Chapter XI
Comparing Approaches to Web Accessibility Assessment

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ABSTRACT

Web accessibility is one facet of Web quality in use, and one of the main actors upon which the success of a Web site depends. In spite of these facts, surveys repeatedly show that the accessibility at the Web for people with disabilities is disappointingly low. At the Web, most pages present many kinds of accessible barriers for people with disabilities. The former scenario encouraged research communities and organizations to develop a large range of approaches to support Web accessibility. Currently, there are so many approaches available that comparisons have emerged to clarify their intent and effectiveness. With this situation in mind, this chapter will discuss the importance of Web accessibility assessment and compare 15 different approaches found in literature. To do so, we provide an evaluation framework, WAAM, and instantiate them by classifying the different proposals. The aim of WAAM is to clarify from an evaluation and classification perspective the situation at the accessibility arena.
INTRODUCTION

The World Wide Web (Web), originally conceived as an environment to allow for sharing of information, has proliferated to different areas like e-commerce, m-commerce, and e-business. Over the last few years, the Web has literally bloomed and the continuous evolution of its purpose has introduced a new era of computing science. A Web application, as any other interactive software system, must face up to quality properties such as Usability, which ensures the effectiveness, efficiency, and satisfaction with which specified users achieve specified goals in particular environments. Particularly, defining methods for ensuring usability and studying its impact on software development is at the present one of the goals that has captured more attention from the research community (Matera, Rizzo, & Toffetti Carughi, 2006; Rafla, Robillard, & Desmarais, 2006). Among these matters, Web accessibility is one facet of Web quality in use, and one of the main actors upon which the success of a Web site depends. An accessible Web site is a site that can be perceived, operated, and understood by individual users despite their congenital or induced disabilities (Irwin & Gerke, 2004; Paciello, 2000). It means having a Web application usable to a wide range of people with disabilities, including blindness and low vision, deafness and hearing loss, learning difficulties, cognitive limitations, limited movement, speech difficulties, photosensitivity and combinations of these. In short, we can say that Accessibility addresses a universal Usability.

Web browsers and multimedia players play a critical role in making Web content accessible to people with disabilities. The features available in Web browsers determine the extent to which users can orient themselves and navigate the structure of Web resources. The notion of travel and mobility on the Web was introduced to improve the accessibility of Web pages for visually impaired and other travelers by drawing an analogy between virtual travel and travel in the physical world (Harper, Goble, & Stevens, 2003). Travel is defined as the confident navigation and orientation with purpose, ease and accuracy navigation within an environment (Yesilada, Harper, Goble, & Stevens, 2004), that is to say, the notion of travel extends navigation and orientation to include environment, mobility and purpose of the journey. Mobility is defined as the easy movement around Web pages supported by visual navigational objects (Yesilada et al., 2004). However, traveling upon the Web is difficult for visually impaired users because the Web pages are designed for visual interaction (Goble, Harper, & Stevens, 2000). Visually impaired users usually use screen readers to access the Web in audio. However, unlike sighted users, screen readers cannot see the implicit structural and navigational knowledge encoded within the visual presentation of Web pages.

Today, many countries are discussing or putting into practice diverse initiatives to promote Web accessibility (HKSAR, 2001; CLF, 2001; European Union, 2002; HREOC, 2003; Cabinet Office, 2003). In spite of these facts, surveys repeatedly show that the accessibility at the Web for people with disabilities is disappointingly low.

The Web Accessibility Initiative (WAI) has developed a set of accessibility guidelines called Web Content Accessibility Guidelines (WCAG 1.0, 1999). The (WCAG 1.0, 1999) recommendations are the established referent for Web accessibility, but there are many other initiatives -- e.g. (Section 508, 2003; Stanca Law, 2004; PAS 78, 2006). Table 1, borrowed from Loiacono (2004), summarizes a study conducted over 100 American corporations’ home pages to specifically examine how well they dealt with the issue of Web accessibility. This study revealed that most of the corporate home pages fail to meet criteria, presenting many kinds of accessible barriers for people with disabilities.

During the last years a large range of approaches have become available to support Web accessibility (Paciello, 2000; Takagi, Asakawa, Fukuda, & Maeda, 2004; Xiaoping, 2004; Yesilada
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