Gender differences in graphic design for the Web

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ABSTRACT
Nowadays, differences between men and women in computer science have become a concern in the scientific society. But few studies focus on possible gender differences in web design. We have thus tackled the problem and conducted a statistical analysis in the field. We have selected male and female sites and analyzed them according to a list of graphic variables including the number of colours in the site, the type of these, the type of background, the presence of graphics and their types etc. We have also questionned male and female students about their preferences in web design.

Categories and Subject Descriptors
D.2.2 [**Design Tools and Techniques**]: User Interface

Keywords
Gender differences, web design, visualization

1. INTRODUCTION
Many studies focus on the human being to try to understand how we behave, think and so on. In today's society, we have to cope with a tool which is now part of our daily lives: the computer. We have thus developed a way of interacting with the machine. It appeared that men and women don't behave in the same way regarding the latter. Scientists then decided to tackle this problem and to find what these differences consist of and why they exist. For example, they have found differences in CMC (Computer Mediated Communication), programming styles, the use of the Internet, computer games and so on.

However, few investigations have been conducted regarding web design. It thus seemed interesting to get into the topic in greater depth and to find if there are differences between men and women in this particular field of Human Computer Interaction.

In the following sections, we will present a few gender studies in the context of web design. We will especially focus on the visual aspect of the latter. Then, we will introduce you to the research we have conducted. This survey consists of a quantitative analysis among Australian academics. Actually, we have assessed 15 male and 15 female sites according to a list of features, among which some are visual. But we also wanted to question today's young generation and we have thus collected students' opinions about their preferences in web design.

2. PREVIOUS RESEARCH
Even if gender studies related to web design are not numerous, they examine gender patterns in interface design for many categories of people, from the kindergarten children's preferences to academics'. In [16], Simon looked at the impact of gender on websites. Out of 160 female and male students, females indicated they overwhelmingly (84%) prefer sites that are less cluttered, with minimal use of graphics. Females (52%) suggested that sites making use of pull-down menus are easier to navigate than those with levels that require them to click through to achieve their objective. Males, on the other hand, indicated that sites making extensive use of graphics are clearly their preference (77%).

Although findings are ambiguous, many investigations have indicated that there are differences between gender regarding preferences for colors. A review of color studies done by Eysenck in early 1940's notes the following results to the relationship between gender and color [5]. St.George (1938) found that blue for men stands out far more than for women. An even earlier study by Jastrow found men preferred blue to red and women red to blue. In expressing the preferences for light versus dark colors, there was no significant difference between men and women.

In [1], Arnold and Miller looked at homepages produced by people in institutional or commercial settings. Given that it is often suggested it is particularly in such settings that women find it difficult to have their status, authority and credibility recognised, the authors decided to see how the "official" personal web pages of women and men might differ. They selected some academics' websites and found several differences. Often amongst the women (though they suspect in some cases with heavy irony) there was a "feminine" style of self-image, but they have not found any women's pages that use jokey pictures of themselves, as some men do. On the web, people can "belong" to a group of people, e.g. in a department or subject grouping, which is dominated by a

house style. Yet even here, gender differences intrude in the cyberspace equivalent of "fluffy" feminine (such as the use of a substitute picture e.g. "flowers") compared to technical "images" (e.g. a computer) used by men.

In [7], it was found out that while several male academics also include family within their online representations, men's pages tend to focus more on presenting a self-image to the viewer. Women's pages, in contrast, often feature more pictures of family members than themselves, and in many cases completely exclude their own image.

In [9], Miller and Mather looked at 35 women's and 35 men's personal homepages. The authors identified four categories of self-image on the page:
1. **straight**: an image which is meant to be a straightforward likeness
2. **joke**: a distorted or caricatured or unrepresentative image, e.g. cartoon, baby photo, author just after falling off bike into mudhole, author caricatures as frog, etc
3. **symbolic**: an image which represents a human being, but not the actual person who posted the page. This is often a piece of clip art, like a cherub or a generic silhouette
4. **none**: no images of humans.
The authors of this study counted blurred or pixellated photos which *might* be of the author, but were so unclear that they didn't really represent an individual but didn't find any gender difference. The main difference was related to the use of jokey images. Indeed, joke images only featured on men's pages (on 4), and symbolic images only on women's (on 10 pages, the most common form of image on women's pages).

