FROM DESKTOP TO MOBILE VIEW: CHALLENGES OF ACCESSING THE WEB INFORMATION VIA MOBILE DEVICES

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Abstract: One of the most conspicuous trends of today's world is the colossal upsurge in the digital native, they are highly adapted to mobile devices. With this advancement, there is a widespread worry that discussions around the development of websites have shifted from content optimized for desktop viewing to mobile viewing. This study intends to explore the challenges which are faced by the digital natives when discovering academic web information via their mobile devices, and the considered user community of Southern Campus, KDU which implemented a number of initiatives to provide the existing web services (navigation links) via the main library website. Necessary information was collected from a structured questionnaire survey. As per the findings, most users (mode 91%) accessed the websites via their mobile devices during their busy campus life. Smartphones were used by 80% of users out of the 91% of users who access web information. Against this backdrop, 81% of respondents out of 91% of users reported that they faced major challenges in the discovery of important web content, slow loading, navigation, and locating web information on their mobile devices. Current research strongly recommended to re-formatting the existing web services of desktop websites to generate mobile-friendly counterpart websites according to predefined layouts optimized for mobile devices.

Keywords: *Digital native, Mobile devices, Desktop websites, Mobile websites*

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Introduction

The current generation in the world has grown up in the digital age, the term digital native describes a young person who has grown up in the digital age, in close contact with computer devices and the internet to find the information necessary to achieve success in their academic, professional, and personal life. The term is often used by current undergraduates who ranged from 10 to 25 years old (Generation Z) and school students who ranged from zero to 10 years old (Generation Alpha) in the world. Both generations add up to compose the millennials. Since the increase of mobile technologies, digital natives are highly adapted to mobile devices such as smartphones and tablets instead of desktop or laptop screens, to cater to their busy life.

According to Okeleke (2019), 5.13 billion people become mobile Internet subscribers around the world. Further Okeleke predicts, some 165 million new mobile subscribers will emerge from the region of Sub-Saharan Africa only by 2025. Therefore that will be closer to the increasing number of individuals who make use of mobile devices.

In this advancement, the most available websites are used by the digital native, developed on the desktop version, and designed for viewing on desktops or laptop screens. Previous research highlighted a widespread worry that discussions around the development of websites have shifted from content optimized for desktop viewing only to content also optimized for mobile. Only 7% of African federal websites are mobile-friendly, which means that the African Governments are not able to fully connect with their citizens. Therefore, they are also temporized, which is essential to create websites that are customized for mobile screens (Verkijika and Wet, 2018).

Websites consist of linked pages, which are accessed by URLs on the Internet using a web browser application. Desktop websites (Full Sites) are the most common and oldest form of websites. People are intended for desktop devices by default, which is not mobile friendly as Burke (2019) people are accessed with a large video monitor of laptops or home desktop computers (Maurer et al.,2010). Furthermore, Burke, (2016) explains existing designs of desktop websites as a "development technique that are not detects the client types (several mobile devices) and not dynamically adjusts the layout of a site according to the size of the screen on which it is displayed". Since the content may be presented that users are confused. Developing websites is, however, a complex, costly and time-consuming process, therefore, any alternative to reduce the cost of website development to help in the rapid deployment of mobile versions of websites (Benedikt et al., 2002; Stevens et al., 2008). As solutions, Jogoo et al. (2019) presented the method of opensource software and website conversion tool are

privileged to keep any cost involved in converting desktop versions to mobile versions at a minimum.

As per Jogoo et al. (2019) findings, there are open-source software and website conversion tool (cost cutting) which are available online for free that can be easily applied for formatting websites in converting desktop versions to mobile versions.

Itis observed that the increase in undergraduate interaction on mobile devices has to be further expanded the web-based library services among the user community of Sri Lankan academic libraries. The concept would help to further increase the user communities of academic libraries nevertheless the research area is not investigated in-depth in Sri Lanka. The research aims to fulfill the gap in the research literature.

Scope and Limitations of the Study

The scope of the current study is limited to examining the use of mobile devices by the user community at the southern campus, KDU to fulfill the information needs which are required for teaching, learning and research works. The scope is further limited to the websites which implemented a number of initiatives to provide the existing services of academic websites (navigation links) via the main library website to fulfill the information needs.

