Do Women and Men Perceive User Experience Differently?

Kristina Aufderhaar[1], Martin Schrepp[2], Jörg Thomaschewski[1]*

[1] University of Applied Sciences Emden/Leer (Germany)
[2] SAP AG (Germany)

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Abstract

We study three web sites to see whether there are systematic differences between women and men in their rating of the user experience of the sites. One of the sites addresses especially the target group of women, another the target group of men, whereas the third site is neutral in this respect. The selection of the sites was safeguarded with gender screening. The participants in the study rated the three chosen websites with the questionnaires UEQ and VISAWI-S. The results indicate that there are no substantial differences in the perception of the UX between men and women. Personal attitudes and preferences seem to have a substantially greater influence than sex.

Keywords

Usability, User Experience, Gender Differences.

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I. Introduction

User experience is a complex and very subjectively perceived product characteristic [1].

The perception of the user experience of an interactive product is based on the perception of several distinct aspects, for example, the efficiency, the extent to which a product can be used intuitively, the fun of use, the impression that the product is innovative or leading edge, the attractiveness of the user interface, trust in the security of a product, the extent to which the user feels in control of the product, etc. Thus, a huge number of separate and often highly subjective perceptions are responsible for the overall judgement concerning the user experience of a product [2, 3].

In addition, if we ask several users concerning their impression of the user experience of the same product, we may see a high variation in their judgements. We may find some quite satisfied and happy users as well as some frustrated users in the same investigation. This is due to the fact that different persons have a different history and experience concerning the use of interactive products. If a user is already familiar with a similar product he or she will find a new product quite intuitive to use. Another user may have the impression that the same product is extremely hard to understand, simply because he or she has no experience with similar products. Personal preferences concerning organization of information on the user interface or concerning personal working styles also play an important role for the impression of a subject concerning the user experience of a product.

Another source of variation is personal preferences or personal taste concerning design elements. A visual design perceived as attractive and beautiful by a group of users may be perceived as boring and ugly by another group. In addition, different users have different opinions about the relative importance of UX aspects for certain types of products [4].

* Corresponding author.
E-mail address: joerg.thomaschewski@hs-emden-leer.de

One interesting question is the extent to which demographic characteristics, e.g. the sex or age of a person, have an influence upon the perception of the user experience of web sites or generally interactive products. This is especially of interest for designers of pages that have a primarily female or male target group. Currently, there is only limited information concerning this question available in UX research literature.

Potential differences between males and females concerning the perception of UX can result from different strategies of information processing. An often cited paper [5] found, for example, that women process information in a more holistic way, while men use a more selective information processing strategy (similar results are reported in [6, 7, 8]).

Concerning the perception of web sites [9] found that men are in general more satisfied with the displayed information than women. This was confirmed also in a study by [10]. In addition, there are some studies [11, 12] concerning differences in the perception of the quality of the visual design, for example different preferences concerning colours used in a web site. In an experiment concerning web sites for children [13] results indicate gender specific differences in the personal preferences of boys and girls concerning visual complexity. In this study boys preferred in average a higher level of visual complexity than girls.

Other results indicate that women are more critical about the aesthetics or visual design of a website than men [10, 14].

A study [15] found a positive relationship between web knowledge of subjects and their perception of web usability. This effect is moderated by sex and website design experience in the sense that subjects with website design experience place more value on the usefulness of web sites and this moderation effect is stronger for females than for males.

Besides web-sites there is also some work concerning gender differences in software used for working or problem-solving tasks. In [16] a systematic method is described (the approach is based on persons and works out five facets of gender differences that are used in a gender-specialized Cognitive Walkthrough method) that allows to

find gender-inclusiveness issues in software, so that practitioners can design and produce software that is more usable by everyone.

A study [17] investigated a group of users who have to use a new software product in the context of the technology acceptance model [18]. They found that the perception of usefulness had a higher impact on the usage intention of men than on the usage intention of women. In contrast, the perception of ease of use had a stronger impact on the usage intention of women than on the usage intention of men.

Of course, not all websites appeal to women and men in equal measure. Many sites are designed for a predominantly female or predominantly male target group. Typical examples are web sites of online journals that cover a topic mainly targeted to males or females or web shops with an offering targeted to a specific group of persons in which one gender role is clearly dominant.

Does this design of the content for a male or female target group also influence the perception of typical user experience criteria, for example efficiency, controllability, fun of use, aesthetic appeal or stimulation?

We will investigate this question by a study with three popular German web sites. One of these websites is intended to appeal specially to the target group women, another to the target group men and the third to both groups.

