Usability Evaluation of Academic Websites Using Automated Tools

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Abstract—In a bid to reposition the universities in Nigeria, the management of various universities in the country has been embarking on various technology innovations aimed at increasing and improving the web presence of their institutions. This involves re-designing of websites using the latest state of the art technology so as to improve its usability. This research was conducted in order to know the usability level via accessibility evaluation of the federal universities in Nigeria. The automated tools used are Web Accessibility checker, HERA and WAVE. The tools inspected the conformity of the websites with Web Content Accessibility Guidelines (WCAG 1.0 and 2.0) by reporting violations in forms of errors and problems. Results show that all the websites have a number of accessibility errors hence they are not in total compliance with WCAG. Recommendations for improvement on the websites are included.

Keywords - website, usability, accessibility, Nigeria, automated tools.

I. INTRODUCTION

Websites today have become a major medium of information dissemination to the public. Through the web, it is practically possible for most people nowadays to get information easily from Internet from anywhere and anytime [1]. This is because the use of the internet to disseminate information to users by many organisations is ever increasing. As a result of this, various universities in the world now have websites in order to become current, competitive and visible globally[2], [3].

However, there is concern about the various ways in which academic websites should be designed to ensure that it meets the end users goals. Sadly enough most academic websites as with most website designs are often driven by latest technology, organization objectives, fund availability, target market and so on rather than its satisfactory usage by end users [4].

But communication to be successful between the university and the end user of the university websites, information passed from one end should get to the other end with little or no effort made by the receiver of the information. Therefore, a cordial communication between the university and the website user plays a vital role in the proper governance of university. The information flow to all stake holders must be timely and effective [5]. For a university website, different types of user (able and disabled) are expected to interact with it. Hence, there is great need to incorporate usability and accessibility guidelines in the design of the website. The importance of usability in website has been widely acknowledged to be very paramount and important in web design. It is aimed at satisfying users' need [6], [7].

At present, many universities in the country have made tremendous efforts to improve the design of their websites in order to ensure that they are in accordance with international standard. Hence, there is need to evaluate the usability of these websites from accessibility point of view so as to know its level of compliance with international accessibility guidelines. In this paper, we present the results of usability evaluation of all the federal universities' websites in the country by using automated tools. It is aimed at discovering the errors (problems) inherent in the websites and check for their conformity with web accessibility guidelines. The evaluation is based on the Web Content Accessibility Guidelines, WCAG 1.0 and WCAG 2.0.

II. LITERATURE REVIEW

Web usability is an approach that is used to test whether or not websites are easy to use by the end users without any effective training, or learning. A site's ease of use or its usability is seen as an integral part of its success especially as the site becomes more interactive and complex with some features [8]. Usability is the backbone which connects the university and the end user be it a student or any user that has any affiliation with the university. Usability can be defined as the ease of use of a product. The product could be a software product in form of website. Any product with bad usability is good for nothing. Reference [6] further defined usability as a quantitative and qualitative measurement of the design of user interface grouped into five key factors: learnability, efficiency, memorability, errors and satisfaction

Web Accessibility on the other hand describes the ability of a websites to be easily used by people with disabilities. Web Accessibility Initiative (WAI) founded by the World Wide Web Consortium (W3C) to promote the accessibility of the Web, defines web accessibility to mean that people with disabilities can use the Web. It means that people with disabilities can perceive, understand navigate and interact with websites and tools [9], [10]. Web accessibility also includes all