2).

The questionnaire's composition first sought demographic data, and in the second stage was selecting 5 of the colors that the respondents liked most when it comes to fashion products. Two new iPads (6th generation) with a 10.2-inch retina screen and a resolution of 2160 x 1620 pixels at 264 dpi were used for the application. It was a guarantee that both have the same lighting settings, thus ensuring that respondents

The data obtained were analyzed using basic descriptive statistics and ANOVA, focusing on identifying the levels of significance through the statistical analysis software IBM SPSS Statistic 20. The results were compared among themselves, considering divergences and convergences as the central focus in perceptions between genders. This paper consists of an initial and exploratory discussion on color preferences since there are so few works focusing on fashion products, and this research in Brazil is in the early stages.

4. Results: what color do men and women prefer in fashion?

This topic will be organized through the following three subtopics: unique colors, hue and color lightness.

4.1. *Color preferences within unique color*

At first, it is noticed that the color black (159 general choices) and white (75 available choices) has a common

consensus of preference between genders; both colors presented a higher level of preference in general and through genders (Fig 3).

Then, concerning the perspectives of individual genders and going beyond the colors already mentioned, women tended to prefer a shade of dark red (47 choices) and magenta (42 choices), with this set being the four most prominent colors among the female gender. In contrast, four colors derived from green were also identified as the least preferred among the female gender.

Regarding male preferences, trends were identified for preferring the color gray (20 choices) and the color red (20 choices). Unlike the female gender, the colors least preferred by men varied significantly, ranging from dark cyan (3 choices) to dark magenta (2 choices), violet (2 choices), and dark yellow (1 choice).

For the hypothesis outlined in H1a, it was found that there is no significant difference in preferences for individual colors in fashion (p-value = 0.383 > 0.05) [1]. The hypothesis is rejected.

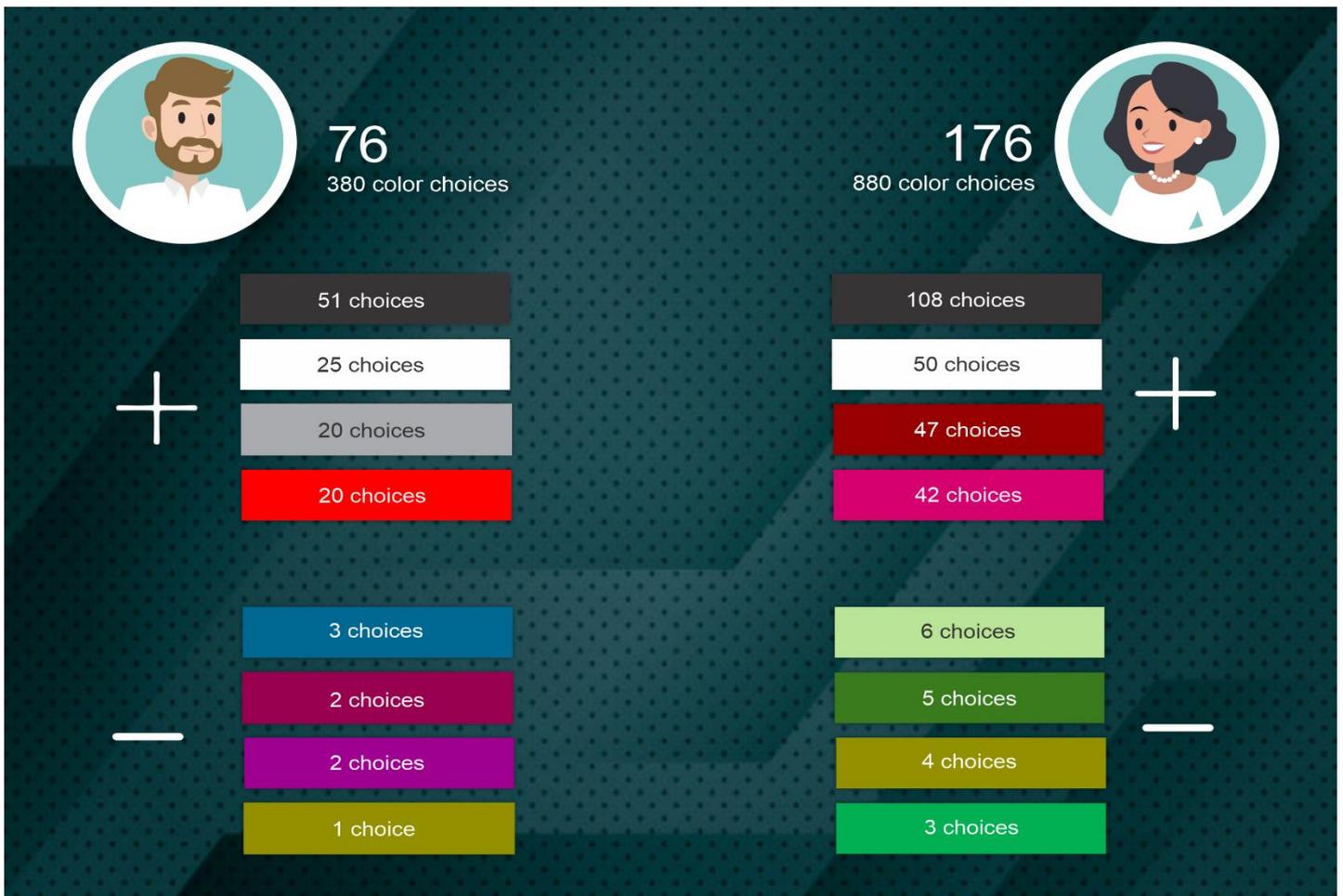*Fig. 3. Main gender color preferences for fashion products [2].*

