



Finding Gender Preferences in E-Commerce Website Design by an Experimental Approach

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ABSTRACT

Aesthetic design of a website has the same importance as its content, if not more, for the viewers to stay and interact. When it comes to e-commerce website, viewers' stay becomes even more important in order to increase the chance of purchase, but what makes a website an aesthetically designed website is of a question. Most websites seem to be designed based on designer taste not user preferences. This matter motivated this research to find users preferences in terms of font, shape, color, voice and language in website design issues. Specifically, we were interested in gender preferences. We try to find differences between preferences of male and female users in e-commerce website design in terms of the above mentioned issues. For this purpose we examined male and female, tendencies through an experiment and analyzed the results qualitatively. Results showed that there is not any difference between preferences of male and female users in e-commerce website design in terms of font and shape but there are differences in terms of voice, color and language parameter. The aim of this article is to present and discuss the five discussed factors in which female and male prefer to create successful and beautiful web sites.

General Terms

Human computer interaction, experimentation.

Keywords

E-commerce website design, gender differences.

1. INTRODUCTION

It is essential for any web designer to design websites that develop interest, satisfaction, ease of use and user expectations. By fulfilling users' expectations, web designer avoid and prevent errors. As consequence, the efficiency of the interaction can be improved [1]. User interface has vital role in presenting information for users, in order to provide delightful experience. As we know, user interface is the only part of a computer system which is visible to users to interact with and perform their work. In fact, for website to be successful not only providing useful information is necessary but how the information is presented plays an important role in attracting the user.

Web designers who design e-commerce websites must pay even more attention than other web designers, since e-commerce websites must attract the user enough to encourage

them to buy the advertise products. To obtain this purpose, designers should identify the users. Users are men and women who expect websites to help them finding their needs. Although half of the potential users of the Web are female, the web is still a male-oriented environment [2, 3, and 4]. According to study on UK University Web sites, results have indicated only 2% of websites had female design and 94% of them had a masculine bias. Websites designed by female teams were only 7% compared with male teams which were 74% [2, 3, and 4].

On the other side, gender is one of the most popular divisions used by business for gathering information, providing products and market segmentation because it is recognizable and available [5]. By recognizing these differences on how different genders interact with technology, web designers will be able to utilize e-commerce websites that have high volume traffic and create unique user experiences.

In a website design, using a combination of visual factors such as font, shape, color, language and voice might be good for attracting people. Accordingly, based on these mentioned issues, this research attempts to find the preferences of male and female users in e-commerce website design.

In the following sections, we investigated literature on gender differences and information processing. Then we focused their research on difference of gender in web design and in e-commerce website design. We also discussed the research methodology, analysis of data, results, and conclusions.

2. Literature review

Current research is considering the design and preparation of e-commerce websites with respect to gender issues. There have been several attempts to find gender issues in relationship to information system field. To illustrate, consider the research conducted by Zhang et al (2008). They tried to find the role of gender in bloggers' switching behavior. They concluded that results bloggers' intention to switch their blog services were related with three factors: satisfaction, sunk costs, and attractive alternatives. In addition, the role of gender was investigated to understand the differences between male and female in terms of their switching decision. This research revealed that female had more sensitivity to satisfaction and fewer tendencies to attractive alternatives than male [6]. Venkatesh and Morris (2000) examined the gender differences in the overlooked



context of individual adoption sustained usage of technology in the workplace. Venkatesh and Morris wrote:

“While men still represent a majority of the work force, the number of women at all levels of the organizational hierarchy continues to rise. Therefore, technology acceptance theories and models that overlook gender as an important factor may overestimate the influence of productivity-oriented factors”

They concluded that men preferred usefulness of technology. In contrast, women preferred ease of use [7].

On the other hand, some researches have been carried out to find the relationship between gender and web design perspective. For instance, Tuch et.al (2010) ran an experiment in which they asked 30 male and female users to choose among 20 websites which looked more aesthetically designed. Some of the websites were designed symmetrically while others were not. Results showed that only men were sensitive to the symmetry effect and reacted negatively to asymmetrically design websites, whereas women’s opinion were not influenced by symmetry [8].