The perception of the UX aspects will be measured by two established and widely used UX questionnaires, the UEQ [19, 20] and the VISAWI [21, 22], that capture together a wide range of UX aspects.

The UEQ measures UX on the following 6 scales:

- *Attractiveness*: Overall impression of the product. Do users like or dislike the product?
- *Efficiency*: Can users solve their tasks without unnecessary effort?
- *Perspicuity*: Is it easy to get familiar with the product? Is it easy to learn how to use the product?
- *Dependability*: Does the user feel in control of the interaction?
- *Stimulation*: Is it exciting and motivating to use the product?
- *Novelty*: Is the product innovative and creative? Does the product catch the interest of users?

The VISAWI measures visual aesthetics of web sites or, more generally, of the user interface of interactive products.

II. Research Hypothesis

The study by Simon [9] showed that men are usually more satisfied with the presentation of the information on a website than women. Thus, in a web site that is not particularly designed for men or woman we should be able to see this effect in the UX scales measured by the UEQ and VISAWI questionnaires.

This leads to our first hypothesis.

H1: In the case of a sex-neutral website, men are generally more satisfied with all UX aspects than women.

The quality of the content of a site is of course the most important point in the rating of the site by its users [23]. If the users find the content appealing and interesting, they will visit the site frequently and rate its UX quality positively.

This is said to apply especially to the rating of hedonic qualities, however, and not so much to the rating of the pragmatic qualities [2]. For example, how easy it is to understand the page structure and how efficient the navigation on the web site is, is not much influenced by the fact that the content is optimized for the target group. But UX aspects like *Stimulation* (fun of use) or the perception of the site as original and novel will be of course influenced by the content.

This will be also true for the aesthetic impression, which is for web sites mainly determined by the quality of the pictures in the content and the layout.

This leads to the following hypotheses:

H2: Women and men find a website specially designed for them more aesthetically pleasing than one designed for the other sex.

H3: Women and men award higher attractiveness scores (valence) for a website specially designed for them and higher values for the hedonic qualities of stimulation and originality than for a site that is designed for the other sex or neutral.

H4: The target group of a site has no substantial influence on the rating of the pragmatic qualities of efficiency, clarity and controllability.

These hypotheses were investigated in an online study with three websites.

III. Study

One of the websites is intended to appeal specially to women, another to men and the third to both groups equally. Three popular and quite common web sites were selected based on knowledge concerning their mayor target group.

In order to justify this selection based on objective criteria, gender screening [24] was carried out. In this method, first of all, the women's and men's names in the imprint and/or the contact pages are counted, in order to find out whether predominantly women or men were involved in the producing of the site. In the second step, the number of women and of men pictured in photos is counted. A qualitative analysis is then carried out to ascertain the extent to which women or men are being addressed in the text.

The web site "Die Zeit" is the online channel of a quite popular German print magazine focussed on topics from politics, history, economy, education and society. This print magazine and the web site are not addressing readers of a specific gender.

The web site of "Brigitte" is the web channel of the most popular German Woman's magazine. It is focussed on topics like fashion, beauty, health, love and general practical hints for the organization of daily live. Thus, the main target group is obviously female.

The web site "GQ" is clearly focussed on men. Typical topics are men's fashion, entertainment, cars, technology and health.

The entry pages (date 22.10.2017) of these three web sites are shown in Fig. 1 – 3 to give some impression about the design of these sites. These pages were also used as part of the study described below.

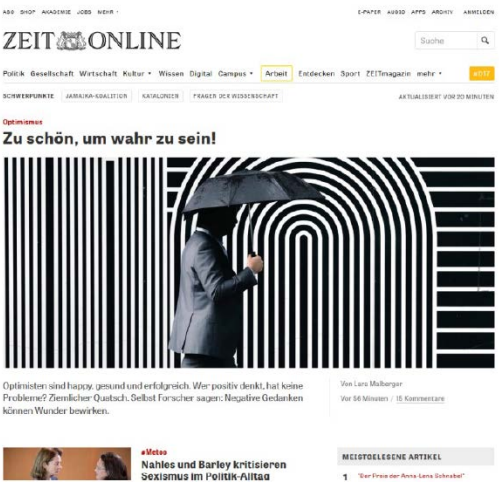

Fig. 1. Entry page of www.zeit.de (date 22.10.2017).

