Relational analysis of the usability features of the university library websites

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ABSTRACT
This study has examined a relational analysis of the usability features of university library Websites in Nigeria. Through a survey design, a sample of 187 undergraduate year LIS students enrolled in a course on Web Design and management participated in the study. The findings from the study revealed among others that usability of a university library website is premise on factors such as Navigation, Interface Design, Page Layout, Information Architecture, Graphics, Typography, Colour Attractiveness, and Interactivity. This study has demonstrated that the combination of the eight variables explain 52.3% of the variance in usability features of university library websites. These results show that navigation of library website contributed mostly to the prediction of LIS students' usability perception of university library website, followed by interface design, page layout, information architecture, graphics, typography, Colour attraction, and interactivity. Though the findings may not be applicable to other university library websites but this depend on the experience of the users. The results call for formidable efforts to improve the users experience on the web, because usability perception counts and it is considered to be key when talking about revitalizing the library through library Websites. Similarly, the designers of university library websites are encouraged to work more on the interface design, page layout and information architecture as all of them return lower correlation with the usability of library website.

Keywords: Website; Library Website; Usability feature; Usefulness; Relational analysis; University; Nigeria.

INTRODUCTION

A useful Website is the type that has a great number of hits on a daily basis. It is the type that users Visitation to such Website can never be compromised based on the perception of its usefulness by the users. Through the creation of a Website, universities libraries both in the developed and developing countries are putting up frantic efforts to make sure that they are visible and accessible to the world. University libraries as academic libraries are doing this to improve the general visibility of their parent organization and eventually improving their web ranking (Tella, 2019).Universities are expected to develop a well-organized, easily navigable, and aesthetically appealing Website to optimize user experience and keep its constituents well informed (Lau, 2015).

Through the library, the intellectual property of the university can be improved. This implies that university depends on the library collections for the provision of information materials for learning, teaching and research. The university Website is now being refers to method through which university communicate with various stakeholders such as students, lecturers, researchers, administrative staff and visitors. Universities also use their Websites as a way to shape their image in terms of improving their feasibility and web presence in line with global practice. It is on this note that Margolin et al. (2013) emphasized that websites can serve as a low-cost resource to provide accurate information that can enhance student's knowledge of college. Universities need to do everything within their purview to safeguard positive images with their various constituents, and one way to do this is to make use of the opportunities of Website presents (Mentes & Turan, 2012).

University library provides services such as charging and discharging of books, help desk, reference queries, placing books on hold for charging out at a specified time, reprography, reading room, computers and other information materials are also available in the library for patronage particularly by the undergraduate students. Due to the trend in the creation and development of Websites by universities, resources in the libraries are now accessible through the university library Website Therefore, library is very essential in the university system and likewise it is assumed that the perception of the usefulness of the of the Website of a university will lead to its patronage by intended users (Liu et al. 2017, 2018). Low patronage of university library is considered a waste of investment on resource provision and availability. There is a need to examine patronage in the university libraries as this will enable the determinant of how useful it is by the users. Agboola and Bamigboye (2011) reported that patronage is an important measure of output of services provided by libraries. Onuoha and Subair (2013) also reported that examining library patronage should be one of the major concerns in the libraries. They stated further that the purpose of evaluating library patronage is to gather information on how libraries are accomplishing their objectives, with a view to improving the delivery of library services and also for effective planning and management in the university libraries. The same is applicable to the Website of a university library. Incessant visit to Website can be related to the perception of the usefulness of such Website. Usability of a web site has assumed a great deal of importance in terms of satisfying web site users' needs and expectations.

As observed from the literature and as reflected above, the issue of usability of library Website is very vital. Usability has assumed a great importance in terms of meeting Website users' information needs and expectations (Jiang, 2016).Usability has been a popular theme that is extensively studied in the field of human-computer interaction (HCI) (Shneiderman, 1998). It is on this note that Aldwyn (2011) argues that usability is a requirement to survive in internet environment. Similarly, Nielsen (2000) argues that usability is an extremely important aspect of individual Website and overall website design. The author concludes that web design must directly face users' with the specific needs, and must make sure that users are pleasant to successfully complete tasks on the Web (Yan & Guo, 2010).

