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# Arguing for Aesthetics in Human-Computer Interaction

In the 60s and 70s few people were interacting with computers and if they did, those interactions were predominantly work-related. It seems quite natural then, that early Human-Computer Interaction (HCI), which emerged at that time, strove to enable people to perform work-related tasks in an efficient and error free way. During the 1980s, usability engineering emerged from this understanding of HCI. It was probably the right concept for that time.

But things change. Technology is much more mature, powerful and cheaper now. Consequently, information technology (IT) is everywhere; people use it for many purposes, beyond accomplishing tasks at work. They surf the web for example – a rich medium in terms of visual design. The merger of the computer with other media, the rise of the computer gaming industry, etc. changed the users' expectations. Today's users know that IT can be visually appealing and entertaining. At the same time, the HCI research community becomes more and more interested in the roles of affect and emotion in addition to the "pure" cognitive processes, which they study traditionally. As a result, the aesthetics of interactive products becomes more and more important for users and researchers alike.

Our view is that – as a community that takes pride in designing *for* people – usability professionals should adopt a more comprehensive vision of their field, which goes well beyond conventional concepts of usability. For this purpose, let's go back in time. Vitruvius, the first known theoretician of the design discipline, argued for three core principles of good architecture. *Firmitas* – the strength and durability of the building; *utilitas* – the suitability and the convenience of the building for the needs of its intended users; and *venustas* – the building's beauty.

It is not difficult to see the parallels between those principles and principles of good design for IT. The work on issues

such as reliability, stability and robustness of IT corresponds to the *firmitas* principle. The second principle, *utilitas*, is the one most cherished and practiced by the HCI community. We deal with how information technology can be designed to meet individual and organizational goals. We are concerned with their efficiency and effectiveness. We want them to be easy to learn and to use. This is mainstream HCI, mainstream Usability Engineering, mainstream Usability Professionals' work.

Almost completely missing from our research, our textbooks and our conferences is the third Vitruvian principle, *venustas*. It seems as if HCI is one of the rare design disciplines, which at least in part *ignores* this aspect or even views it as standing in its way. This is particularly odd, because we all know how important aesthetics is to human well-being. We know that people desire beautiful objects and prefer aesthetic environments; so, what about beautiful interactive systems?

Do aesthetics matter for HCI? Sure, but why?

## 1. Aesthetics as a differentiating attribute

Many IT products have become or are in the process of becoming commodities. Thus, differentiation based on aesthetics, like for many other commodities, becomes relevant, perhaps inevitable. New IT products are reliable; they provide much more functionality than the average user needs, and their prices drop constantly. Thus, the competition moves away from functionality and utility towards the user experience. Appearance and symbolic ownership may become as important as functionality or reliability.

Don Norman compared this process to the development of the watch industry. The first digital watch was sold in 1972 for more than \$2000. Four years later

Texas Instruments (TI) introduced a digital watch that costs 1% of that price. Within four more years, prices dropped so sharply that TI went out of the watch industry. But then, in 1983, the Swatch was invented. Instead of buying a watch for a dollar or less, you were now going to pay \$30 for the same reliability, same usability, and same accuracy. The difference was aesthetics. This development applies to many other products, such as cars or cell phones. As technology matures the importance of criteria such as consumption, ownership, beauty, and fashion increase.

## 2. Aesthetic impressions are fast, enduring and consequential

Our first impression of objects or of other people is primarily visual. Consequently, it colors the way we treat or judge objects or people. This argument is based on three premises. First, it is much easier to observe the aesthetic qualities of an object compared to the more intrinsic, experiential qualities such as usability and functionality. Second, the aesthetic evaluation of objects may be very fast. Finally, aesthetic evaluations are quite stable. In other words, aesthetic impressions are fast, enduring and consequential.

The phenomenon that people generalize from the looks of a person to her or his "deeper" qualities was termed the "what is beautiful is good"-stereotype. While this is clearly an overgeneralization of the complexities of human-to-human interaction, and some of us may feel uneasy about its moral implications, there is some striking evidence to its existence. Similarly, recent research suggests that, at least under certain conditions, the same phenomenon occurs for IT as well, prompting some researchers to suggest: "what is beautiful is usable." If so, aesthetics is truly an important aspect of IT

design, in the sense that it colors the way we perceive other qualities of the system.

### 3. Some principles of aesthetics and usability overlap

Usability Professionals still sometimes caution us about not putting too much emphasis on aesthetics. According to many sources, usability and aesthetics are two different, unrelated concepts in the best case. In the worst case, they cannot coexist. IT is either beautiful or it is usable, but it cannot be both.

These concerns are unfounded. Remember, traditional HCI encourages designers to stress clarity, cleanliness and order in their designs. Often textbooks refer to the laws of Gestalt Psychology as the guidelines for a usable visual design. But the very same Gestalt Psychology is a basic theory of aesthetics. In this respect, usability itself becomes a particular theory of aesthetics.

What aspects are emphasized by the "usability theory of aesthetics"? A study by the first author, focused on how people perceived web pages. Two separate "dimensions of aesthetics" emerged: a "classical", which communicates a sense of order and good proportions. This dimension was highly correlated with usability judgments. The other dimension was "expressive" – it represented the originality and the creativity of the design. A similar pattern emerged in the work on pragmatic and hedonic quality aspects of IT. It seems, therefore, that sweeping criticism of aesthetics in design is unjustified. The aesthetic aspects of HCI design should be evaluated carefully and concretely.

### 4. Aesthetics satisfies basic human needs

Some may view aesthetics in IT as gratuity, as bells and whistles, as the chrome of IT. Other view it is as a basic human need. Aesthetics enrich our daily lives and may increase our motivation to use products.

