

Hedonic, Emotional, and Experiential Perspectives on Product Quality

Marc Hassenzahl

Darmstadt University of Technology, Germany

QUALITY OF INTERACTIVE PRODUCTS

Human-computer interaction (HCI) can be defined as a discipline, which is concerned with the design, evaluation and implementation of interactive computing systems [products] for human use (Hewett et al, 1996). Evaluation and design require a definition of what constitutes a good or bad product and, thus, a definition of interactive product quality (IPQ). *Usability* is such a widely accepted definition. ISO 9241 Part 11 (ISO, 1998) defines it as the “extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.”

Although widely accepted, this definition’s focus on tasks and goals, their efficient achievement and the involved cognitive information processes repeatedly caused criticism, as far back as Carroll and Thomas’ (1988) emphatic plea not to forget the “fun” over simplicity and efficiency (see also Carroll, 2004).

Since then, several attempts have been made to broaden and enrich HCI’s narrow, work-related view on IPQ (see, for example, Blythe, Overbeeke, Monk, & Wright, 2003; Green & Jordan, 2002; Helander & Tham, 2004). The objective of this article is to provide an overview of HCI current theoretical approaches to an enriched IPQ. Specifically, needs that go beyond the instrumental and the role of emotions, affect, and experiences are discussed.

BACKGROUND

Driven by the requirements of the consumer’s product market, Logan (1994) was first to formulate a notion of *emotional usability*, which complements

traditional, “behavioral” usability. He defined emotional usability as “the degree to which a product is desirable or serves a need beyond the [...] functional objective” (p. 61). It is to be understood as “an expanded definition of needs and requirements, such as fun, excitement and appeal” (Logan, Augaitis, & Renk, 1994, p. 369). Specifically, Logan and colleagues suggested a human need for novelty, change, and to express oneself through objects.

Other authors proposed alternative lists of needs to be addressed by an appealing and enjoyable interactive product. In an early attempt, Malone (1981, 1984) suggested a need for challenge, for curiosity, and for being emotionally bound by an appealing fantasy (metaphor). Jordan (2000) distinguished four groups of needs: physiological (e.g., touch, taste, smell), social (e.g., relationship with others, status), psychological (e.g., cognitive and emotional reactions), and Id-needs (e.g., aesthetics, embodied values). Gaver and Martin (2000) compiled a list of non-instrumental needs, such as novelty, surprise, diversion, mystery, influencing the environment, intimacy, and to understand and change one’s self. Taken together, these approaches have at least two aspects in common: (a) they argue for a more holistic understanding of the human in HCI and (b) they seek to enrich HCI’s narrow view on IPQ with non-instrumental needs to *complement* the traditional, task-oriented approach.

Although, the particular lists of needs differ from author to author, two broad categories—widely supported by psychological research and theory—can be identified, namely *competence/personal growth*, for example, the desire to perfect one’s knowledge and skills, and *relatedness/self-expression*, for example, the desire to communicate a favorable identity to relevant others (see Hassenzahl, 2003).

A sense of *competence*, for example, to take on and master hard challenges, is one of the core needs in Ryan and Deci’s (2000) *self-determination*

theory, which formulates antecedents of personal well-being. Similarly, Csikszentmihalyi's (1997) *flow* theory, which became especially popular in the context of analyzing Internet use (see Chen, Wigand, & Nilan, 1999; Novak, Hoffman, & Yung, 2000), suggests that individuals will experience a positive psychological state (flow) as long as the challenge such an activity poses is met by the individuals' skills. Interactive products could tackle these challenges by opening up for novel and creative uses while, at the same time, providing appropriate means to master these challenges.

A second need identified by Ryan and Deci (2000) is *relatedness*—a sense of closeness with others. To experience relatedness requires social interaction and as Robinson (1993, cited in Leventhal, Teasley, Blumenthal, Instone, Stone, & Donskoy, 1996) noted, products are inevitably statements in the on-going interaction with relevant others. A product can be understood as an extension of an individual's self (Belk, 1988)—its possession and use serves self-expressive functions beyond the mere instrumental (e.g., Wicklund & Gollwitzer, 1982).

To summarize, an appealing interactive product may support needs beyond the mere instrumental. Needs that are likely to be important in the context of design and evaluation are *competence/personal growth*, which requires a balance between challenge and ability and *relatedness/self-expression*, which requires a product to communicate favorable messages to relevant others.

NEEDS BEYOND THE INSTRUMENTAL

In this article, the terms *instrumental* and *non-instrumental* are used to distinguish between HCI's traditional view on IPQ and newer additions. Repeatedly, authors refer to instrumental aspects of products as *utilitarian* (e.g., Batra & Ahtola, 1990), *functional* (e.g., Kempf, 1999) or *pragmatic* (e.g., Hassenzahl, 2003), and to non-instrumental as *hedonic*. However, hedonic can have two different meanings: some authors understand it as the affective quality (see section below) of a product, for example, pleasure, enjoyment, fun derived from possession or usage (e.g., Batra & Ahtola, 1990;

Huang, 2003), while others see it as non-task related attributes, such as novelty or a product's ability to evoke memories (e.g., Hassenzahl, 2003). Beside these slight differences in meaning, instrumental and non-instrumental aspects are mostly viewed as separate but complementing constructs. Studies, for example, showed instrumental as well as non-instrumental aspects to be equally important predictors of product appeal (e.g., Hassenzahl, 2002a; Huang, 2003). A noteworthy exception to the general notion of ideally addressing instrumental and non-instrumental needs simultaneously is Gaver's et al. (2004b) concept of *ludic* products. According to them, a ludic product promotes curiosity, exploration and *de-emphasizes* the pursuit of external (instrumental) goals. Or as Gaver (personal communication) put it: Ludic products “... aren't clearly useful, nor are they concerned with entertainment alone. Their usefulness is rather in prompting awareness and insight than in completing a given task.” Gaver et al. (2004b) argue, then, for a new product category aimed at solely supporting *personal growth/competence* by providing a context for new, challenging and intrinsically interesting experiences and by deliberately turning the user's focus *away* from functionality.

A question closely related to instrumental and non-instrumental needs is their relative importance. Jordan (2000) argued for a hierarchical organization of needs (based on Maslow's [1954] hierarchical concept of human needs): The first level is product functionality, the second level is usability and the third level is “pleasure,” which consists of his four non-instrumental aspects already presented earlier. Such a model assumes that the satisfaction of instrumental needs is a necessary precondition for valuing non-instrumental needs. A product must, thus, provide functionality, before, for example, being appreciated for its self-expressive quality.

This strict assumption can be questioned. Souvenirs, for example, are products, which satisfy a non-instrumental need (keeping a memory alive, see Hassenzahl, 2003) without providing functionality. However, for many products, functionality can be seen as a necessary precondition for acceptance. A mobile phone, for instance, which does not work will definitely fail on the market, regardless of its non-instrumental qualities.

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