Another observation from the literature is the revelation that the number of studies on usability of university Websites is currently lacking or very limited in the context of creation and development of University Website or university library Website globally, in Africa generally and Nigeria specifically. There are some of the recent studies on usability of university Websites. For instance in Europe, Caglar and Mentes (2012) which reveals dissatisfaction and other usability problems of Website of the University of Lefke which is located at Northern Cyprus. Another similar study was conducted by Eksioglu et. al, (2011) which aims to assess the Website usability of Industrial Engineering Department of Bogazici University and reveals some design issues regarding the department's Website. The study by Sengel and Oncu (2010) which assessed the usability of Uludag University Website concluded that there are differences between the responses of males and females on the usability of the university Website. In Malaysia, Dominic and Jati (2010) studied the usability of Malaysian universities Websites and reported that most of Malaysian Universities are neglecting performance and quality criteria. Furthermore in Turkey, Mentes and Turan (2012) explored the usability level of Namık Kemal University (NKU) Website and provide guidance on the development of better and more usable Websites. Their results revealed that five factors positively and significantly affect the Website usability perceptions of NKU members; and those demographic factors such as gender and web experience, significantly impact on usability perceptions of individual users. In addition, Lau (2015) analysed the navigational efficiency, organizational content, and user satisfaction for UH Manoa's Office of the Registrar Website of the University of Hawaii Based on feedback from the respondents, the author reported that users favored aesthetically appealing Webpages that incorporated eye-catching pictures and graphics, simplified information, menu-bars, easily accessible links, and downloadable forms. Anecdotal feedback gained from frustrated customers also revealed the lack of information, difficulty navigating the Website, outdated aesthetic features, and more. In China, Joo, Lin and Lu (2011) developed a usability evaluation model and associated survey tool in the context of academic libraries. This study not only proposed a usability evaluation model but also a practical survey tool tailored to academic library websites. The results revealed eighteen measurement items to survey the three constructs of usability- effectiveness, efficiency, and learn ability, in academic library Websites. The evaluation tool was then validated with regard to data distribution, reliability, and validity. The empirical examination based on 147 actual user responses proved the survey evaluation tool is acceptable in assessing academic library Website usability.

Many efforts are now being put up by academic libraries to make it more usable and thereby revitalising the library. The creation and development of library website is vital and considered the most important effort on which other efforts of revitalizing the library are associated. Mention can also be made of the addition of some Web 2.0 features, social media presence such as on Facebook, Twitter, YouTUbe, Instagram, Linkdl, etc. Also inclusive is the addition of electronic databases where users can download information relating to their discipline including EBSCO-Host, Agora, Hinari, Google Scholar, ResearchGate, Medline, Agricola, etc. A redundant library website is not considered usable by the library patrons. Efforts to make library more usable make libraries the world over to think about the issue of revitalization. Libraries have realized the fact that their services and materials need revitalising because the world of information is both dynamic and changing. Libraries play a crucial role in information

and education, as well as being a focal point in society. On this note, it is particularly important that the library is accessible and usable to all the different groups within the larger community.

The above synopses of related studies confirm that limited or no studies available from Africa and Nigeria in particular that focused on usability of university library Websites. Therefore, this study examined through a relational analysis of the usability features of university library features in Nigeria. The study would be of greater value based on its examination of the usability features such as navigation, interface designs, page layouts, information architecture, graphics, typography, color, interactivity and how all these relate to the goal of the university library websites which ought to be the provision of easy access to information. Relating these issues with the perception of usefulness among the users would be of great value to the libraries as they would get to appreciate how their Website designs and information architectures impact on the usefulness of their Websites. The study would then proceed to advise on appropriate designs and architecture based on the findings as well as by reviewing university library Websites that can be considered to be properly designed from a technical point of view.

OBJECTIVES

The main objective of the study was to examine a relational analysis of the usability features of university library features in Nigeria. The specific objectives of the study were to:

1. Determine the relationship between university Website usability and perception of it navigation.
2. Determine the relationship between university Website usability and perception of its interface design.
3. Establish the relationship between university Website usability and perception of the page layout.
4. Determine the relationship between university Website usability and perception of its information architecture.
5. Examine the relationship between university Website usability and perception of its graphics.
6. Investigate the relationship between university Website usability and perception of its typography.
7. Establish the relationship between university Website usability and perception of colour attraction.
8. Determine the relationship between university Website usability and perception of its interactivity.

STATEMENT OF HYPOTHESES

To achieve the objectives of this study, the following hypotheses were tested for significance at 0.05 alpha level.

