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The importance of a software's pragmatic quality depends on usage modes

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Abstract

Software possesses both "pragmatic" and "hedonic" quality. Whether a software with a high pragmatic or hedonic quality is experienced and judged as appealing may depend on the "usage mode" the user is in. Two usage modes are distinguished: a goal mode and an activity mode. For the present experiment, participants were either set in goal mode or activity mode. They used and evaluated two different Web sites. The results showed that in activity mode appeal was determined solely by perceptions of hedonic quality, whereas in goal mode both qualities played a substantial role. This demonstrates how software product evaluation (i.e., sources of appeal) depends on different usage situations.

1 Introduction

Software possesses different qualities: "pragmatic quality" (PQ) and "hedonic quality" (HQ) (Hassenzahl, in press; Hassenzahl, Burmester, & Beu, 2001; see also Logan, Augaitis, & Renk, 1994). PQ addresses human needs for security, control and confidence. It refers to a software's usefulness, expressed by product characteristics such as "clear", "supporting", and "controllable". HQ addresses human needs for excitement (novelty/change) and pride (social power, status). It refers to quality aspects such as "innovative", "exciting", and "exclusive". The perception of a software's PQ (e.g., "It is controllable") and HQ (e.g., "It is exciting") is separated from its overall appeal (e.g., "It is good"). The individual's perceptions and evaluation will lead in turn to emotional (e.g., pleasure) and behavioral consequences (e.g., increased time spent with the software).

Whether a software with a high PQ or with a high HQ is experienced and judged as appealing may depend on the "usage mode" the user is in. Based on Apter's (1989) "reversal theory", I distinguish two different "usage modes", namely a goal mode and an activity mode. In goal mode the goal shapes all activities. The software is just "a means to an end". Individuals in goal mode try to get the task done and to be efficient. They describe themselves as "serious" and "planning". In activity mode the activity is important and goals are defined "on the fly"; these goals are volatile. The software is an "end in itself". For individuals in activity mode efficiency and effectiveness are less important. They describe themselves as "playful" and "spontaneous".

The present paper addresses the question if the relative contribution of perceived PQ and HQ to a software's appeal depends on the usage mode the user is in.

2 Method

Study objects. The Web sites Löwenbräu Beer (http://www.loewenbraeu.de,) and Jägermeister Liqueur (http://www.jaegermeister.de) were used as study objects. Their functionality and content was quite similar, but their visual and interaction styles differed.

Usage modes. Participants were either set in goal mode or activity mode by different instructions. Under goal mode instruction, participants had to solve a number of tasks, such as finding the year the brewery/distillery had been founded, while being observed by the experimenter. Under activity mode instruction, participants were told to explore the site the way they wanted to. The experimenter left the room and returned after 15 minutes.

Measures. After using each site, pragmatic quality (PQ), hedonic quality (HQ) and appeal (AP) were measured with a semantic differential (e.g., Hassenzahl et al., in press). An additional "usage mode scale" (UM) was used as manipulation check for the mode instruction. All scales consisted of a number of 7-point items ranging from -3 to +3 (see Table 1 for an overview). PQ and HQ did not correlate significantly (goal mode: r=.21, n.s., N=24 [12 participants * 2 Web sites]; activity mode: r=.31, n.s., N=22, [11 participants * 2 Web sites]).

Participants. Twenty-three individuals (twelve women and eleven men) participated in the study (mean: 39.17 years, range: 23-59 years).

Predictions. (1) The perception of PQ and HQ may differ between Web sites, but will not differ between usage modes; no significant interaction should be found, and (2) in goal mode, the correlation between PQ and AP should be higher than between HQ and AP, whereas in activity mode, the correlation between HQ and AP should be higher than between PQ and AP.

Table 1: Overview of the scales

scale	no. items	item example *)	alpha **)
PQ	8	simple – complex supporting – obstructing	.89
HQ	7	exciting – dull interesting – boring	.88
APPEAL	8	good – bad inviting – rejecting	.91
UM	4	I felt serious - I felt playful I was focused on the product – I was focused on attaining my goals	.75

*) all items were translated from German;
**) Cronbach's Alpha, N=46,

3 Results

A 2x2 analysis-of-variance with "Web site" (Löwenbräu, Jägermeister) as within-subjects factor, "instruction" (goal mode, activity mode) as between-subjects factor and the UM scale as dependent variable showed a significant main effect for "instruction" only ($F_{(1,21)}$=6.06, p=.023). Thus, the manipulation of the independent variable was successful.

Two 2x2 analyses-of-variance with "Web site" and "instruction" as factors and PQ and HQ as dependent variables showed a significant main effect for "Web site" only ($F_{(1,21)}$=5.76, p=.026), with Jägermeister being more hedonic (m=1.47) than Löwenbräu (m=0.62). Thus, as predicted, perceptions of PQ and HQ were independent from the usage mode.

In goal mode the correlation coefficients of PQ with AP and HQ with AP did not differ significantly (z=-0.52, n.s.). In activity mode the correlation coefficient significantly differed (z=4.35, p<.01), with the predicted higher correlation of HQ with AP compared PQ with AP (Table 2). Thus, our predictions are only met for activity mode.

Table 2: Correlation coefficients

	goal mode	activity mode
PQ - AP	.87 [a)]	-.10 [a)]
HQ - AP	.82 [b)]	.91 [b)]

partial correlation coefficients with a) HQ controlled and b) PQ controlled

4 Discussion

Different usage modes - a goal mode and an activity mode - can be induced experimentally. The perception of PQ and HQ itself is independent on the current mode. In activity mode HQ was more strongly related to AP than PQ to AP, whereas in goal mode both qualities were related to AP. The latter violates our prediction that PQ should be more important than HQ in goal mode. A tentative explanation is that the instructions used did not produce a "strong" enough goal mode. Indeed, the mean UM scale value was –0.69, which is moderate, compared to an (albeit theoretical) maximum of –3. Further studies should aim to increase the mode "strength" to test the idea that in goal mode PQ is more important than HQ.

The present study shows that the importance of different "sources" of appeal (i.e., pragmatic vs. hedonic quality) can vary with different usage situations. Depending on the situation, other qualities will be stressed and valued. Interestingly, it is pragmatic quality (i.e., usability and utility) and not hedonic quality that looses its power to contribute to the Web sites' appeal. This throws doubt on the assumption that users perceive usability and utility as "the" necessary prerequisite for valuing a software product.

Although the concept of usage modes needs further research, we believe that our study is a step towards a better understanding of the constituents of an appealing "user experience".

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6 References

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