Significance of the Study

The study is significant as the findings would help libraries to understand draw backs of their available web services of the user interaction and strategies for reformatting the existing desktop website contents to generate mobile-friendly counterpart websites according to predefined layouts optimized for mobile devices. Libraries would be able to further expand their web services by utilizing reformatted mobile-friendly counterpart websites.

Objectives

The study explores the use of mobile devices by digital natives to discover web information, which implemented a number of initiatives to provide the existing services of academic websites (navigation links) via the main library website to fulfill the undergraduates' information needs such as eBooks, e-Journals, proceedings, conferences, magazines, etc.

- To identify the academic websites which often accessed by digital natives to fulfill their academic needs via mobile devices.
- To understand the major challenges when discovering important websites by undergraduates using their mobile devices.

- To identify the possibility of re-formatting the existing academic desktop website contents to generate mobile-friendly counterpart websites according to predefined layouts optimized for mobile devices.

Methodology

Initially, the study intended to observe the available web services and their appearance on mobile devices associated with Okereke's mobile-friendly website formatting concept and outcomes. This paper follows the descriptive survey method with a quantitative approach to examine the use of mobile devices by digital natives to discover web information and that confederated on undergraduates of Southern Campus, KDU. The total number of undergraduates in the southern campus in 2022 was 752, all of which consisted of a sample. The study was mainly focused that implementing web information services (navigation links and web interfaces) by the KDU via their main library website, those are mainly followed under three groups; a) subscribed databases by the library of KDU, b) intuitional repositories and c) others which are freely available websites related to undergraduate education at KDU.

A structured google questionnaire survey was used to collect necessary information as a data collection tool and that was designed, to cover the main research objective of assessing to extend the facilities for use of mobile devices by the digital natives to discover web information. The data collected were analyzed critically, using the Statistical Package for the Social Statists (SPSS) of version 20 descriptive statistical analyses were carried out in all instances when necessary.

Result and Discussions

KDU library network has implemented a greater number of initiatives to provide the existing web services (navigation links) via the main library website, such as E-Books & E-Journals Databases, E-Repositories, web links which are the course-related professional institutes, web links world defiance, etc.

Web developers could be applying mobile-friendly website formatting methods (cost cutting) which were introduced by Jogoo et al. (2019) to formatting the initial websites if it explains the design as a "development technique that automatically adjusts the layout of a site according to the size of the screen on which it is displayed" and there are differences between the outcomes of the desktop screen appearance and mobile screen appearance. The outcomes and positive results could be easily understood in the following images (Figure 01, 02 & 03).

Desktop version   Mobile Version

Figure 1: Viewing the mobile friendly website

Mozambique Government Portal Before and after mobile conversion

Desktop Version   Mobile Version

Figure 2: Viewing the Mobile Friendly Website

Republic of Senegal Portal before and after mobile conversion

Self-observation on a smartphone found that the majority of websites that were considered in the current study do not have to follow mobile-friendly web development methods. Those appeared only as the desktop version on a mobile screen. Responsive website design and the adaptive website design are followed by some websites it was rarely.

