Chapter 17
A Framework for Early Usability Integration in Web Applications Development Process

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ABSTRACT
Developing usable products becomes more and more important for software developers. Developing web applications it's more challenging than developing desktop applications due to the various users that will interact with the final product. Satisfying users’ expectations becomes a very difficult task, as usability proves to be a very complex goal to achieve in the context of increased productivity targets in software engineering process. The present chapter focuses on the idea of rethinking the concept of usability moving from the traditional view of usability expressed in the internal characteristics of the product towards usability understood as deriving from the quality of interactions between humans, their work and the web design product. Usability is not only an add-on or a final result in the design process but it is embedded as a main concern within the design process itself. In order to build usable products, a great attention should be oriented to users and their needs, and this can be a very challenging task for software developer teams. In this chapter we will describe an interdisciplinary approach, based on applying social sciences techniques and methods that can be helpful in overcoming the difficulties in understanding the users. We will provide a short description of the proposed methods, a guide in applying these methods and a framework that integrates each of the proposed methods into the corresponding step of the web product development life cycle. The chapter ends with the presentation of two case studies showing the applicability of the proposed solution in real design contexts.

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INTRODUCTION

Usability, user interface, and interaction design are among the group of essential, but unfortunately overlooked, skills that all software developers require, yet few seem to have. Surveys show that over 50% of the design and programming effort on projects is devoted to the user interface (Myers & Rosson 1992). Tools developed by the HCI community can dramatically decrease costs and increase productivity. Studies have shown that applying usability engineering in software projects generates savings attributed to decreased task time, fewer errors, greatly reduced user disruption, reduced burden on support staff, elimination of training, and avoidance of changes in software after release. By estimating all the costs associated with usability engineering, another study found that the benefits can be up to 5000 times the cost (Nielsen & Landauer, 1993).

Usability has become a topic of great interest to researchers in the field of human computer interaction and interaction design due to an increasingly strong connection between usability and the overall success of a given product, be it an object, software or a website (Kuniavsky, 2003; Nielsen, 1993; Norman, 2002). Although researchers agree that usability does not, in itself guarantee the success of such a product (Kuniavsky, 2003; Norman, 2002), they also underline the fact that the lack of usability and a low quality user experience may contribute substantially to the failure of a product or design (Kuniavsky, 2003; Norman, 2002). Together with a substantially grown interest in usability, even though the subject did not represent the focus of design process in its starting years (Norman, 2002; Jordan, 2002) a certain trend in the conceptualization of usability can be observed as the traditionally accepted view of usability is moving towards an integrated perspective in which usability is not just an end goal or attribute of the final product but is also represented by the quality of user experience it enables. Moreover, the maturation of this concept is seen in terms of quality in software, quality in interaction and quality in value (Law, Hvannberg, & Cockton, 2008), a perspective which clearly passes over the traditional view of usability as a validating measure for the design product (Dumas & Redish, 1999).

Taking into account this shift in conceptualization, our approach is organized around the idea of rethinking the concept of usability and building a usability framework that naturally integrates usability artifacts into the software development process. This means moving from the traditional view of usability expressed in the internal characteristics of the product towards usability understood as deriving from the quality of interactions between humans, their work and the web design product (van Welie, 2001) or, in other words, from the better understanding of the user experience (Kuniavsky, 2003). More and more researchers argue that a user-centered approach or interactive design is the kind of approach that can support this conceptualization of usability (Benyon, Turner & Turner, 2005; Kuniavsky, 2003; van Welie, 2001; Brink, Gergle & Wood, 2002). As a result, usability becomes a permanent concern for researchers and designers. Moreover, designing for usability starts precisely from the first stage of web design: user needs analysis.

Still, there is a lack of theoretical foundations to guide software developers in practicing usability engineering. The process of software development becomes more and more related to the clients (users), such that a singular approach, coming from software developers teams is not sufficient in the complex task of understanding what the users really need. As the interaction design literature shows, there is a need of a multidisciplinary approach. In this paper, we propose a solution (framework) of integrating the techniques provided by social sciences into the software development life cycle in order to continuously involve users into the design process and, by this way, to achieve usability.