Towards a unified theory of building usability

Despite its growing popularity among researchers, user-centric architectural design is still not a clearly defined concept. Buildings' usability characteristics vary significantly between publications (Leaman, 2000; Hölscher et al., 2006) and its quantifiable metrics remain an open challenge to those who seek comparable results. Therefore, it demands a unified theoretical model, which could help to establish a common understanding of usability's key concepts and reliable means of measuring it within the discipline. This paper offers such a clarification by referring to existing knowledge of related areas (mainly human-computer interaction - HCI). Numerous HCI research tools and methods (Cairns and Cox, 2008; Cooper and Reimann, 2003; Norman, 2008) are presented as a verified way of measuring usability, with their possible applications to architecture.

Furthermore, the difference between the concepts of 'usability' and 'user experience' is investigated. Again, deriving from rich bibliography of HCI (Hassenzahl, 2010), usability is proposed to be understood as a 'lack of user's frustration'. This definition is also in line with usability's ISO standard, describing 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' (Abran, et al., 2003, p.326). In context of architecture, 'specified goals' must be achieved through: a) getting to a place of destination, and b) conduction of a desired action in its environment. Therefore usability can be understood as a sum of intuitional wayfinding (Mijksenaar, 2011) and the building's characteristics that facilitate the action itself - like users' comfort (Leaman, 2000; 2008). Such an approach, calls for considering 'user experience' as a further step in interaction design, where usability's 'lack of frustration' is merely a starting point in a consistent, desired, satisfying experience of being in a place. It also considers both concepts as a part of the same process rather than in opposition to each other, what inclines usability researchers to remain in a constant

state of war with creative architects and designers, who tend to consciously avoid the simplest (yet, often the most usable) solutions. Just as much as in architecture, this problem occurs in HCI, and was once summarized by a computer game designer saying that 'if a usability engineer designs a game, it would be most likely a single button announcing >To win press here<' (Hassenzahl, 2010, p.43). Consequently it is not the most usable solution that is to be pursued in design process, but the one being the most satisfying for the user.

The aim of this paper is to propose clear definitions of related concepts and serve future debates pursuing user-centric design ideology fully pleasing all the parties.

Abran, A. et al., 2003. Usability Meanings and Interpretations in ISO Standards. Software Quality Journal 11(4):325-338.

Cairns, P. and Cox, A. L., 2008. Research Methods for Human-Computer Interaction. Cambridge University Press, New York, NY, USA.

Cooper, A. and Reimann, R. M., 2003. About Face 2.0: The Essentials of Interaction Design. Wiley.

Hassenzahl, M., 2010. Experience Design: Technology for All the Right Reasons. Synthesis Lectures on Human-Centered Informatics 3(1):1-95.

Hölscher, C., et al., 2006. Up the down staircase: Wayfinding strategies in multi-level buildings. Journal of Environmental Psychology 26(4):284-299.

Leaman, 2000. Usability in buildings: the Cinderella subject. Building Research and Information 28(4):296-300.

Leaman, A. User Needs and Expectations. In: R. J. Cole and R. Lorch, ed. 2008. Buildings, Culture and Environment: Informing Local and Global Practices. Blackwell Publishing Ltd, Oxford.

Mijksenaar, P., 2011. Paul Mijksenaar on Architecture and Wayfinding. [lecture online] Available at:<http://media.mit.edu/events/webcasts> [Accessed 23 October 2011].

Norman K., 2008. Cyberpsychology: An Introduction to Human-Computer Interaction. Cambridge University Press, New York, NY, USA, 1st edn.