Experience Design on Websites: Investigation on the Relatedness-need

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Abstract

In the Experience Design approach, the fulfillment of universal psychological needs (e.g., autonomy, relatedness to other humans) is seen to be the key factor for pleasurable experiences with interactive technologies (e.g., Hassenzahl, 2008). The current study directly applied this theory on web users. An interactive product (i.e., a website) is designed in two ways: a low relatedness-fulfilling version and a high fulfilling version. After having been randomly assigned to two groups, 90 German participants were asked to conduct tasks with the website. T-tests revealed no significantly differing affect (i.e., well-being) between the groups. However, a significant difference in the perceived hedonic quality and general attractiveness of the product was found. Taken together, participants ascribe a website better hedonic product quality and generally find it more attractive, if they feel related to other humans while using it.

1 Relevance and Research Question

After years of research aiming to maximize the ease of interactive technologies, i.e., their usability, in early 2000 researchers went a step further and investigated the user experience in Human-Computer Interaction (HCI). Here, emphasis is laid on the positive outcome that products can be built for, i.e., the user´s enjoyment and satisfaction (Forlizzi & Battarbee, 2004). But until today there is only little research (e.g., Hassenzahl & Klapperich, 2014) on the actual mediators of that positive experience.

One approach is the Experience Design (XD) theory, where the fulfilment of universal psychological needs (e.g., stimulation, competence, relatedness to other humans) is seen to be the key factor for pleasurable experiences with interactive technologies (e.g., Hassenzahl, 2008). Supporting this approach, it was found, for example, that the fulfilment of the needs for stimulation and competence when making a coffee led to a more positive experience (Hassenzahl & Klapperich, 2014).

Until now, XD theory was not tested by actively manipulating the fulfilment of a psychological need during website use. Furthermore, the XD studies were more focused on haptic products

rather than on software or using the Internet. Therefore, this study aimed to contribute to XD research by investigating the manipulation of the fulfilment of the relatedness-need[1] on a website. Do people feel better after using a website which highly fulfils the need for relatedness? In this study it is assumed that they do (H1). But do they also intent to revisit and recommend it more often? If yes, what effects emerge for the product quality?

Hassenzahl (2003) differentiates the quality of a product in pragmatic and hedonic aspects. The pragmatic quality depends on the products utility and usability: Is the product easy to use? The hedonic quality reflects the user`s well-being: Is it fun to use the product? According to this definition, a website which highly fulfils the need for relatedness should have the same pragmatic but a higher hedonic quality (H2). It has to be added that hedonic quality is the result of an attribution process, respectively, attribution to the product should have a moderating role (Hassenzahl et al., 2015): The website should only have a higher hedonic quality, if users believe that their higher affect was generated by the product itself and not by the experience H3).

2   Methods and Data

To test these three hypotheses a website was designed in two ways: a low relatedness fulfilling version (in the following *unrelated*) and a high fulfilling version (in the following *related*). The website was originally built for psychological research. It consists of an online library about health and medical information. In order to attain differences in the relatedness-fulfilment, the two website versions (see Figure 1) were manipulated in three ways:

Unrelated website version

- no pictures of humans

- no welcoming-words

- using this website was introduced with the coverstory that one is conducting a task for one´s boss

Related website version

- pictures of humans

- welcoming-words

- using this website was introduced with the coverstory that one is helping a friend

After having been randomly assigned to two groups, 90 German participants were asked to find information on one of the two websites in an online study, with 43 using the *related* website. Of the participants 60 were female, 76% of them were students and the mean age was 23.8 years. While conducting the study, the following variables were measured through

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[1] The relatedness-need was chosen because it was the easiest to manipulate during the website experience.

questionnaires: affect (through a smilie scale by Jäger, 2004), hedonic and pragmatic quality, general attractiveness (through the AttrakDiff2; Hassenzahl et al., 2003), attribution (through an item by Hassenzahl et al., 2015) and likelihood of revisiting and recommending (Moshagen & Thielsch, 2010). In the analysis t-tests for independent samples were conducted to test mean scores between the two groups.

Figure 1: Screenshot´s of the unrelated (left) and related website.

3 Results

A manipulation check confirmed that the *related* website was perceived as more relatedness fulfilling, with 97% of the participants stating this in a direct visual comparison. However, the two experimental groups did not significantly differ in affect (Glass` effect size: $\Delta = 0.10$; *unrelated*: $M = 3.56$ vs. *related*: $M = 3.64$), rejecting hypothesis 1. They did also not differ in the likelihood of revisiting and recommending the websites (Glass` effect size: $\Delta = 0.03$; *unrelated*: $M = 2.82$ vs. *related*: $M = 2.79$). Still, confirming hypothesis 2, the attempt of experience designing a website resulted in a product people ascribed a higher hedonic quality (Glass` effect size: $\Delta = 0.55$; *unrelated*: $M = 3.48$ vs. *related*: $M = 3.97$), but no differing pragmatic quality (Glass` effect size: $\Delta = 0.08$; *unrelated*: $M = 4.78$ vs. *related*: $M = 4.87$).

Interestingly, an explorative analysis additionally revealed that general attractiveness differed significantly between the two websites (effect size close to large according to the guidelines provided by Cohen, 1988: $d = 0.77$; *unrelated*: $M = 3.95$ vs. *related*: $M = 4.45$). Furthermore, although the higher hedonic quality seemed not to be moderated by an attribution process (rejecting hypothesis 3), in the case of general attractiveness, attribution played a moderating role.

4 Discussion

The hedonic product quality was perceived differently by the users depending on the relatedness fulfilment of the website. Furthermore, the differing fulfilment lead to a much

higher perceived general attractiveness for the relatedness-fulfilling version. The latter effect is moderated by attribution: Only if people felt that the website is responsible for their feelings, their feelings were attached to it and, as a result, predicted the rated attractiveness of it. Yet, the study did not reveal a way to directly design a website for a better well-being of its users, as affect did not differ between the two groups.

Taken all together, the following statement summarizes the findings: According to the study, people ascribe a website better hedonic product quality and generally find it more attractive, if they feel related to other humans while using it. Nevertheless, this does not increase the intention of revisiting or recommending it.

According to the XD approach, not only relatedness, but also stimulation, competence, autonomy and popularity are potential psychological needs to fulfil when creating these effects on products. Further research is necessary to precisely examine this in practice and to determine how to efficiently manipulate affect.

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