1. There is no significant the relationship between university Website usability and perception of it navigation.
2. There is no significant relationship between university Website usability and perception of its interface design.

3. There is no significant relationship between university Website usability and perception of the page layout.
4. There is no significant relationship between university Website usability and perception of its information architecture.
5. There is no significant relationship between university Website usability and perception of its graphics.
6. There is no significant relationship between university Website usability and perception of its typography.
7. There is no significant relationship between university Website usability and perception of colour attraction.

There is no significant relationship between university Website usability and perception of its interactivity. The figure 1 represents the conceptual model in this study.

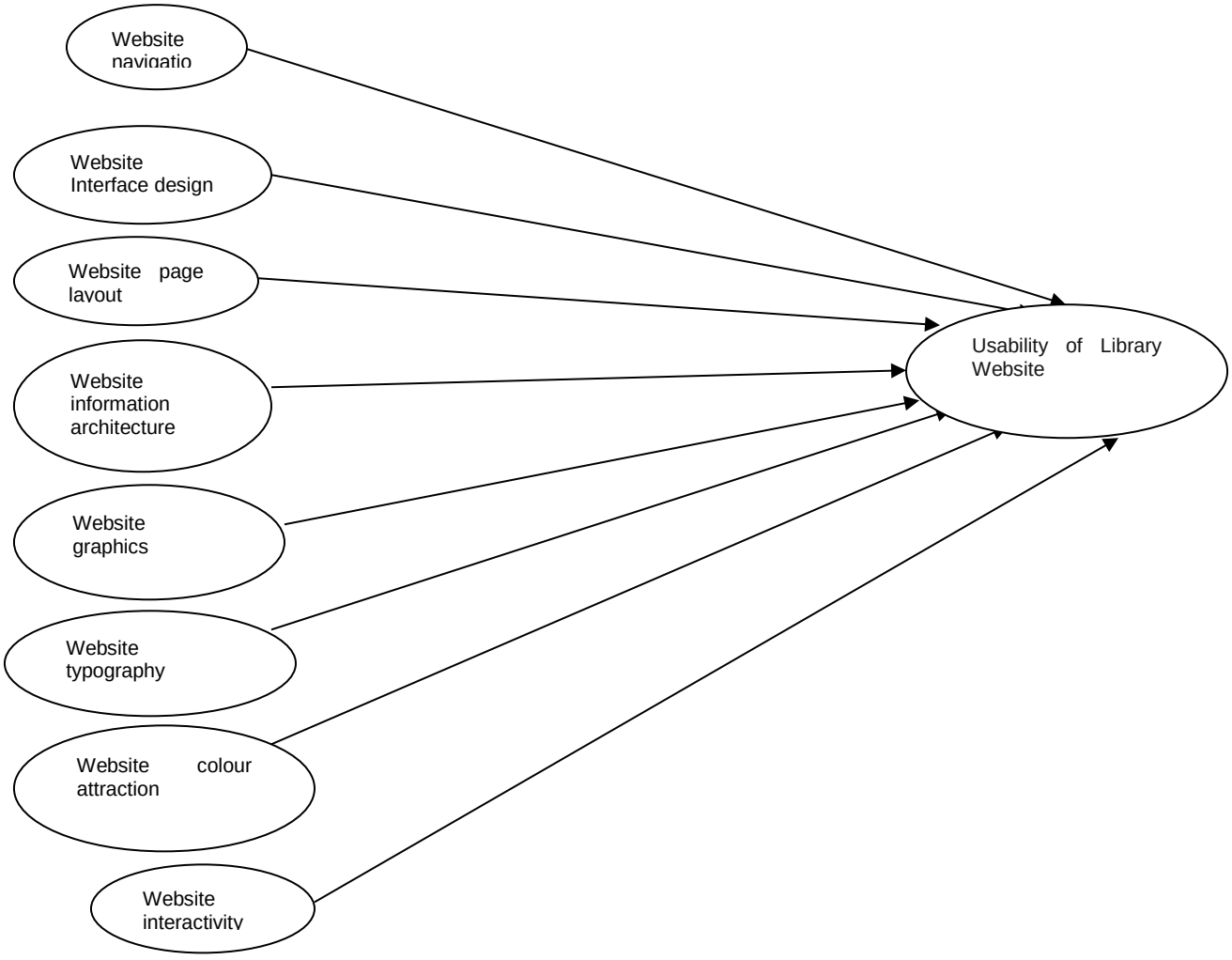

Figure 1: Conceptual Model of Library Website Usability

LITERATURE REVIEW

A technology's capability to be used easily and effectively by the specified range of users, given specified training and user support, to fulfill the specified range of tasks, within the specified range of environmental scenarios referred to the usability of that technology."Usability is measured of in which a system can be learned and used, its safety, effectiveness and efficiency and the attitude of its users towards it (Preece, 1994:15)." According to Zaphiris and Darin (2001),it is assumed that anyone using any kind of Web browsing technology must be able to visit any site and get a complete understanding of the information, as well as have the full and complete ability to interact with the site if that is necessary. Based on that perspective, usability refers to terms such as ease of use and ease of learning that implied providing users with systems requiring minimum cognitive and physical effort to accomplish users' needs and expectations (Sindhuja & Surajith, 2009).

Powell (2000) argued that Website usability is the extent to which a site can be used by specified group of users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use. In other words, the Website usability is a test on the successfulness of Website's user in doing some task or finding information on the Website (Yusof et. al, 2010). Usability of the website plays a central role in establishing a healthy communication between the university and its stakeholders. From the extant literature, several metrics or features of determining usability of Websites have been identified. Most of these have been used to evaluate usability of general Websites such as corporate websites, online shopping websites, e-commerce websites. The uniqueness of this study has to do with the fact that the features identified were rarely used particularly to evaluate educational websites such as the university library websites. It is on this note that eight features were chosen in order to see how they can best determine the usefulness of the university library websites. The eight features are hereby discussed in turn as follows.

Usability: From the literature, usability is regarded as a key factor affecting quality perceptions. Though, it is not easy to define usability because it is affected by type of users and type of tasks. The concept of usability has been examined and understood in terms of ease of use. TAM (Technology Acceptance Model) proposes that ease of use and usefulness predict attitude toward that technology and usage of that technology (Davis, 1989).