3. FOCUS ON AUSTRALIAN ACADEMICS

3.1 Methodology

The quantitative part of our survey aimed at determining if women and men design their websites in a different way. We thus decided to conduct the investigation in the academic context in order to compare our results with the findings from previous literature. The first step in the assessment of the sites was of course the selection of these. Academics' web homepages have been therefore selected among Australian IT departments. To try to reduce the influence of the cultural factor, the sample didn't include any Asian professor. We also tried to make sure that the web homepage had been designed by the academic him-/herself by checking the author of the site or by checking it was not the common style of the department. There was no restriction regarding the housing place of the site.

According to a first insight of the sites, we have formulated several hypotheses. We can classify them into two categories. The first one consists of the numerical variables and the second is composed of the binary variables. For the first category, we have:
1. **Text in women's websites is more spaced out than in men's**
- Women use more white spaces than men
- Women use more paragraphs per page than men
2. **Women tend to use more different fonts than men**
3. **Women tend to use more colours for text and hypertext**
4. **Women's websites have a more colourful background**
5. **Men show more self-photos than women**
6. **Men show more photos apart from self-photos than women**
7. **Women use more graphics than men**

For the second category, we assume:
1. **Men and women both use classic fonts**
2. **Men and women don't use girlish fonts**
3. **Men and women differ in the type of colours used for text and hypertext**
- Women tend to use more reddish colours
- Men tend to use more blueish colours
- Both use black
- Men tend to use white more often than women
- Men tend to use grey more often than women
4. **Men tend to have more technological websites**
5. **Women and men differ regarding the type of colours used for their backgrounds**
- Women use softer colours
- Men use darker colours
- Women use more reddish colours
- Men use more blueish colours
- Men use black more often
- Men and women do not differ regarding the use of white
- Men use grey more often
6. **Men and women differ regarding the type of background**
- There are more women's websites with a classic background than men's sites
- There are more men's websites with an original background than women's sites
7. **There are more women using graphic accents (smileys, emoticons etc) than men**
8. **Women and men differ regarding the type of self-photos**
- Women and men both show the official picture
- Men show more non-official pictures of themselves than women
- Men show more family pictures with themselves than women
- Men show more pictures of themselves with friends than women
- Men and women do not differ regarding pictures of themselves with colleagues
- Men and women do not differ regarding pictures of themselves with their pets
- Men show more pictures of themselves in their leisure time than women
- Men show more computer-related pictures with themselves
9. **Men and women both show good-quality self-photos**
10. **Women and men differ regarding the type of photos**
- Men show more pictures of their families than women
- Men and women do not differ regarding pictures showing their friends
- Women show more pictures of their colleagues than men
- Men show more pictures of their pets than women
- Men show more pictures of their leisure time than women
- Men show more computer-related pictures than women
11. **Women and men both show good-quality pictures**
12. **Men and women differ in the type of graphics**
- Women use more basic graphics

- Women use more modern graphics
- Women use trendier graphics
- Women use more artistic graphics
- Men use more comics graphics
- Women and men do not differ regarding the use of computer-related graphics

3.2 Statistical analysis

In this paper, we have used different kinds of statistical tests. When collecting the data, histograms were already drawn at that time and it turned out that most male and female distributions for the different characteristics didn't have a normal shape, even after transformations. That is why we have applied non-parametric statistics[3]. The Mann-Wilcoxon-Whitney test aimed at finding a location difference between male and female distributions[17]. For the possible location differences, we have applied the Hodges-Lehmann estimator to determine the extent of such a difference[17]. To test the equality of variances, we have used the squared rank test for variance[17]. Finally, we applied the Smirnov test to determine if it was reasonable to assume that the male sample and the female one came from identically distributed populations[17]. We have also run a k-means clustering method in order to classify the academics.

In our list of variables, some are binary as described in the hypotheses. To analyze these, we have applied the Fisher's test in order to figure out if our male and female populations were homogeneous or not[11]. The binomial test has been used to bring out genderless tendencies among the academics[11]. The discriminant method allowed us to know which variables were most discriminant. We have also run a multiple correspondence analysis in order to find variable patterns. Finally, the segmentation method highlighted profiles among our sample.

3.3 Results

Let's first mention that the Smirnov test aiming at stating if males and females could come from a common population was never significative. That is why we won't mention this test in the following results.