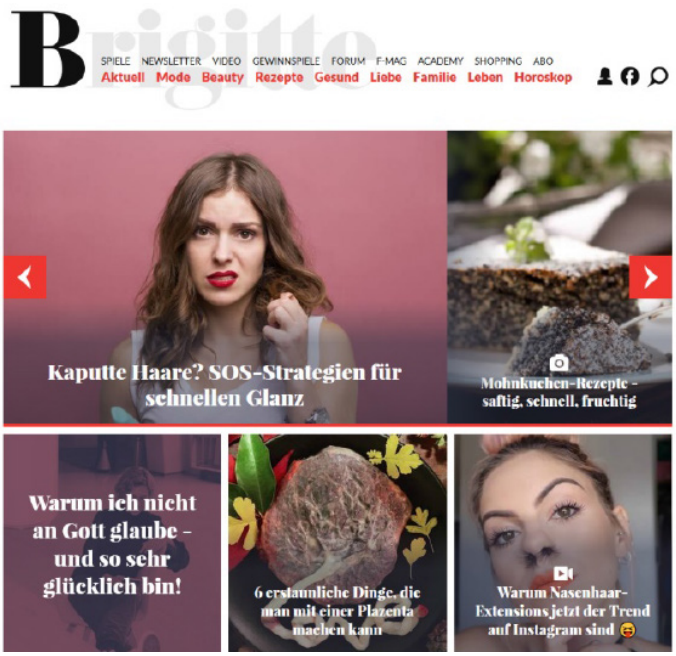

Fig. 2. Entry page of Brigitte.de (date 22.10.2017).

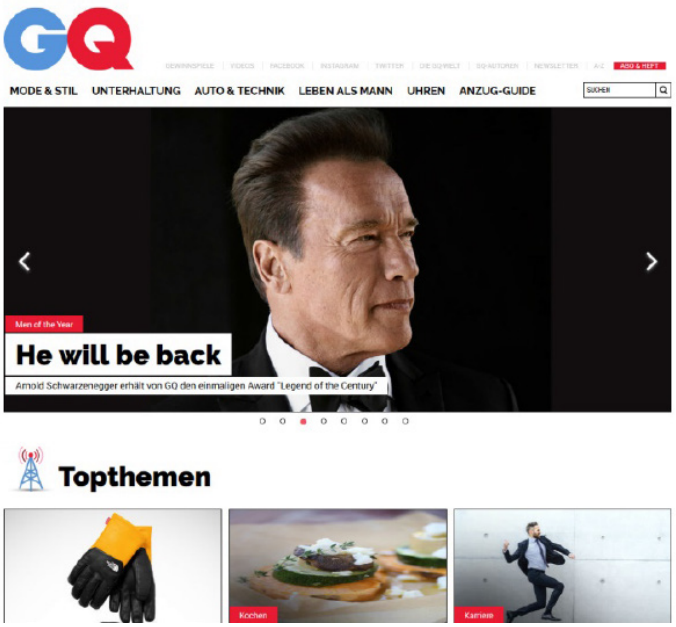

Fig. 3. Entry page of gq-magazin.de (date 22.10.2017).

The results of the gender screening of these web sites are shown in Table I. The results confirm our assumptions concerning the main target groups for these sites.

The study was advertised as an online survey via e-mail distribution lists at colleges and universities. As an incentive, several Amazon vouchers were raffled among all participants. When the link to the study was clicked upon, first a site appeared with a short briefing, a picture of the website to be rated and a link to that site. The participants were instructed to navigate onto the web site, to look at it thoroughly, and to read an article on the site. Afterwards the site was rated with the short version of the VISAWI known as VISAWI-S [21] and the UEQ [19, 20].

TABLE I. Results of the Gender Screening of the Three Investigated Web Sites

Criteria	Die Zeit	Brigitte	GQ
Quantitative Gender Screening			
Male Names	85	4	28
Photos Men	15	2	43
Females Names	77	23	15
Photos Woman	12	22	1
Qualitative Gender Screening			
Texts	Objective, no gender preferred, politics, business, society, job, news, culture, education	Much direct speech, women's names, a lot of slang, advice, recipes, ornaments, fashion, beauty	Many men's names, guidebooks, partly colloquial language, cars, fashion, occupation, technology
Pictures	Not much eye contact, mostly illustration of situations, no preference for a gender	Many photos with eye contact, many beautiful, happy motivated women	Little eye contact, mostly illustration of situations, many well-groomed, cool-looking men

The survey was started by the following number of people:

- *Die Zeit*: 184 (121 female, 63 male)
- *Brigitte*: 116 (65 female, 51 male)
- *GQ*: 149 (106 female, 43 male)

Obviously, there is a much higher number of females in the target group reached by the e-mail distribution lists.