A *critical*, but often overlooked component of a *successful website* is its degree of usability. Usability is a quality attribute that assesses how easy user interfaces are to use. The word 'usability' also refers to methods for improving ease-of-use during the design process (Azadbakht, & Blair, 2017). Similarly, usability can be defined as the capability of a technology (library Website) to be easily and effectively used by users to perform a wide range of tasks for specific purposes (Mentes & Turan, 2012). Usability has been well explained in MIS researches. Usable system must be compatible with users' cognitive skills in communication, understanding, memory, and problem solving (Benbunan-Fich 2001). Usability could be measured using five attributes: learnability, efficiency, memorability, low errors, and subjective satisfaction (Nielson 1996). Loiacono et al. (2002) consider two distinct aspects of ease of use when it is applied to Web: ease

of understanding and ease of navigation. On the commercial Website, most users' main purpose of visiting Website is to purchase products/services, while on the educational Website such as university library Website, the main purpose of users visiting the Website might be for getting needed information. Therefore, usability of the Website should be understood in terms of not only user application but also transaction system. University library Website should make it easier for users to work their tasks, understand and read the information, and easy to order and access information materials from the library. Thus, we consider easy to use, usefulness, navigation, colour attraction, page layout and others as features of Website's usability. This is the criterion feature/variable in this study.

Navigation: Websites are great resources that allow users to access information at the touch of their fingertips (Lau, 2015). As such, it is crucial to ensure that Web links to important materials or forms are available and easy to find (John Hopkins University, 2018; McMillen & Pehrsson, 2009). In addition to creating easy navigational links, a Website should attempt to resolve to be simple in the organization of content on various services web pages, adding additional eye appealing graphics/pictures, incorporating necessary information for users, and eliminating unnecessary text heavy content. In the study titled *Study of the Usability of University Registrar's Office Website*, it was determined that minor changes in redesigning drop down menus and web banners increased user experience exponentially (Tuzun et al., 2013). This is especially true for a university library website that is frequently used by the registered users of the university. Thus, it is hypothesised in this study that:

1. There would be no significant the relationship between university Website usability and perception of it navigation.

Interface designs: Perception of user interfaces has become a topic of major interest in human computer interaction (Bargas-Avila & Hornb, 2011). User Interface (UI) Design focuses on anticipating what users might need to do and ensuring that the interface has elements that are easy to access, understand, and use to facilitate those actions. UI brings together concepts from interaction design, visual design, and information architecture (US Department of Health and Human Services, 2019). Interface design components of a website are significant to consider when designing a user-friendly, eye appealing, and successful web interface (Nilsson, 2017). Studies have shown that elements of background contrast, screen layout, color palette, and grouped items all can have a positive effect on usability (**Renee-**Garett**,** Chiu**, Ly,** Zhang, &Young**,** (2016; Foley, 2011). On the Web, users control the progress of their navigation through the pages. Internet sites need to support *user-controlled navigation* and help them manage large amounts of information. Additional elements such as pictures and graphics can also influence a product's appearance. Therefore, it hypothesised that:

2. There would be no significant relationship between university Website usability and perception of its interface design.