The first question we raised was to figure out if women's websites were more spaced-out than men's. In this case, we looked at the proportion of white spaces and the number of paragraphs per page. The location test was not significative for none of the features. Regarding the variances, we could conclude to a variability difference for the number of paragraphs per page (with an error of 5%). In general, apart from this variability difference, we couldn't draw any other conclusion.

Regarding the number of fonts, nor the location test or the variance test were significative. Thus, we couldn't say if women use more fonts than men or vice-versa. The same statement could be made for the number of colours for text and hypertext. On the face of it, we could have thought that women's websites would have a more colourful background, but again, the tests were not significative, preventing us from concluding anything.

According to previous literature, we could think that women would show fewer self-photos on their websites than men. But the only result we had is a variability difference between men and women regarding this variable (with an error of 5%). Regarding the number of photos, we had a location and a variability difference (both with an error of 5%). However, the Hodges-Lehmann estimator indicated there was only a difference of one photo between men's and women's websites. For the number of graphics, there was only a variability difference again (with an error of 5%).

When classifying the academics, we obtained two clusters. The second one was very interesting since it only consisted of two females. These differ from the other academics (cluster 1) by the number of photos (1083 for female 1), the number of graphics (2855 for female 1 and 1217 for female 2) and the number of self-photos (89 for female 2).

The following table will help you understand how the Fisher's test works.

GraphicAccents	*yes*	*no*	*total*
M	0	15	15
F	5	10	15
total	5	25	30

As you can see in this first table, no male use graphic accents (smileys, emoticons etc) whereas five females do. For the analysis, let's consider the cell situated at the intersection between the first row and the first column, denoted by $C(1,1)$, being A, $C(1,2)$ being B, $C(2,1)$ being C, $C(2,2)$ being D and H_0 stating both populations are homogeneous. According to Fisher's tables, for A + B = 15, C + D = 15 and B = 15, the maximum value for D (above which we **cannot reject** H_0) is 11. Since our D (the one in the table) equals 10, we **can reject** H_0 with an error of 5 %. Regarding the presence of photos, we have the following table:

Photos	*yes*	*no*	*total*
M	9	6	15
F	2	13	15
total	11	19	30

According to Fisher's tables, for A + B = 15, C + D = 15 and A = 9, the maximum value for C (above which we **cannot reject** H_0) is 3. Since our C (the one in the table) equals 2, we **can reject** H_0 with an error of 5 %. If we consider all the binary variables, we have found out that only the binary variables "graphic accents" and "photos" allowed to reject the homogeneity hypothesis stating that the male and female populations are homogeneous. That means males and females have different behaviours: women use more graphic accents and males put more photos on their websites than women.

Since the Fisher's test only put two differences forward, we have conducted a binomial test to see if there were any genderless differences of behaviour. This test has given interesting results. A majority of academics don't have a technological site, use classic fonts and no girlish fonts. They use bleuish colours, black but no white or grey for text and hypertext. They don't show graphic accents but include graphics in their websites. Their backgrounds are not black

nor dark or blueish but white in general. Backgrounds are also classic most of the time and not original.

The discriminant analysis has highlighted the variable "graphic accents" better separate the men from the women than the variable "photos". The canonical discriminant function is

$$F(x) = -2,041g + 1,759p - 0,305$$

with g standing for "graphic accents" and p for "photos". Since the absolute value of the coefficient of the graphic accents is greater than the one for the photos, it confirms the fact graphic accents is the best discriminating variable. The classification functions are the following ones:

$$F_0(x) = 2,747g + 0,528p - 1,186$$

and

$$F_1(x) = -0,317g + 3,170p - 1,644.$$

We clearly have a much higher coefficient for the females regarding the graphic accents, meaning these use more graphic accents than the males. But regarding the photos, we have the contrary. Let's remember that a male (female) do not necessarily behave like a male (female). When running the classification functions on our sample, we have found out that one female had a higher score with $F_1(x)$, that is to say her profile corresponds to a male whereas six males had a higher score with $F_0(x)$, thus behaving like a female.