Participants for whom there was less than 4 minutes between the start of the survey and the sending of the results or who had too many inconsistent answers in the UEQ [25] were excluded, as one can assume that the task was not performed as intended in these cases. After this sorting, the following numbers of usable data sets remained: *Die Zeit* (22 male, 52 female), *Brigitte* (22 male, 29 female) und *GQ* (22 male, 49 female).

Thus, the percentage of usable responses per web site and gender category is:

- *Die Zeit*: 40% (43% female, 35% male)
- *Brigitte*: 43% (44% female, 43% male)
- *GQ*: 47% (46% female, 51% male)

There is not much difference between the different web sites concerning the number of responses that could not be used for the data analysis. When we look in detail to the gender of the participants that quit the survey or were removed from the data analysis because of poor quality of their response data (see reasons described above), we see that web site and gender does not have a big influence on the number of removed responses.

IV. Results

Fig. 4 shows the measured values for the aesthetics of the websites and their 5% confidence intervals, sorted into men and women.

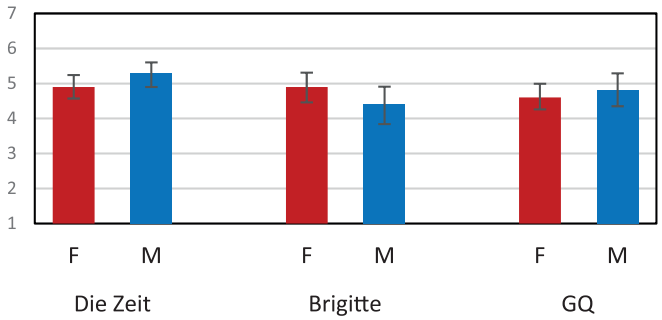

Fig. 4. Aesthetic values of the short version of the VISAWI for the three examined sites (F = female, M = male).

Women find the website *Brigitte* more aesthetically appealing than men, whereas the reverse of this is the case for *GQ*. The differences are very small, however, and in no case statistically significant (t-Test, .05).

Fig. 5-7 shows the results of the UEQ (average ratings and 5% confidence intervals for the three examined sites, sorted into men and women). The following abbreviations are used in Fig. 5-7: ATT Attractiveness; EFF Efficiency; PER Perspicuity; DEP Dependability; STI Stimulation; NOV Novelty. The scale structure is well described in [26].

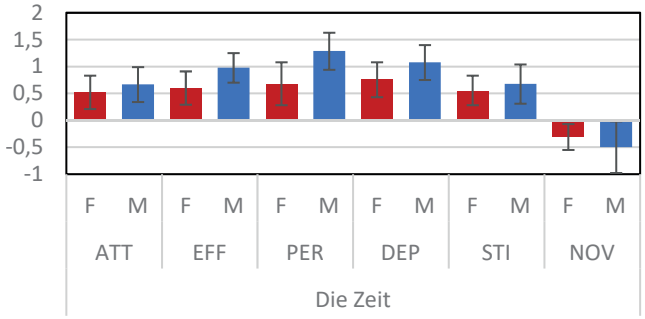

Fig. 5. Values of the UEQ scales and confidence intervals for the web page "Die Zeit".

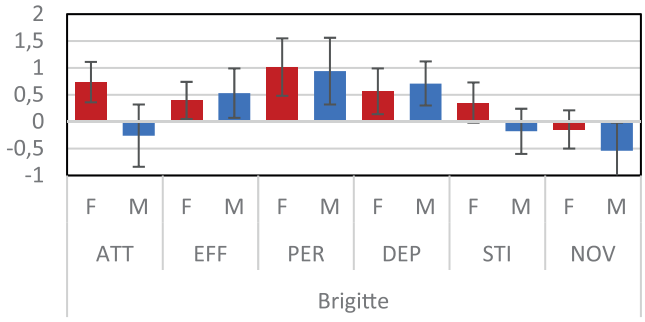

Fig. 6. Values of the UEQ scales and confidence intervals for the web page "Brigitte".

