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Web Accessibility Research and Practice:
The Need for Arabic Web Accessibility Improvement

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ABSTRACT

Web accessibility is the practice of having websites that are accessible to all people, including persons with disabilities. Several research studies have been done around the world to improve web accessibility. However, advances in Arabic web accessibility studies are limited. Research has indicated that a significant number of Arabic websites have accessibility issues, which becomes a restraint to people with disabilities from accessing and using the web. This research reviews current studies in web accessibility presented within the cultural background of several Arabic-speaking countries, particularly the Arabian Gulf region of Gulf Cooperation Council, and addresses services offered by the countries. The authors evaluate 54 websites in the Gulf region regarding accessibility issues. The results show that all websites do not satisfy WCAG 2.0 (AA). This paper highlights the deficiencies in Arabic web accessibility and provide some recommendations and suggestions for improvements.

KEYWORDS

Culture, HCI, Human-Computer Interaction, Society, Technology Design

INTRODUCTION

The term Web accessibility has been defined differently by various scholars, yet these definitions have some similarities. Petrie et al. (2015) conducted a study to analyze 50 definitions of Web accessibility. The definitions were taken from different sources, such as guidelines, standards, books, research papers, and online sources. The authors found a unified definition of Web accessibility that they considered to be the most comprehensive: "All people, particularly disabled and older people, can use websites in a range of contexts of use, including mainstream and assistive technologies; to achieve this, websites need to be designed and developed to support usability across these contexts" (Petrie et al., 2015, p. 3).

Web accessibility is defined by Letoumeau, as cited in Abanumy, Al-Badi, and Mayhew (2005) as

Anyone using any kind of web browsing technology must be able to visit any site and get a full and complete understanding of the information as well as have the complete ability to interact with the site if that is necessary. (p. 2)

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From the definitions, four crucial components shape Web accessibility: all users, assistive technologies, computer technologies, and well-developed websites according to accessibility guidelines. All users can access the Web directly or indirectly using assistive technologies. Mainstream and assistive technologies are tools, such as computer technologies (e.g., desktop and laptop computers), that assist users with disabilities to access the Web with a reliable Internet connection. Well-structured websites that follow Web accessibility guidelines are more accessible for all users.

Motivation

The Web is improving rapidly and is an inevitable necessity for different aspects of life. Accessing, using, and interacting with the Web must be available for all people, including people with various disabilities. Web *content* is the information, such as text, video, images, and sounds, along with code and markup that shape the structure and the presentation of Web pages. The Web has shifted from text interfaces to interactive and dynamic interfaces. Although these interfaces may provide more flexible interaction experiences for neurotypical users, people with disabilities may be denied access to the Web because they cannot use standard access methods. Individuals with disabilities have the right to access and benefit from the Web like any other user. Adapting Rawls' theory of justice is extremely important. Sloan (2006) mentioned Rawls' theory of justice, which focuses on providing the most significant advantages for the least benefited individuals of society. This theory views accessibility as a right provided by a government to its people rather than as an act of charity. This theory cautions governments from preventing disabled people from accessing the same advantages as other non-disabled members of society.

Arabic countries, like any other country, have persons with disabilities. The precise number of people with different disabilities in the Arabic nations is unknown, but estimates place the disability prevalence rate between about 10% (Kan Boon Hock & Lafi, 2011) and 15% (Hadidi & Khateeb, 2015) for all Arabic countries. An estimation of people with disabilities in Saudi Arabia is about 720,000 Saudis, constituting 4% of the total population (Al-Gain & Al-Abdulwahab, 2002; Akram & Sulaiman, 2017). Moreover, an estimated 90% of websites and 98% of e-government sites in Arabic countries are inaccessible to users with disabilities (Weber, 2016).

Arabian human-computer interaction researchers have conducted many studies to evaluate the accessibility of different types of websites. The findings of the studies show the dismal accessibility of various Arabic websites (Abanumy et al., 2005; Masood Rana et al., 2011; Al-Khalifa, 2012; Al-Faries et al., 2013; Abu Shawar, 2015; Alayed et al., 2016; Liginlal & Al-Muftah, 2017; AlMeraj et al., 2020). Abu Shawar (2015) found that, compared to United Kingdom universities, Jordanian university websites were 13 times more likely to have accessibility errors and Arabic university websites were five times more likely to have accessibility errors.

Additionally, Saudi academic and governmental websites were mostly designed for neurotypical users with little to no consideration for people with special needs. Alnahari and Chakraborty (2019) stated that the number of universities in Saudi Arabia had increased recently, yet there are no clear accessibility guidelines. Masood Rana et al. (2011) mentioned that 80% of Saudi universities did not meet the minimum standard accessibility guidelines and had low accessibility requirements. The study found that web content authors and policymakers in Saudi Arabia lack knowledge of the web content accessibility guidelines (WCAG). These populations need to be aware of particular difficulties for certain Arabic users, such as users with dyslexia (Al-Wabil et al., 2006) and users who are hard of hearing or Deaf (El-Soud et al., 2010).

Given the accessibility issues for users with dyslexia or those who are hard of hearing, Abanumy et al. (2005) conducted a survey of governmental website developers to understand the reasons behind the lack of accessibility and usability of e-government sites in Saudi Arabia and Oman. 70% of web developers believed that inaccessibility is caused by a lack of awareness of website accessibility guidelines; however, 65% of the respondents thought that the problem is the non-existence of accessibility policies in these countries mentioned above.

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