The segmentation analysis has allowed us to divide the males and the females of our sample into groups which are as homogeneous as possible. Actually, the segmentation method uses another method called "decision-tree learning". A decision tree describes a tree structure wherein leaves represent classifications and branches represent conjunctions of variables that lead to those classifications. A decision tree can be learned by splitting the source set into subsets based on an variable value test. This process is repeated on each derived subset in a recursive manner. Splitting is done thanks to the computation of a distance measure. The recursion is completed when splitting is either non-feasible, or a singular classification can be applied to each element of the derived subset. In the context of our research, the set of variables was composed of the binary variables. We chose the entropy reduction method as a distance measure [10]. The results are shown on figure 1. As you can see, the first discriminant variable is the graphic accents. What we can conclude from this tree confirms the results from the discriminant analysis and the Fisher's test. Indeed, the variable "graphic accents" best discriminate males and females. For those who do not use graphic accents (right branch of the tree), the presence of photos is the most discriminant factor.

We have also conducted a multiple correspondence analysis. This kind of analysis is part of the factorial analyses group. The goal of factorial analyses is to summarize and organize the information into a hierarchy, information which can be found in a matrix of *n rows* (the subjects) and *p columns* (the variables). The *n subjects* are described by a cloud of *p variables*. The information represented by this cloud is the dispersion of the n points. So, computing a summary of this information means projecting these points into a space which dimension is below p. The axes of this subspace are called "factors". In the context of the multiple correspondence analysis, the *p variables* are qualitative (modality 0 for its absence, modality 1 for its presence). For our survey, we focussed on the first ten factors since they explain 71% of the dispersion. For each axis, we kept the four most important variables for the negative part and the four most important variables for the positive one. Then we projected the males and females of our sample into factorial plans. That is how we could conclude that males tend to have an original background that is not white, with trendy graphics. Indeed, regarding the factorial plan consisting of axis 3 and axis 4 (figure 2), we can see there are **only three males** (males are in dark blue) in the **bottom part** of the chart, meaning **males** tend to have an **original background** that is not white, with trendy graphics. **Women** (women are in light pink) do **not seem** to have a **particular preference** since they can be found in **both** parts of the plan. Let's note that the negative part of axis 3 consists of the following variables: the presence of girlish fonts, then the absence of classic fonts, the presence of non-official self-photos and the absence of blueish colours for text. Regarding the positive part of the same axis, we have the following order: the absence of girlish fonts, the presence of classic fonts, the absence of non-official self-photos, the presence of blueish colours for text. For axis 4, the variables composing the negative part of the axis are ordered as follows: the absence of an original background, the absence of trendy graphics, the presence of a white background, the presence of leisure time photos. Regarding the positive part of axis 4, we have: the presence of an original background, the presence of trendy graphics, the absence of a white background and finally the absence of leisure time photos. By considering the whole sample, that is to say males and females put together without any gender distinction, we could bring out **two** tendencies. The first one represents the less common behaviour among our academics, which is defined by the fact of having a website with an original background, girlish fonts, colleagues and computer-related self-photos, pets photos and no blueish colours for text and hypertext. The second tendency represents the most common behaviour among the professors, defined by the fact of having a website with a classic background, no colleagues and computer-related self-photos, classic fonts, blueish colours for text and hypertext and no pets photos.

4. SURVEY AMONG AUSTRALIAN STUDENTS

In the frame of our research, we have also conducted a survey among students of a web design class. These students had to answer fifty questions about their design preferences. Ninety questionnaires were collected: fifty-five from male students and thirty-five from female students. The first questions focussed on the students' preferences in web design. Then, they focussed on the way they would design their own web homepages. For each question (apart from questions 1 and 2), the students could answer "I strongly disagree", "I disagree", "I am neutral" (no preference), "I agree" and "I strongly agree".
Here is the list of questions. 1. Are you a male or a female?
2. What nationality are you?
3. I prefer a page for which I have to scroll down in order to see all text than a page in which all text is cluttered.
4. I prefer pull-down menus.
5. I prefer menus you have to click through in order to achieve my goal.