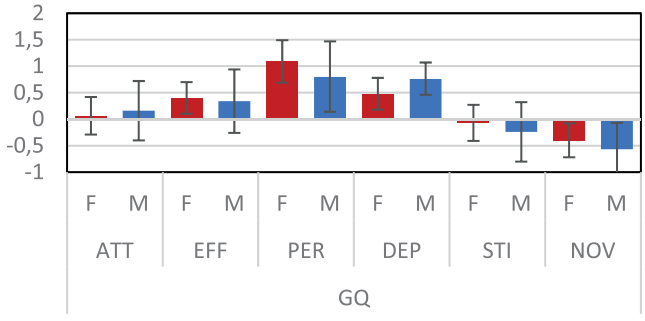

Fig. 7. Values of the UEQ scales and confidence intervals for the web page "GQ".

The results of the UEQ for *Die Zeit* tend to be indicative of hypothesis ***H1*** (with the exception of novelty, see Fig. 5), but the differences are not significant (t-Test, .05). This may, however, be due to the small sample of men.

As Fig. 4 shows, the differences regarding the perceived visual aesthetics are very slight. Hypothesis ***H2*** can thus be rejected.

The website *Brigitte* was rated significantly better by women than by men as regards attractiveness (see Fig. 6; t-Test, .05). This also applies as regards stimulation and originality, although the differences here were not significant either.

The expected effect cannot be observed with the GQ website (see Fig. 7), however. Here, the rating by both sexes is almost identical. This may, of course, be because this website propagates a relatively extreme role model, i.e. one that only actually appeals to a small proportion of the target group men. Thus, our results do not support ***H3***, but some tendency in the direction of this hypothesis can be seen with the web site Brigitte. More research seems to be required to get a clearer picture here.

The ratings of the practical qualities for the websites Brigitte and GQ are very similar for both sexes. This tends to be indicative of hypothesis ***H4***.

An analysis of variance (ANOVA) was done to find out how much of the variance in the responses could be explained by differences in gender and how much is due to other not controlled factors, which are in our case interindividual differences in the taste concerning visual design or in the opinions concerning the importance of the UX aspects measured by the UEQ. The results showed only for the web site Brigitte and the UEQ scale *Attractiveness* a non-neglectable percentage of variance that is explained by the gender difference (.17). For all other combinations of web site and UX aspect, the corresponding values range from .07 to 0. Thus, compared to interindividual differences the gender differences did not have much impact.

V. Conclusions

The results indicate that sex has no really considerable influence as regards the perception of typical user experience factors, such as those measured in e.g. the VISAWI-S or UEQ.

It must be mentioned, as a limitation of this study, that the number of male participants was quite small, which may of course have caused existing differences to not become significant. A closer look at the data shows, however, that there were very strong differences within the groups. Personal role models and attitudes obviously account for a greater proportion of the UX rating than biological sex.

However, the study just creates some first results and has obviously some limitations. The participants spend only a quite short time on the investigated web sites. Thus, the UEQ ratings concerning the pragmatic UX aspects *Efficiency*, *Perspicuity* and *Dependability* may be influenced by this limited usage and navigation experience. The hedonic UX aspects of *Attractiveness*, *Stimulation* and *Novelty* may also be influenced by this, but to a much smaller degree. It is well-known that the visual impression of a web-site forms quite fast [27], so there should be no impact of the short usage time on the results measured by the VISAWI.

In addition, there are other factors like cultural differences, age, special interests or beliefs that may have an impact on the subjective impression concerning user experience and that were not controlled in this study. Thus, further research is required to get a clearer picture here. Our participants were students, thus form a more or less homogenous group concerning age. It will be quite interesting to replicate the study with older participants, to see if the obviously existing differences in the understanding of gender roles between different generations have an impact.

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Kristina Aufderhaar

Kristina Aufderhaar received a Bachelor of Science in Computer Science and Digital Media from the University of Applied Sciences Emden/Leer (Germany) in 2018. Since 2011 she works as a media and web designer. Her research interests are human-computer interaction and gender studies to improve her work.

Martin Schrepp

Martin Schrepp has been working as a user interface designer for SAP AG since 1994. He finished his diploma in mathematics in 1990 at the University of Heidelberg (Germany). In 1993 he received a PhD in Psychology (also from the University of Heidelberg). His research interests are the application of psychological theories to improve the design of software interfaces, the application of *Design for All* principles to increase accessibility of business software, measurement of usability and user experience, and the development of general data analysis methods. He has published several papers concerning these research fields.

Jörg Thomaschewski

Jörg Thomaschewski received a PhD in physics from the University of Bremen (Germany) in 1996. He became Full Professor at the University of Applied Sciences Emden/Leer (Germany) in September 2000. His research interests are human-computer interaction, e-learning, and software engineering. Dr. Thomaschewski is the head of the research group "Agile Software Development and User Experience".