4.2. *Color preferences through the group of hues*

The second analysis of the results was divided between five hues: achromatic (black, white, and gray), greenish, bluish, yellow/orange and reddish, and pinks and lilaceous (see Fig. 1). It was possible to observe that the most preferred hues for the research's general results are pink and violet, with 291 mentions, and greenish hues were the least preferred with only 170 mentions. However, those results are mainly influenced by the level of feminine representation in the research.

Regarding the differences in preferences between genders, it was found that there were 104 mentions of bluish hues among male people, and for pink and lilaceous hues, there were only 50 mentions, characterized as the last in the list. Regarding the female gender, there were 241 mentions of pink and lilaceous hues, the largest number of choices, and 112 mentions of greenish hues, the least preferred group of colors (Fig. 4).

Thus, it is possible to understand that women have a greater preference for pink and lilaceous hues and men for bluish hues, which, in the study by Heller (2013), presents the color blue as preferred among 46% of men, also being consonant with the found by Ellis and Fieck (2001), about colors in general.

Statically, it was found that there is no difference between the groups of hue in color preferences in fashion products for the male gender compared to the female gender (*p-value* = 0,145 > 0,05) [1]. So, regarding the

hypothesis stated in H1b, the evidence indicates that it was not an accepted hypothesis.

4.3. *Color preferences through the color lightness*

In general, dark tones appear as the preferred type of color lightness, with 476 mentions, followed by light tones with 405 mentions and medium tones with 378 mentions (Fig. 5). Therefore, according to the general results, dark tones are the preferred lightness due to the greater preference for the color black in both genders.
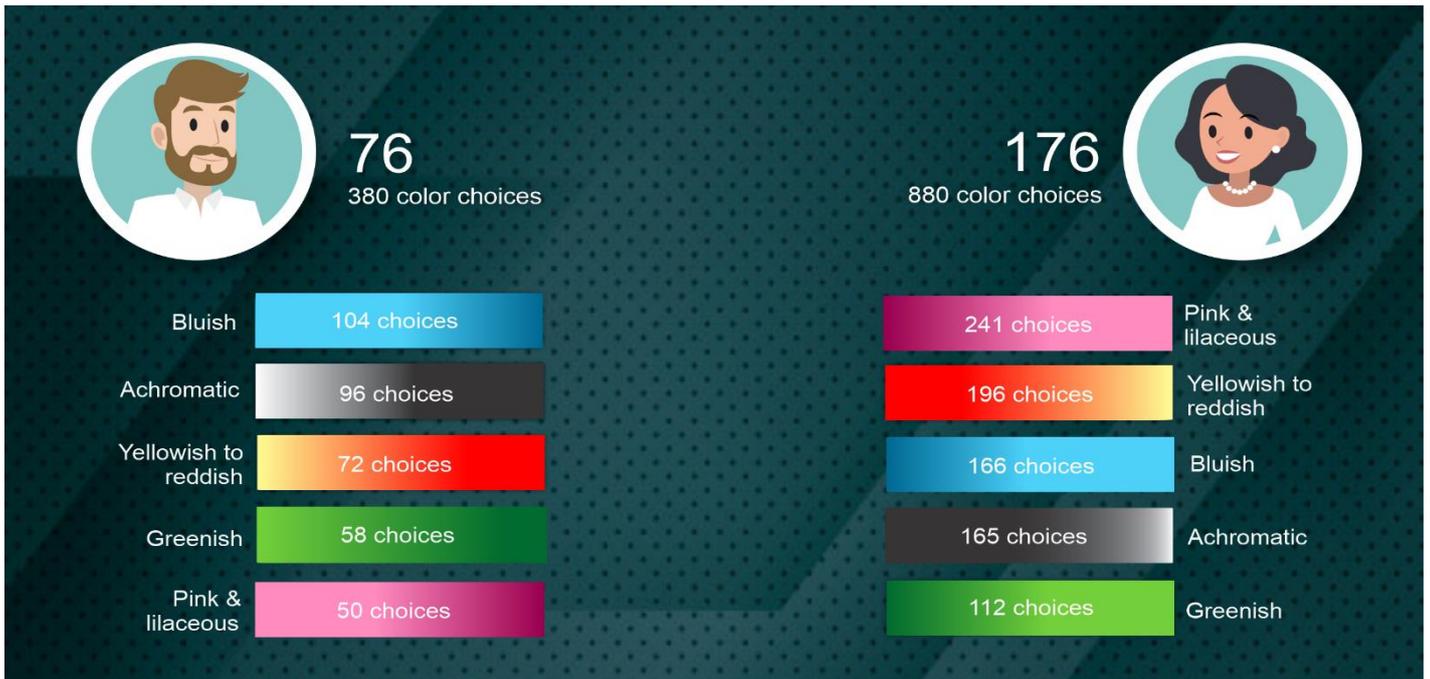

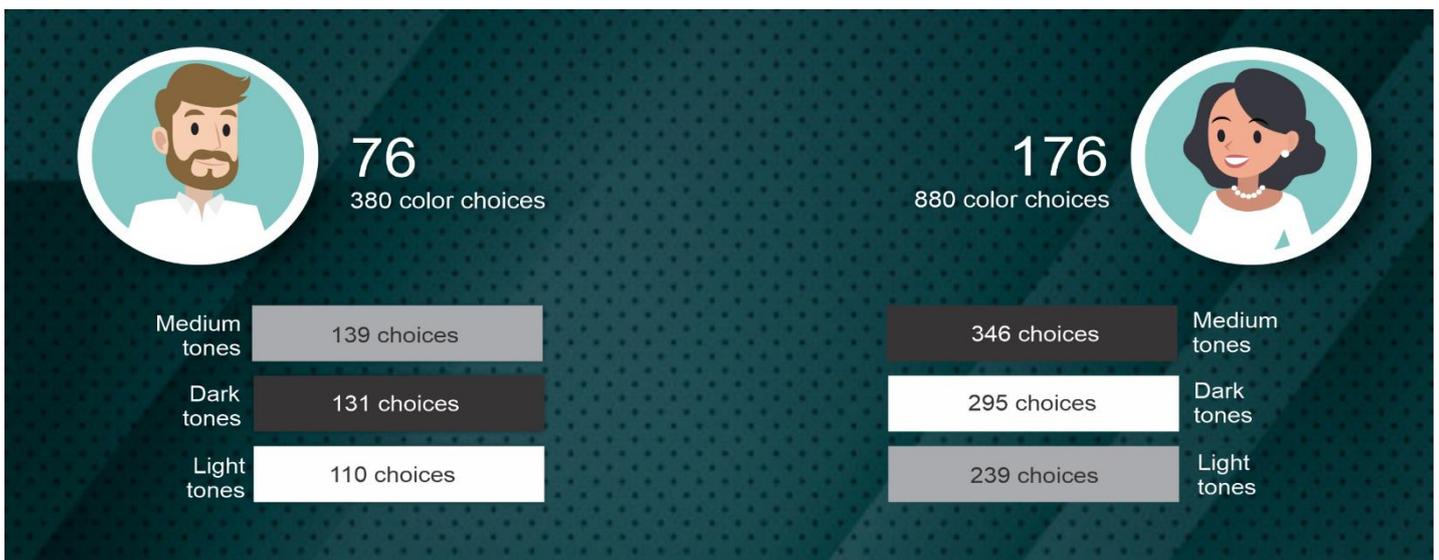*Fig. 4. Color preferences for fashion product through a range of colors [2].*

Fig. 5. Color preferences for fashion product through the color lightness [2].