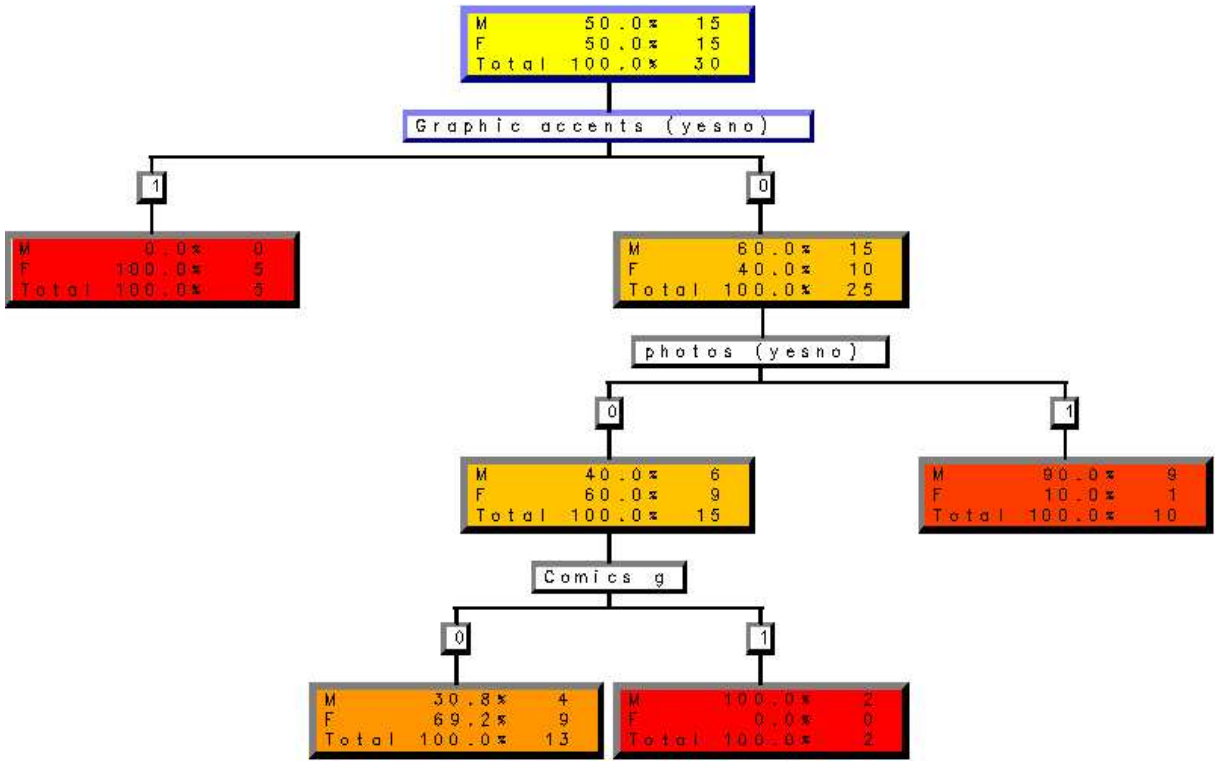

Figure 1: Segmentation result - 1 represents the presence of the variable, 0 the absence

