Chapter 3
Heuristic Evaluation on M-Learning Applications: A Comparative Analysis of Two Heuristic Sets

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ABSTRACT

Heuristic evaluation stands out among the usability evaluation methods regarding its benefits related to time and costs. Nevertheless, generic heuristic sets require improvements when it comes to specific interfaces as seen on m-learning applications that have acquired considerable evidence within the current technologic context. Regarding the lack of studies aimed at interfaces of this sort, the authors propose, through a systematic methodology, the comparative study between a heuristic set specific to the assessment on e-learning interfaces and other, on mobile. The identified usability problems were matched with the aspects of coverage, distribution, redundancy, context and severity, in a way that it was possible to understand the efficiency of each set in covering m-learning issues. Among the findings, e-learning’s heuristic set could detect a larger number of usability problems not found by mobile’s.

INTRODUCTION

The popularization of mobile devices such as tablets and smartphones, fostered at the beginning of this decade has reflected significant impacts on society and made people’s daily lives more dependent on the convenience provided by this type of technology. In fact, technological evolution manifests according to the context of each epoch and is able to transform the way society behaves, a process intrinsic to human
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progress. In this scenario, the influences established by technology in the educational sphere from the emergence of e-learning in the 1990s, has reconfigured the way people acquire knowledge. The learning mediated by platforms of this type is often seen as appropriate to the expectations of those classified by Prensky (2001) as “digital natives”, the generation born from the 1990s, interested in learning processes that are active, interactive, socially shared and based on findings from the error.

Obviously, the convenience offered by mobile devices has made e-learning systems gradually migrate from web platforms to mobile applications, inaugurating the category called mobile learning or simply m-learning.

According to Molenet, mobile learning can be broadly defined as ‘the exploitation of ubiquitous hand-held technologies, together with wireless and mobile phone networks, to facilitate, support, enhance and extend the reach of teaching and learning. […] There is no agreed definition of ‘mobile learning’, partly because the field is experiencing rapid evolution, and partly because of the ambiguity of ‘mobile’ – does it relate to mobile technologies, or the more general notion of learner mobility? (Hashemi et al., 2011, pp. 2478)

M-learning not only manifests as a trend in this particular era when knowledge acquisition is facilitated by mobile devices, but is also justified in aspects as social inclusion, allowing economically disadvantaged people or the ones isolated by geographic distances to have access to education; economic rise of countries, leveraging quantitative and qualitatively the production of operational and intellectual workforce; and savings for corporations, reducing costs associated with personnel training and professional capacitation. Furthermore, as the ubiquitous characteristic of mobile devices provide spontaneity in the sense that users are able to access everything they want whenever they want, m-learning offers more opportunities for educational companies to encourage users to purchase learning products such as courses, full classes, extra content and certificates by fostering the system’s m-commerce appeal.

The Implications of Usability to M-Learning Systems

It’s known that, lacking appropriate usability design, the interface of a m-learning can, for example, require from its users excessive cognitive load while they perform certain tasks, affecting their learning or increasing drop outs, since usability attributes directly influence user satisfaction. “Users want systems that are easy to learn and to use as well as effective, efficient, safe, and satisfying” (Preece, Rogers & Sharp, 2002, p. 318). In this respect, the usability evaluation’s purpose is to investigate problems that might prejudice the dialogue between a system’s interface and its user, and to assist the evaluator with concrete and relevant information in order to propose adjustments or improvements able to render the system more friendly. Therefore, because it considers the attributes relevant to the context of use and to the end-user, usability evaluation is advantageous not only for systems in development, avoiding costs with future adjustments, but also for those already released to the public in which design intervention is required.

In fact, the development of interfaces endowed with usability features is an adequate way to provide the users meaningful experiences which, therefore, is converted into profits for companies (Rubin & Chisnell, 2008). On the other hand, as stated by Nielsen and Budiu (2015), when users frequently face problems that impoverish their experience, it tends to unconsciously influence their perception about the m-commerce’s credibility and security, which also influences their disposition to engage in a first
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