Another study examined possible gender differences in web preferences via laboratory experiment. In this laboratory they used an eye tracker to gather information regarding users’ fixation when participants saw *bricklets* with and without pictures and *bricklets* with light and dark background colors. *Bricklet* is the small window with specific and useful information. They assumed two hypotheses. The first was: female participants will notice *bricklets* with pictures of people more than males and the second was: female participants will notice *bricklets* with a light color background more than males. Users of this study were asked to see *bricklets* with light and dark background and *bricklets* with or without images. Later, eye tracker measured users’ fixations which refer to looking at an object for at least 300 milliseconds. Finally the results of the fixation analysis did not support their hypotheses which mean there is not any significant difference between genders in regards to different types of *bricklets* [9].

Moreover, some researches have performed in terms of website design perspective. For instance Ruffini (2001) argued that the design of information, selection of graphics, and visual elements (that include color, text, and graphics) are directly related to the users’ motivation [10]. Similarly, Brady & Phillips (2003) found out that an aesthetically pleasing site ranked the highest when the subject users were asked to predict which would be the easiest to use. It is interesting to note that the majority of the subject users commented that color was a factor in ranking aesthetic appeal [11].

Color is the basic aspect of human perception. Most web designers agree that color plays an important role in designing of websites and also enhancing them. Although choosing the right color might depend on several issues including culture, personal preference and so on, certain colors tend to invite similar reaction from most of the people. People are combination of men and women that have different preferences of color. As reported by Kurniawan & Panayiotis Zaphiris (2007) women used brighter and warmer colors than man [12]. However, this paper tries to find out the most favorite colors for males and females in e-commerce websites. The second factor examined in this paper is shape; Shape is an essential building block in our visual vocabulary and basic element of design. It is impossible to design web site without using at least one shape. According to Kurniawan & Panayiotis Zaphiris (2007) men preferred regular, unfussy,

formal content and layout in straight lines, whereas women preferred rounded forms with less conventional design, formality and linearity. The third factor examined in this paper is font; Webpage fonts are necessary for creating an impact on the user’s sense of a site. Kurniawan & Panayiotis Zaphiris (2007) said: *“Designers must not assume that users will struggle to read large amounts of text in a difficult-to-read font. It is faster for them to move to another site.”*

Few researches, if any at all, has been done to study how fonts size and effect, sound, formal or informal language, can have impact on viewers decision to revisit a site or stay viewing for a long time in an e-commerce website. Cyr and Bonanni (2005) ran an experiment in which trust, satisfaction and e-loyalty perceptions of male and female participants were measured. Results showed that there were significant differences among genders in perceptions of website design and satisfaction while no significant differences in terms of transaction security and e-loyalty [13].

It seems that there are essential differences between male and female in the aesthetic perception of websites. According to some studies, web aesthetics had positive effects on activation of search on a website and on the intention to purchase from an online store [14]. Further research is needed to determine the essence of these differences. Past studies mainly examined gender differences in website design preferences; this paper continues those explorations and finds differences in e-commerce websites design regarding five mentioned factors.

3. Design of experiment

To find the preferences of male and female users in e-commerce website design, an experiment was designed. In which participants were asked to paint their desired e-commerce website in order to extract male and female preferences from their design. The participants were 7 males and 9 females. The ages of the participants ranged from 18 to 50. They were divided into three groups based on the interaction with e-commerce website.

These groups were:

(1) Group A: this group included men and women who had visited e-commerce websites and purchased at least once from an e-commerce website. The participants were 3 males and 3 females.

(2) Group B: this group included men and women who had visited e-commerce websites but did not purchase anything at all. The participants of this group were 2 males and 3 females.

(3) Group C: a group included men and women who had not visit any e-commerce website and therefore did not purchase anything. The participants were 2 males and 3 females.

To be able to participate in this experiment, one should have surfed the web at least once in their life. In this experiment participants were asked to paint the pages that they were expecting to see when they visited an e-commerce website at their choice. Participants were provided with some tools including: blank paper with internet explorer background, adhesive tape, black pencil, and some colorful crayons in yellow, blue, red, green, brown, white, black and gray colors. Participants were allowed to ask questions whenever needed from researcher. Sometimes the researcher also asked



questions and cleared out the issues when it was needed. In order to motivate the participants to paint more efficiency.

Prior to start painting, participants were asked two questions to be allocated to the proper group.

Questions 1) have you ever visited e-commerce websites?

Question 2) if you did, have you ever purchased from e-commerce websites?