Desktop version   Mobile Version

Figure 3: Viewing the Mobile Friendly Website

Ethiopian Government Portal before and after mobile conversion

As per the questionnaire survey findings, the majority of users (mode 91%) accessed the websites via their mobile devices during their busy campus life. Out of 725 google questionnaires, the response rate from the undergraduates of Southern Campus, KDU was 96%.
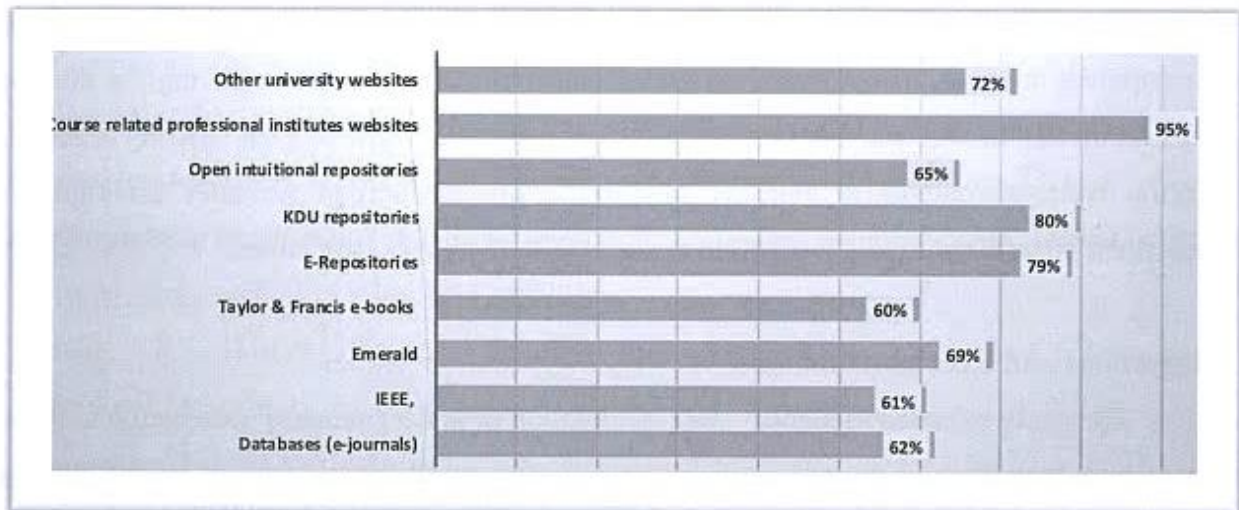

Figure 4: Percentages of the Total Respondents

62% of users reported they frequently accessed the e-journals of IEEE, Emerald Inside, and Taylor & Francis e-books databases which were subscribed from the KDU. Weblinks of repositories are used by 79% of users and 95% of users reported they accessed web links of course-related professional institutes. 72% of users indicated that they access on other university websites via the main library website of KDU to get some surface information. The majority of users (mean 67%) out of 75% are accessing via their mobile devices daily to find

the needed web information. Smartphones were used by 80% of users out of the total respondents to access web information. Burke (2019) explains in his study responsive design is a "development technique that detects the client type and dynamically adjusts the layout of a site according to the size of the screen on which it is displayed". Therefore, the exact content may be presented in a "three-column format on a desktop", "two column formats on a tablet", and "one-column format on a smartphone" (Burke, 2019). According to Burke that can recognize the connection between available options of the mobile devices and properly optimized websites to the mobile screens. Against this backdrop, 81% of respondents reported that they faced major challenges in the discovery of important web content, slow loading, navigation, and locating web information on their mobile devices

Conclusions

Since the increase in mobile technologies, undergraduates are highly adapted to mobile devices such as smartphones and tablets instead of desktop or laptop screens to fulfilling their academic information needs. It provides users with subscribed valuable information via several appropriate websites. However, current research explores that the majority of websites which implemented a number of initiatives to provide the existing services of academic websites (navigation links) via the main library website do not have to follow mobile-friendly web development methods. Therefore, they worry that the more difficulties weaving the desktop websites on mobile screens, that identify the possibility of re-formatting the existing academic desktop website contents to generate mobile-friendly counterpart websites according to predefined layouts optimized for mobile devices; mobile phones, and tables.

Suggestions and Recommendations

The study intended to identify the real situation of undergraduates' interaction with the use of mobile devices to discover online library services. As per the current study findings, undergraduates highly interacted with online library services to discover web information via their mobile devices. Against this backdrop, undergraduates faced more challenges when they were accessing web information such as the discovery of important web content, slow loading, navigation, and timely locating the web information using their mobile devices. User communities of academic libraries would be further expanded on online library services that are required to reformat the existing web services using a mobile-friendly method to optimize for mobile devices. Therefore, the current study strongly recommends reformatting the existing websites and suggests to use of open-source software and website conversion tool which was

introduced by Jogoo et al. (2019). It provides the privileged to keep any cost involved in converting desktop versions to mobile versions

Future Research Implications

The study proposed as future research implications, ITC based technical research study on how to reformat the existing desktop websites of web services to generate mobile-friendly counterpart websites according to predefined layouts optimized for mobile devices using the open source software and website conversion tool.

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