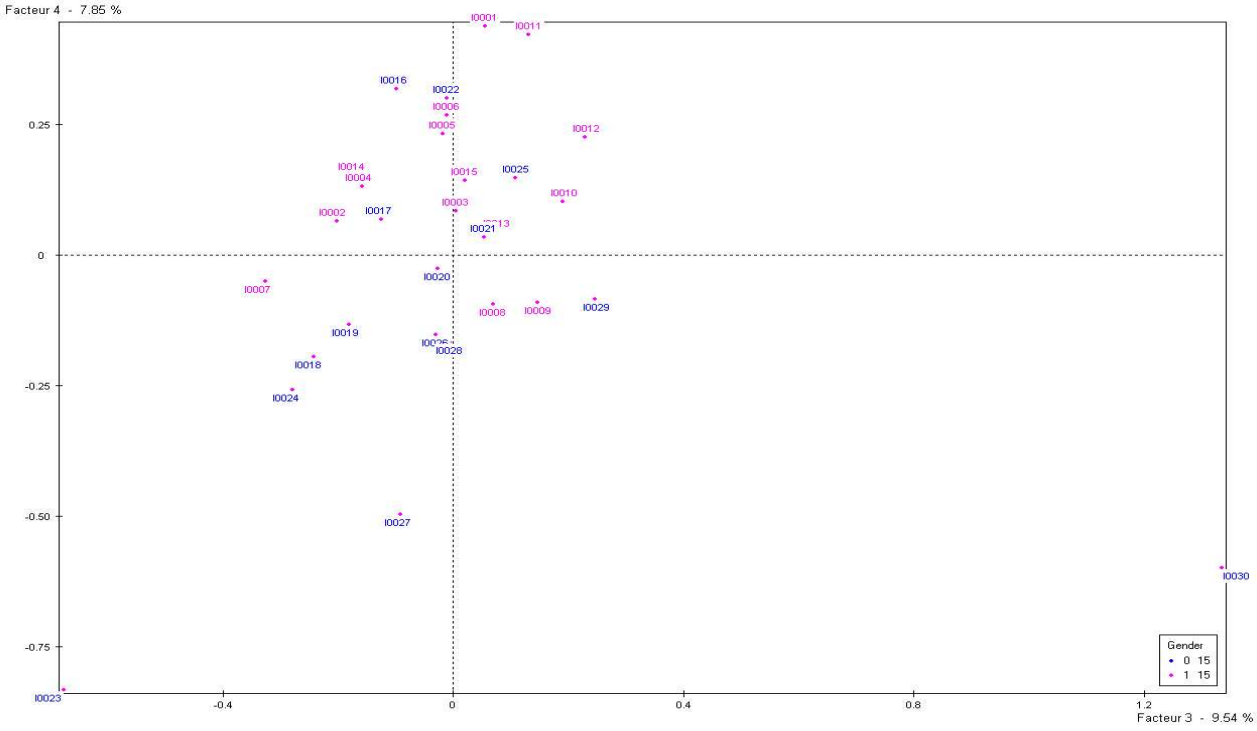

Figure 2: MCA for BN: axis 3 vs axis 4

6. I prefer when a variety of fonts are used for text and hypertext.
7. I prefer soft colours like pastel colours to dark colours like dark blue or black.
8. I prefer reddish colours (red, yellow, pink, orange etc) to blueish colours (blue, green, purple etc).
9. I prefer when many colours are used for text and hypertext.
10. I prefer websites in which there are many white spaces between the elements of the site (images, text etc).
11. I prefer when there are a lot of white spaces inside a text.
12. I prefer when there are many static images in the site.
13. I prefer when there are many graphic animations on a page.
14. I prefer trendy graphics to basic graphics.
15. I prefer comics graphics to basic graphics.
16. I prefer computer-related graphics to basic graphics.
17. I prefer jokey graphics to basic graphics.
18. I prefer a site in which the background is colourful.
19. I prefer a site in which the pages do not look similar. For instance, if there are 10 pages on the site, I prefer when they don't have the same background, the same fonts etc.
20. I prefer a background with motifs than a plain background.

If I had to design my own web homepage...
21. I would put a picture of myself.
22. I would put *many* pictures of myself.
23. I would put jokey pictures of myself.
24. I would put pictures showing myself on the main page.
25. I would insert pictures of my private life (family, pets, friends, leisure time etc) in my own site.
26. I would insert *many* pictures of my private life (family, pets, friends, leisure time etc) in my own site.
27. I would put pictures representing my private life on the main page.
28. If I had to include graphics in my web homepage, I would try to make these jokey.

We have carried out a discriminant analysis in order to know which questions separate the best the male and the female students. The preference for **menus you have to click through** in order to achieve your goals was the most discriminant feature between male and female students. Actually, the discriminant analysis showed the girls have a greater preference for menus you have to click through than the boys. In [18], 52 % of women said they prefer pull-down menus rather than navigating through the site. The two other questions which could discriminate male and female students are content questions and not design questions.

The segmentation analysis didn't allow to bring out binary differences between males and females, that is to say features that men would fit and that women wouldn't or vice versa. Unfortunately we haven't enough space to display the ntire tree. But on the other hand, we highlighted 7 homogeneous leaves. It means that the semgentation analysis allows to bring out some "profiles" regarding the students' preferences, with some groups consisting of a majority of males and others of a majority of females. In order to highlight these, we have used the SODAS (version 2.5) data mining software [6]. Each profile is represented by a star. For each