Page layouts: Web pages need to be designed to users who come from *different platform* such as small or big screen, slow modem or broadband and 'Explore' or 'Netscape' (Song & Sinkhan, 2003). Web page is more independent than print publication in terms of going directly to the specific information without reading preface. Therefore, *Web writing* should be hypertext link, clear, concise, and complete

enough to inform consumers properly of contents (Anderson, 2018). Most powerful technology of visual communication is *multimedia technology* combining text, graphics, sounds, and moving images to supplement the consumers' shopping experience. Thus is it hypothesized that:

3. There would be no significant the relationship between university Website usability and perception of it page layout.

Information architecture: The Internet can be a convenient place for potential consumers to gather information. Thus, Information access is key features of Website design. Consumers seek general information, product/service information, customer support information, customer service information (Breschi, 2018; Aladwani and Palvia 2002), complete information on particular products, and information to compare across alternatives (Ranganaghan and Ganapathy 2002). On the Internet, consumers do not have an opportunity to feel or touch the product or talk with sales people. Therefore, if they have unusual questions, they will leave the Website and visit other sites. Thus, it hypothesized that:

4. There would be no significant the relationship between university Website usability and perception of it information architecture.

Graphics: Inappropriate graphic designs may become distracting to users (Loh & Williams, 2002). This implies that graphics is an important metric of Website usability. Tan and Wei (2006), and Rao (2018) suggested that the graphical representations such as icons, colors, images and animations, give website a higher attractiveness. This could improve the degree of usability with the website (Zhang et. al, 2000). Thus, this study hypothesised that:

5. There is no significant relationship between university Website usability and perception of its graphics.

Typography:

6. There would be no significant the relationship between university Website usability and perception of it typography.

Colour attraction: From the literature, attractiveness is one of the key factors to a successful website (Khanna, 2018; Liu & Arnett, 2000). The best way to keep visitors glued to a site is through valuable content, good organization and attractive design (De-Souza, 2018). Attractiveness is the capability of the software product to be attractive to the user (e.g., through use of color or graphic design; ISO/IEC 9126-1, 2001). Website with good colour attraction are visually pleasant, and appeal the interest of the users, whether it is functionality or information. Tan and Wei (2006) argue that the appearance of a website is a crucial factor that improves the perception of information in order for subjects to perform better cognitive mapping and assessment of decisions for execution. Wide agreement exists concerning the unique effect of colors and their composition on aesthetic appraisal in general (Jennatha & Nidhish, 2016; Kawabata and Zeki, 2004; Solso, 2003) and with respect to the design of websites in particular (Cyr et al., 2010; Moshagen et al., 2009). Hence, it is hypothesised that:

7. There would be no significant relationship between university Website usability and perception of colour attraction.

Interactivity: Vernuccio et al.'s (2015) referred to Website interactivity as a communication process that presents Web user control and permits them to communicate with the service provider and other users. Website interactivity is a critical component in creating strong brands (Voorveld et al. 2013), a central aspect of technology-mediated communication. Therefore, website interactivity is a theoretical concept that deals with the basis of engagement and attraction that can be interpreted as a natural characteristic in technology-mediated communication (TMC) and human computer interaction (HCI) (Zeng, Tao, Yang & Tie, 2017; Chen & Yen 2004). As postulated by Jiang et al (2010, 2016), when purchasing online, consumers are involved in two vital elements of Website interactivity to acquire vital information of a product/service and to complete a purchase, specifically (1) system interactivity and (2) social interactivity. Therefore, it assumed in this study that usability of a university library Website could be determine by the perception of its interactivity. Hence, it is hypothesised that:

8. There would be no significant relationship between university Website usability and perception of its interactivity.

RESEARCH DESIGN

The study adopted a survey method. Survey is commonly used in LIS/information system research to collect self-report data from study participants. A survey may focus on factual information about individuals, or it might aim to collect the opinions of the survey takers. Survey design was considered appropriate in this study because, it gives room for the researcher to cover a substantial percentage of respondents (students) in the universities/departments that were covered in the study. Survey design method was adopted because it has been prominently used in previous related studies (Tella, 2019, Jiang et al. 2016; Voorveld et al. 2013).