There is a greater preference for medium tones among males with 139 mentions, followed by 131 mentions for dark tones and 110 for light tones; in general, black is the preferred shade among the men.

Thus, among the female gender, there is a predominance of preference for dark tones with 233 mentions, followed by 198 mentions of light tones and 154 mentions of medium tones; the black tone was preferred among women. What exactly differs from the research by Fortamann-Roe (2011), since the researcher identified a much greater male preference for dark tones and medium tones.

Regarding the hypothesis placed in H1c, it was not possible to identify any significant difference in color preferences across genders in fashion products for color lightness (p-value = 0.919 > 0.05) [1]. Based on this, the hypothesis is indicated as rejected.

5. Discussion: the reflex of gender social construction on color preferences in fashion products

Even though the results statistically suggest no difference in color preferences related to fashion products between genders, we can observe a much greater tendency for women to prefer pink and violet hues and men to higher reject it, preferring bluish hues instead (See Fig. 4). These results were in line with other studies previously developed regarding color preferences in general, without sticking to any product type (Fortamann-Roe, 2011; Heller, 2013; Bonnardel et al., 2018).

These data then suggest a more in-depth approach than would be the social dynamics of sexism rooted in a socio-cultural context, this being Brazil. This sexist thinking is very much in line with the global influences that the country has suffered and still suffers historically, mainly from the mass media. LoBue and DeLocache (2011: 663) bring that "if pink is what helps define a girl, it is not surprising that boys would have the opposite reaction".

Thus, the thought of clothing is rooted in society as a daily communication vehicle attached to one's body, actively participating in a society's interpersonal relationships, becoming part of itself, and reflecting visual messages (Jones, 2005). It is based on the thinking of fashion as a means of permeating a message that the male gender tends to create a departure from the use of clothing that brings the color pink as central since it automatically brings him closer to features that resemble the female gender (Ben-Zeev and Dennehy, 2014; Ishii et al., 2018). In Brazilian society, among cisgender men of heterosexual orientation, this approach to femininity that

the use of pink automatically brings, ends up being seen as something negative, as a denial of its masculinity (Schwinn and Funck, 2019).

The idea of *'pink for girls and blue for boys'* is a socio-cultural concept established since the individual is a child (Kilinç, 2011). The artifacts in the marketed for these age groups, such as toys, are limited and categorized through targeting the male gender, appropriating blue and green, and to the feminine, delimiting the colors pink and lilac. LoBue and Delocache (2011:665) go on to explain that "while girls are developing a preference for pink with age, boys are developing an avoidance of pink at the same time". These reinforced influences since childhood grow with our social preconceptions and become part of the judgments that we develop daily, guiding our purchase intensities sometimes only in the colors that certain artifacts carry and how they impact our social image, where men tend to refuse to wear a certain set of clothes because they are pink, lilac or red (Heller, 2013; Ben-Zeev and Dennehy, 2014; Ishii et al., 2018).

6. Final considerations

The research demonstrated the need further to investigate color preferences with a focus on fashion products. The results suggest that the preferences identified in this work are not derived either specifically from what is proposed in Hunter-Gatherer Theory or Social Structural Theory. As discussed earlier, the core of this color preference has been the pink and blue semantics' socio-cultural construction when related to genres. The results reveal this categorization of sexism projected in color as being more present in male fashion choices.

This work starts developing research in Brazil in an area not explored before. Creating a basis for what to be formalized and validated in future research as a theory about the potentializing and appearance of color preferences in fashion products and their socio-cultural and semantics perception. Besides, designers can find an opening of possibilities to explore the dimension and the psychological relationship between color-product-consumer.

Some previous studies suggest that the female preference for the color pink is directly linked to the age of the people studied, occurring mainly in children or young people. However, relationships between age and color preferences were not analyzed in this research and can be explored in other future studies.

7. Conflict of interest declaration

8. Funding source declaration

9. Acknowledgment

10. Short biography of the authors

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Notes

[1] When the p-value is higher than 0,05, we reject the hypothesis stated.

[2] Male and female graphic figure used in the image was created by *Pikisuperstar*. Available at https://br.freepik.com/pikisuperstar.

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