The popularized version of Maslow's basic needs theory presents a hierarchy of human needs, from the physiological to the need to know and understand. An item often overlooked in Maslow's list is aesthetics. In Maslow's words: some indi-

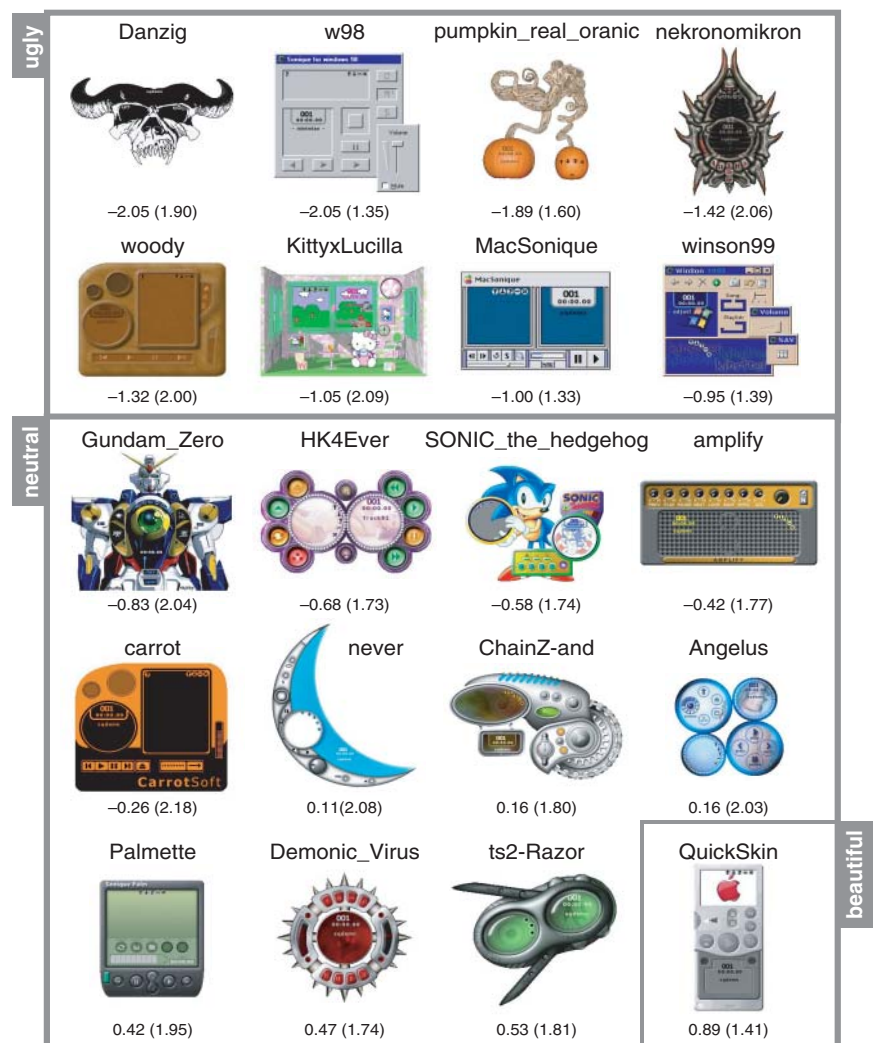


Figure 1: "Skins" sorted by their beauty ratings (from 3 to +3, see Hassenzahl 2004)

viduals "get sick from ugliness... and are cured by beautiful surroundings." (Motivation and Personality, 1954; p.97)

The "need" for aesthetics may not be universal. People are not equally sensitive to aesthetics, and obviously have different tastes. But most people do care. For example, they modify their computer desktop and applications. Most of today's applications are "skinnable", that is, they allow users to change their appearances (see figure 1 for an example). Millions of such skins have been downloaded from major skin sites on the web, indicating the expanding demand for the aesthetics that IT offers.

### 5. Aesthetics as an extension of the Self

It is assumed that use and ownership (actual or imagined) leads to a psychological

symbolic value. Any object will inevitably make a statement about its user.

Beautiful people are assumed to better get along with others, to be more popular, etc. Maybe people apply this general notion to objects as well, in the sense that possessing beautiful things will help one to better get along with people and will make its owner more popular. The aesthetic object is not only aesthetic in itself; it also makes its owner shine.

### 6. Aesthetics as a source of pleasure

Aesthetics can bring pleasure. Pleasure is certainly a value in itself, but it also has consequences. For example, it has been argued that the pleasure that comes with beautiful things may change the way we process information; it may broaden the mind and improves creativity. Don Nor-

man argues that living in an aesthetics environment makes us more tolerant. Aesthetic design can make us more patient, more willing to forgive.

## 7. Aesthetics is pervasive in the IT world

Finally, it is impossible to ignore the pervasiveness of aesthetics, both in terms of the aesthetic design of IT products and in terms of how IT produces aesthetics. Virginia Postrel notes that one of the unintended, and often overlooked, characteristics of IT is that it is particularly friendly to aesthetic applications. Users can relatively easily create, edit and communicate aesthetic materials.

Thus, IT offers designers in industries such as architecture, fashion, mass media, or web development many more design options, and much more time to explore those options in order to create more appealing products. But it also offers ordinary people the unprecedented chance to easily engage in creating and communicating aesthetics. Thus, people are becoming more sensitive to aesthetics; now they demand it more and expect it everywhere – including, and especially in IT.

The objective of this paper was to stress the importance of aesthetics in Human-Computer Interaction. Obviously, from a research point of view, we know very little about its role in HCI. This must change. Without knowing about aesthetics in a way comparable to our understanding of technology or usability the ultimate goal of good design stays out of reach: to find the balance between *venustas*, *firmitas* and *utilitas* of IT for the benefit of the user experience.

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