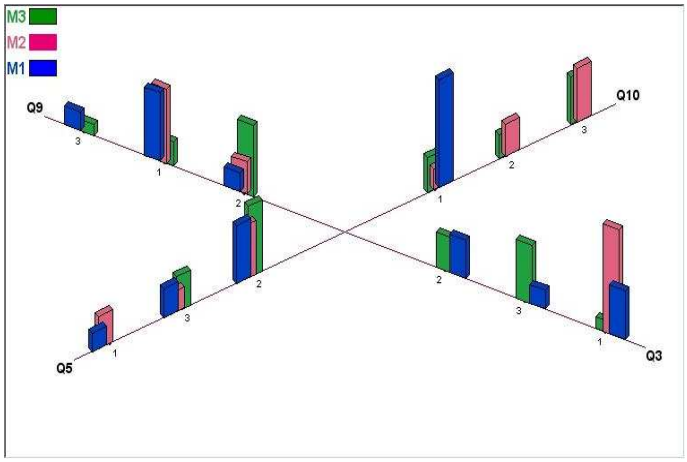

Figure 3: Stars for the groups of males: M1 being the first group, M2 the second and M3 the third

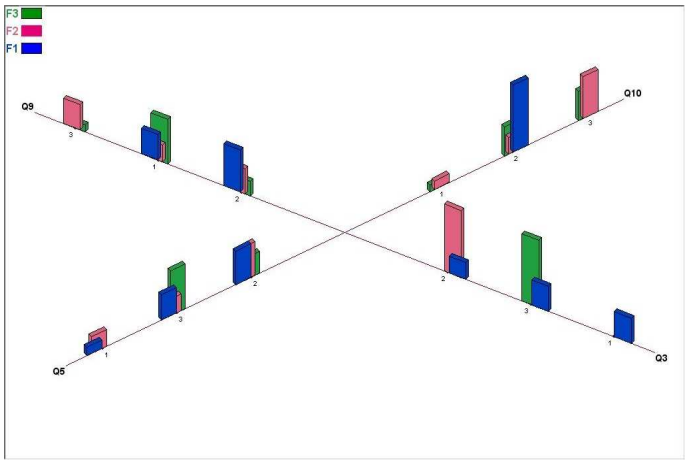

Figure 4: Stars for the groups of females: F1 being the first group, F2 the second and F3 the third

star, the axes represent the variables, that is to say the questions we want to study in greater depth. Each axis has been assigned a scale from 1 to 3, 1 for "I don't agree"', 2 for "I am neutral and 3 for "I agree". For each value, histograms show the proportion of students having chosen the corresponding answer. In this paper, we will only present a few of these profiles according to their general preferences in web design. On 3, you can see the histograms for three groups of males. On 4, you can see those for three groups of females.

- **Their preferences in web design...**

Regarding the **males of the first group** (M1: 11 males,1 female), we know they do not like when many colours are used for text (Q9) as we could expect from boys (the cliche being boys do not like to use many colours like girls). They don't like spaced-out websites (Q10) either, what we could expect since this feature is the prerogative of women according to [18]. They don't care about menus you have to click through (Q5). They don't agree or they are neutral concerning pages for which you have to scroll down (Q3).

As the males of the first group, the **males of the second group** (M2: 10 males, 3 females) do **not like** when many colours are used for text (Q9). They do not like pages for which they have to scroll down (Q3), thus going along with the fact the males of the first group do not like spaced-out websites. Regarding menus you have to click through (Q5), they do not show any tendency. For spaced-out websites (Q10), the males having answered do not agree, meaning they do not like this kind of websites.

The **males of the third group** (M3: 9 males, 1 female) are **more tolerant** than the two previous groups of males regarding the use of many colours for text (Q9) since they don't care about it. Regarding the menus you have to click through (Q5), they don't care like the first and second group of males. They tend to be neutral or to agree with pages you have to scroll down to see all text (Q3). Concerning spaced-out websites (Q10), they do not show any particular tendency.

The **first group of females** (F1: 8 females, 3 males) do **not care** about the use of many colours for text (Q9) (like the males of the third group). We could have thought they would have answered they prefer when many colours are used after reading [18]. They don't care about spaced-out websites either (Q10). We could have thought they would prefer spaced-out websites after reading the same paper. Like the boys, they don't care about menus you have to click through (Q5). We could have thought they wouldn't like this kind of menus since you have to be better at spatial skills (like the boys) since they are not pull-down menus. They do not show any particular tendency for pages you have to scroll down (Q3).

