Chapter 20
Ensuring Quality of Web Portals Through Accessibility Analysis

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ABSTRACT

With the increase in number of electronic services being delivered through web portals, a lot of emphasis is being given to ensure the quality of web portals in terms of contents and associated design aspects. This has led to studies investigating various requirements of web users and to guidelines for quality enhancement in order to make web portals accessible to all irrespective of one's age, physical challenges, ethnicity, and level of literacy. In this chapter, the authors address the accessibility issues of web portals based on ongoing research. They analyze the accessibility in three levels (i.e., at the levels of authoring tool, web component, and user-agent). The contents of this chapter can throw light on the design aspects of web portals, web browsers, and media players to make them more suitable for users in general.

INTRODUCTION

Over the last couple of years, web portals are being considered as excellent means of information dissemination and visibility. At the initial stages web portals were used as a source of information but with the passage of time organizations have begun to extend a plethora of services electronically. Analysis reveals that due to inadequacies in the content, presentation, and online assistance available in those web sites, users are not very much attracted towards web portals. Therefore, we need to understand user requirements to make web portals accessible for all, irrespective of their age, physical challenges, ethnicity, and levels of literacy. The World Wide Web consortium has recommended WCAG 2.0, UAAG 2.0, and ATAG 2.0 guidelines to analyze web portals at web component, user-agent, and authoring tool levels.

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Since 1997, the initializations of web accessibility initiatives, the web technology researchers have been carried out some studies to evaluate the accessibility of web portals and user agents. Abanumy, Al-Badi and Mayhew (2005) evaluated the accessibility of the government web portals of Saudi Arabia and Oman, using WCAG 1.0 guidelines and Multiweb, Lynx, and W3C Validation as software tools to find error percentages. They have used Assistive technologies and haptic devices for users having problems like total blindness and mobility. But, they have not addressed the issue of persons with color blindness. Ceaparu and Shneiderman, (2002) analyzed the home pages of 50 US state Web sites. The analysis was done manually and initial recommendations were made with 10 rules which did not include any recommendation for disable people.

Kuzma, Yen and Oestreicher, (2009) examined the accessibility of government web portals from different continent that is European Union, Asia, and Africa with respect to the guidelines of WCAG 1.0 using TAW as software tool. Similarly, Al-Radaideh, Nurser and Wahbeh, (2011) have evaluated 25 Government websites of jordan by considering TAW with respect to WCAG 1.0 Guideline. Similarly, Malaysian researchers, Latif and Masrek, (2010) have used WCAG 1.0 priority 1 and Bobby as automatic tool, to evaluate 9 websites. They have provided only the number of errors of different portals instead of computing the percentage of error. Thus, it doesn't give an exact picture of the overall error percentage which can be used as a comparative measure among different web portals. Carter and Markel, (2001) classify disable peoples into four categories and demonstrate tools made for them by different company.

Kamoun, Mourad and Bataineh, (2013) have made a comparative analysis of web sites in Dubai using both WCAG 1.0 and WCAG 2.0; and recommend the use of WCAG 2.0 for e-Governments. In [Patra, Dash, Mishra, 2014, IJCSEA], the accessibility features of fifteen Indian web portals have been analyzed with respect to the WCAG 2.0 guideline. Accessibility of these web portals have been checked both manually and with the help of some tools. This work has been further extended to analyzing fifteen government web portals of Asian countries in Patra, Dash, Mishra, (2014) ICEGOV. In that work, the accessibility of four embedded media players also have been analyzed using UAAG 2.0.

Ismail and Kuppusamy, (2015) evaluate the accessibility of 302 Indian universities using ACHEKER on the basis of WCAG 2.0. Ismailova and Inal, (2016) analyses the accessibility of government websites of four countries viz, Kyrgyzstan, Azerbaijan, Kazakhstan and Turkey. In Baazeem and Al-Khalifa, (2015) authors investigate 23 accessibility evaluation studies. They analyze different type of methodology and tools used during last five years for analyzing the accessibility of web components.

Till 2004 in most research works the researchers have looked into the accessibility of web components. Then in 2005, Chisholm and Henry, (2005) have classified the web accessibility guidelines into three categories, viz., WCAG (Web Content Accessibility Guideline), ATAG (Authoring Tool Accessibility Guideline), UAAG (User Agent Accessibility Guideline) and describe how these three guidelines can control three different aspects of a web portal. After that the researchers also focus on the accessibility features of the user agents and authoring tools. Gonzalez et al. (2011) and Moreno et al., (2011) have analyzed the accessibility requirements of YouTube, BBC iplayer and CCplayer based on UAAG 2.0 guideline.

Souley and Sambo (2014) analyze Mozilla Firefox, Internet Explorer, Netscape and Opera based on their Performance, Usability, Accessibility and Security. Babu and Sekharaiahm, (2014) have described different types of assistive software and their integration with user agents to make them more accessible for physically challenged people. They have also classified the types of disabilities causing problem in accessing websites. Patra and Dash, (2017) have evaluated accessibility of 10 PC web browsers based on UAAG 2.0. Mahmud, Borodin, and Ramakrishnan, (2007) designed a context driven non-visual web