Then, participants were asked to paint on the paper with internet explorer background, an e-commerce website which sells their favorite commodity. Their paintings had to include their desired color, font, shape and language. Participants had to make decision on the use of sound for website or not. Women and men had enough paper, they could use as many as paper they needed but they had to follow this policy: if they wanted their website use scrollbars for showing concept, they had to use adhesive tape to stick papers. In order to examine this purpose: whether participants preferred the information to be written in pages with scrollbars or not.

Among participants who were weak at painting or could not paint at all, an alternative method was considered to express their ideas. For instance a woman who wanted to draw a pair of shoes, but was not able to do so she was told to draw a similar shape and explain this shape meant a pair of shoes at the back of the page. The later case, participants were allowed to write down the name of the object and all the requirements instead of painting.

Data gathering ended when similar patterns of preferences repeated [15].

4. Analysis

As mentioned in pervious section, in this experiment participants were divided into three groups and painted their desired e-commerce website. For data analyzing, parameters which were asked from participants to paint were extracted from painting papers and were classified in tables. This classification was based on participant's gender. Tables 4.1, 4.2 and 4.3 show the result of experiment in terms of important factors which formed our experiment. In order to interpret font column, appendix1 should be looked at.

According to the result, group A which included equal participation of three women and men preferred formal language. All participants except a woman with ID AW1 used square and rectangular shapes for designing their desire goods in e-commerce website. Woman with ID AW1 considered 1.3.5 and 1.1.2 font appropriate for textual content of her web site. She did not like to hear any sound like other women participants in this group and preferred to use blue, brown, yellow and gray colors. Also, she preferred square, rectangle and 3D images for shape. Woman with ID AW2 found 1.3.7 font suitable for web site and refused to use any specific color. The last woman participant with ID AW3 used 1.3.5 for font and blue, brown and yellow for colors. On the other hand, all men in group A used blue color in their paintings. Participant AM1 selected 1.1.7 from the font table. He preferred to hear sound and tended to use green and red colors in addition to blue for painting. 1.3.4 and 1.3.5 are preferred option for participant AM2. He also preferred to hear sound and tended to use yellow, red and blue colors. The last male participant with ID AM3 agreed to use simple font without any effect. He

expressed clearly that he disliked using sound in his website. He chose blue and gray colors.

In summary, in this group there was maximum similarity between men and women in language, all of them preferred formal language and there was maximum difference in voice, none of women tended to hear sound but 2 out of 3 men preferred to hear sound in their websites.

Table 4.1. Results of group A

A	ID	Font	Voice	Shape	Color	Language
		Women	AW1	1.3.5-1.1.2	Not used	
	AW2	1.3.7	Not used	Square-rectangle	Not used specific color	Formal
	AW3	1.3.5	Not used	Square-rectangle	Blue-brown-yellow	Formal
Men	AM1	1.1.7	Used	Square-rectangle	Blue-green-red	Formal
	AM2	1.3.4-1.3.5	Used	Square-rectangle	Blue-yellow-red	Formal

Results from group B indicated that all of the female participants liked to use sound in their website but the men did not. Participant BW1 selected 1.1.3 from font table and used square, rectangle and circle for shape. She told the researcher that she liked all colors. Also, she agreed with informal language. BW2 and BW3 did not tend to emphasize one specific font and color. In addition, BW2 used informal language and square, rectangle and circle but BW3 preferred formal language and 3D images. Both participants of men in group B had the same opinion about font, voice, shape and language. They did not choose a specific font. They also agreed about websites which did not use voice and informal language. BM1 and BM2 preferred square and rectangular shapes for their e-commerce website. The only difference between these male participants was preferred option of color. BM1 did not use specific any color but BM2 used blue and white for painting.

In summary, in this group there were close similarity between men and women in font, shape and color. For shape, all of the participants except one woman preferred square and rectangle. According to color parameter, all of the participants except one man did not tend to use specific color and in terms of font



all of the participants expect one woman did not tend to use specific font. There was maximum difference in voice. All female participants liked to use sound in their website but the men did not.