Like the males of the second group, the **second group of females** (F2: 8 females, 3 males) doesn't care if they have to scroll down or if they have to read cluttered text (Q3). We could have thought they would prefer pages to scroll down after reading [18]. Like the other groups, they don't care about menus you have to click through (Q5). For the use of colours (Q9), they do not show any tendency. They tend to be neutral or to agree with spaced-out websites (Q10)

The **females of the third group** (F3: 9 females, 3 males) do **not like** when many colours are used for text (Q9) like the males of the first and second groups (and unlike the females interviewed in [18]). They do prefer a page for which they have to scroll down (Q3), like the females of [18]. They do also prefer menus you have to click through (Q5). They must be able to situate themselves easily in unfamiliar environments then. Regarding spaced-out websites (Q10), they tend to be neutral or to agree.

- **When we compare some groups of males with some groups of females...**

If we focus on the **second group of females** and the **second group of males** (F2 and M2), we will notice they share the same characteristic: they are more extrovert than the other groups of the same gender. Both are neutral regarding menus you have to click through (Q5). **However**, the **males** do not like pages for which they have to scroll down (Q3) whereas the **females** are neutral regarding this feature.

The **third group of females** and the **third group of males** (F3 and M3) have different answering behaviours regarding their preferences.The **females** don't like when many colours are used for text and hypertext (Q9). The **males** don't seem to care about an intensive use of colours. Regarding the menus you have to click through (Q5), the girls prefer these whereas the boys don't have any particular opinion regarding the topic.

If we compare the **males of the third group** with the **females of the first group** (M3 and F1), we will notice both don't care about menus you have to click through (Q5). They don't mind either about an intensive use of colours for text (Q9).

Now if we focus on the **males of the second group** and the **females of the third group** (M2 and F3), we will notice that both do not like an intensive use of colours for text (Q9). **However**, the **boys** do not like pages for which they have to scroll down (Q3) whereas the **girls** do. Regarding menus you have to click through (Q5), the boys don't care about using these but the girls prefer to use this type of menus.

The last comparison focus on the **first group of males** and the **third group of females**. Both dislike an intensive use of colours for text (Q9). **However**, the **boys** don't have any particular opinion regarding menus you have to click through (Q5) when the **girls** prefer these.

5. CONCLUSIONS AND PROSPECTS

In the section devoted to the literature review, we have realized gender differences in a web design context is an issue preoccupying many sociologists. In the following sections, we have been able to confirm some findings of previous research or to highlight opposite behaviours to those described by the sociologists. It was not always possible to conclude for each feature after having run the statistical tests. Concerning the students' preferences, we have no clear difference between boys and girls. But we have been able to distinguish male and female groups with common preferences. Indeed, some male students (but not all) do not like when many colours are used for text and hypertext. Some do not like spaced-out websites either. All the groups of males do not care about menus you have to click through. Regarding their preferences for pages to scroll down, every group of males has its own preference. Regarding the groups of girls, some girls are neutral or agree with the use of spaced-out websites. Some are neutral with menus you click through. Regarding their preferences for the use of colours for text and hypertext and for pages you have to scroll down, we can find different preferences among the female groups. Nevertheless,

the different analyses we have conducted have allowed us to identify predominantly common profiles and types of distinct behaviours with feminine-higher or masculine-higher tendencies.

However, we have to keep in mind our sample is small: thirty academics divided into fifteen males and fifteen females. That is the reason why we can't generalize and apply our findings to the whole population of male and female academics. Therefore, it would be interesting to go further with this study and try to conduct it on an international level as well, that is to say in different cultures. Thus we would enhance the scope of this work in order to include the cultural factor.

We could also think of going into the subject in greater depth by applying our study to academics who do not belong to IT departments. Indeed, the basic idea in our study was to choose IT professors in order to have more chance these design their sites on their own since they had the skills to do so. On the face of it, designing a site must be less easy for arts professors. But of course, this should be examined in depth.

Another idea would be that each team who would continue on this task consists of specialists forming an heterogeneous panel: sociologists, statisticians, psychologists, amateur and professional web designers etc. Interviews should also be conducted to examine the results obtained with statistical methods in greater depth and to explore the reasons why the person has designed the website in this way and not in that way.

Lastly, we could also think of analyzing the way professional designers design their websites according to the gender of the final user. So the question would become: "Is there a specific way of designing *for* women and *for* men?"

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