

HMI/HCI Pleasure: Tool Experiences in Mixed Realities

Interaction, Ideation and Design Representation constitute an important proportion of any design and engineering process. Tangibility, tactility in perception and manual dexterity during these phases are highly undervalued in current human machine interface (HMI) and human computer interaction (HCI) design, systems and applications. Usability of computational tools and systems often (i.e. mostly) lack the inclusion of metacognitive, sensory and/or physio-psychological aspects, whereby the loss of tactile spatial acuity are deteriorating and lead to degradation over time in users. The need for embedding and inclusion of the aforementioned aspects in the design engineering process calls for new perspectives, holistic viewpoints and novel approaches towards HMI/HCI (Fig. 1).

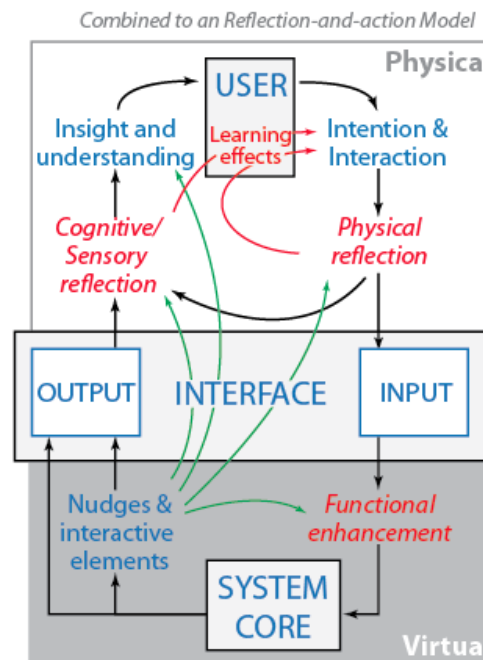


Figure 1. The Embedded Mixed Reality Continuum

Computer games, for instance, often help to enhance our motor coordination, visual perception and spatial reasoning. Play is not characteristically undertaken to acquire some extrinsic benefit. The essential function of play is the modulation of experience. Humans can excel in interactions and communication with others and possess amazing capabilities to use these complex skills to gather information or have an influence on others behavior (Fig. 2). However, computers and systems are getting better and better in doing virtually the same complex set of sensorial ‘understanding’ and recognition of recurring motives. Virtual assistants (robots) are quite common practice these days (i.e. services, communication, and information) and are often more cost-effective and efficient in their repetitive task fulfilment and core functionalities. Humans continue to have, at least for the time being, an advantage in the physical domain in which they use their abilities and capabilities in often advanced and complex situations in either physical or cognitive challenges (i.e. communication, psychology, cognition). People are great problem-solvers in the physical and metacognitive processes, often ambiguous, non-linear, risky, predictable or unpredictable, but always in the state of motion, explicit intention and interaction.

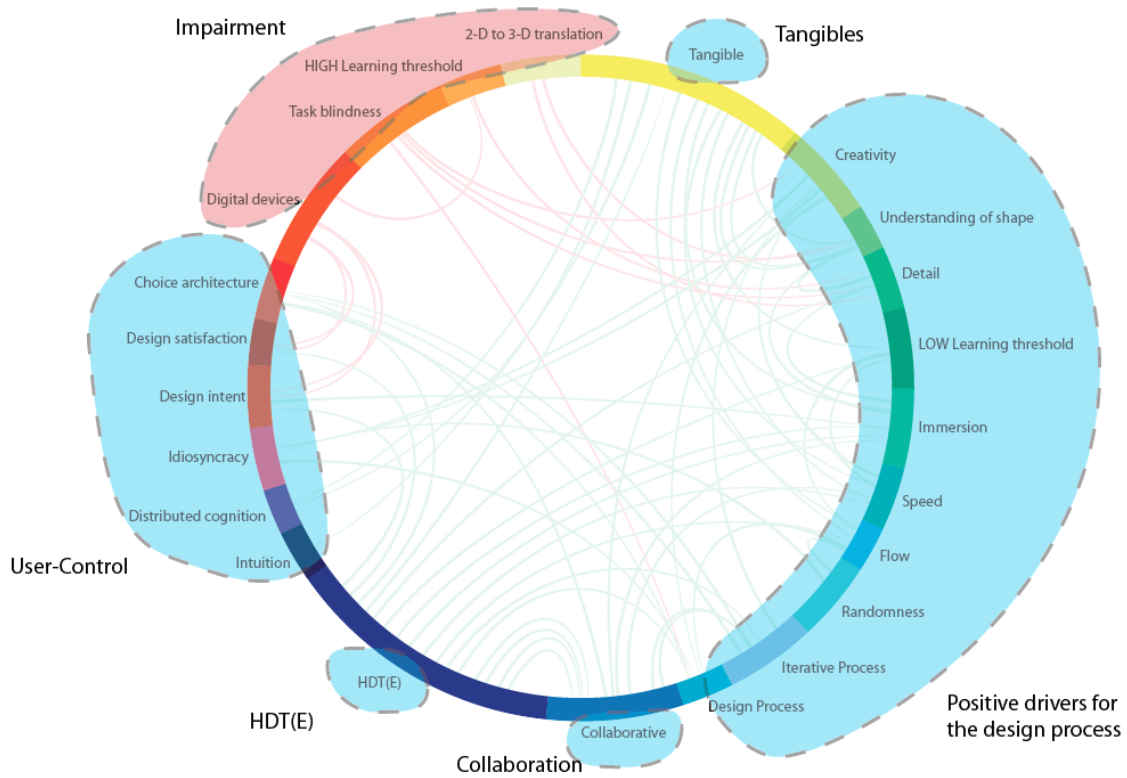


Figure 2. The positive drivers for the Design Engineering Process

“...we must look very closely at craft. As a part of developing more engaging technology, as well as developing a more receptive attitude toward opportunities raised by technology, we must understand what matters in traditional notions of practical, form-giving work. This will take some study of tools, some study of human-computer interaction, and some study of practicing the digital medium.”
 (McCullough, 1998).

Once you emerge yourself in the digital virtual realm the questions arise; “What about tangibility, manual dexterity, tactility and sensory perception?”

Ref.: McCullough, M. (1998). Abstracting craft: The practiced digital hand. MIT press.