Table 4.2. Results of group B

R	ID	Font	Voice	Shape	Color	Language
Women	BW1	1.1.3	Used	Square-rectangle-circle	Not used specific color	Informal
	BW2	Not used specific font	Used	Square-rectangle-circle	Not used specific color	Formal
	BW3	Not used specific font	Used	3D images	Not used specific color	Formal
Men	BM1	Not used specific font	Not used	Square-rectangle	Not used specific color	Formal
	BM2	Not used specific font	Not used	Square-rectangle	Blue-white	Formal

Results obtained from group C show that all participants liked to use voice in their website. In addition, all of the women preferred informal language but the men did not. Participant CW1 used 1.3.4 for font and warm colors for color. She also mentioned that she did not tend to use specific shape. Participant CW2 selected 1.3.2 from font table. She liked to use blue and warm colors for her painting. She also said that she liked to use 3D images for designing the website. The last woman of this group did not have any strong opinion about font and color but she wanted to use square and rectangle for the website. Both male participants in group C did not select any specific font from font table. CM1 participant used square and rectangle for shape. Also, he used black and white for color parameter. Preferred option of color for CM2 was cold colors and blue. He did not desire any specific font.

In summary, in this group there was maximum similarity between men and women in terms of voice. All of them tended to use voice in their websites and there was maximum difference in language, all of the women preferred informal but the men did not.

Table 4.3. Results of group C

C	ID	Font	Voice	Shape	Color	Language
Women	CW1	1.3.4	Used	Not used specific shapes	Warm color	Informal
	CW2	1.3.2	Used	3D images	Warm color-blue	Informal
	CW3	Not used specific font	Used	Square-rectangle	Not used specific color	Informal
Men	CM1	Not used specific font	Used	Square-rectangle	Black-white	Formal
	CM2	Not used specific font	Used	Not used specific shapes	Cold color-blue	Formal

During the time of experiment, based on the discussion that took place between participants and the researcher some issues were arose that we did not set as our research goal but seemed to be important as much.

The first issue was related to irrelevant advertisements which appeared on websites and pursued viewer to buy goods. They disliked this kind of advertisement. However, most of the participants revealed their great tendency about advertisements which somehow were related to the goods during their purchasing. For instants, participant BW3 said “*if I wanted to buy clothe, I would satisfied with advertisements which suggested shoes or bags that matched with clothe*”.

The second issue revolved around the number of pages which participants used. Most of the participants tended to use just 1 or 2 pages. It seemed that they preferred all things needed to buy goods to be fulfilled in one or two pages.

Based on permission which allowed participants to use scrollbars for their website, results showed that none of the participants of group A and C tended to use scrollbars, only one woman of group B used scrollbars.

The forth issues referred to shops in the real world. Most of the time participants compared shops in the real world to e-commerce websites. They said “*I only buy goods that come with similar guaranties in real world*” or “*I don’t care about special font for describing goods, all I need is similar to what is in catalogues in shops*”

Another issue was *trust*. During the experiment, some participants tended to know some banks and companies which



collaborated with the websites. They preferred to do business with trustworthy banks and financial institutes.

Moreover, cultural issues played an important role in discussion between participants and the researcher. Most of the participants pointed some issues that could be categorized in “cultural issues”. For instance one participant said “*I only buy cheap goods because I live in the country that there are not official rules for e-commerce websites*”. [In case fraudulence was happened]

Another interesting factor which was seen just among female participants was appreciating massages. Two women mentioned that they tended to receive this message after purchase.

5. Conclusion

Before making a conclusion, it is necessary to return to the research topic mentioned at the introduction of this paper. The aim of this study is to find the preferences of male and female users in e-commerce website design.

In order to find the answer, the experiment was carried out based on five specific parameters: language, color, shape, voice and font.

Results which were obtained from this experiment in terms of the font parameter showed that male and female users preferred more to use simple fonts like fonts which they had commonly seen in newspapers and books. If they wanted to use complex font, they would apply to titles. To sum up, there was not any difference between preferences of male and female users in e-commerce website design.

Results which were obtained from analyzing of color parameter seemed to show that female users used warm colors and tried to achieve and create perfect harmony of colors. This result breaches the public opinion about color preferences of women. Pink is a typical and classic example of this belief. On the other hand, men preferred cold colors and in order to emphasize some content they used warm colors like red. None of the male participants preferred the harmony of colors in their websites.

Results which were obtained from analyzing of language parameter indicated all men preferred formal language but some women used formal and others used informal language. It should be noted that some women and men used English language instead of their native language. These participants hold this view that if this commodity is built in a foreign country, it should be used the official language of that nation.

Results which were obtained from analyzing of voice parameter showed that female users tended to use voice in their website more than male users. These female users mostly were located in group B and C. this result showed infrequent users of the internet preferred voice in website.

Lastly, results obtained from analyzing of shape parameter showed that there is not any difference between preferences of male and female users in e-commerce website design. Most of the male and female users preferred square and rectangle.

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Appendix 1

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