Area of the study

The study covered two departments from two universities in Kwara State Nigeria: Department of Library and Information Science at the University of Ilorin; and Department of Library and Information Science, Kwara State University Malete, Ilorin. These two departments from the two universities were selected because the researcher is currently in charge of teaching the course Web Design and Management in one and an adjunct lecturer in the other. This course is a two-credit unit that enable the students to acquire the knowledge to design a stand out Website, the processes involved in creating it and the most cost-effective ways of maintaining and developing it, identifying what makes a successful Website, and able to recognise, discuss and critique the individual elements of a Website, planning a successful Website design/development project, etc.

Population of the study

The population of the study included all year 4 undergraduate students in the two departments mentioned above. Students from the year 4 of study were selected because they have completed the course on Web Design and Management assuming that they are the best respondents that understand the contents of this research and can respond to the items in the instrument for the data collection. The total enumerative method was adopted. This was due to the small size of the sample of

students in the participating departments. Total enumeration or census survey is a study of every unit, everyone, or everything, in a population. It is known as a total enumeration, which means a complete count. According to Babbie (2013), if a study population is small and less in number; it may be preferable to do a census of everyone in the population, rather than a sample. A census is attractive for small populations necessary for given combinations of precision, confidence levels, and variability (Kothari 2013; Creswell 2014). This approach has a high level of accuracy and provides a complete statistical coverage over space and time. In other words, the researcher sampled all the 187 undergraduates' year 4 students from the two departments covered in the study. This represents the sample for the study (See Table 1).

Table 1: Demographic distribution of respondents

Demographics	Frequency	Percent %
Gender Male	100	53.5
Female	87	45.5
Total	187	100
Age		
21-25 years	155	82.9
26-30 years	26	13.9
31-35 years	6	3.2
36 years +	0	0
Total	187	100.0
Institution		
LIS Department Uni. Of Ilorin	85	45.5
LIS Department, KWASU.	102	55.5
Total	187	100.0

Research instrument

The research instrument used for data collection in the study was questionnaire whose items were adapted from various previous related studies. This was used to gather data from the respondents. It was a closed ended type divided into two sections. Section1focused on demographic characteristics of the respondents. Section two is sub-divided into parts I-VIII with each section targeted at capturing data on the features focused in the study: navigation, interface designs, page layouts, information architecture, graphics, typography, color, interactivity. The section on Usability contains five items adapted from The Standardized User Experience Percentile Rank Questionnaire (SUPR-Q) by Jeff Sauro 2015. The section on Navigation also comprises of five items which were adapted from the same The Standardized User Experience Percentile Rank Questionnaire (SUPR-Q) by Jeff Sauro 2015; while the five items on interface design were adapted from (Thielsch and Moshagen (2015) Visual Aesthetics of Websites Inventory and Song and Zinkhan (2003) features of web site design, perceptions of web site quality, and patronage behavior. The five item son page layout

was adapted from. The five items on information architecture, the five Items on graphics and the five items on typography were all developed and informed by the literature. The five items on colour attraction were adapted from The Standardized User Experience Percentile Rank Questionnaire (SUPR-Q) by Jeff Sauro 2015. The eight items on Website interactivity were adapted from 18 items measure of perceived interactivity by McMillan and Hwang (2002). The entire 45 items in the questionnaire were measured on a five-point Liker type scale (from 5, strongly agree to 1, strongly disagree).

Validity and reliability of the instrument

To ensure the validity of the instrument used in the study, it was given to two experts whose research areas include information systems evaluation. The comments and suggestions led to the modification of the instrument thereby authenticating its face and content validity. The reliability of the instrument used was ensured through a test-re-test reliability method of two weeks interval. The responses collected were subjected to Cronbach Alpha. The Coefficient alpha reliability for each of the sub-scale of the questionnaire are as follows: Usability (5 items) r = 0.98; Website navigation (5 items) r = 0.83, Website interface design (5 items) r = 0.95;Website page layout (5 items) r = 0.91; Website information architecture (5 items) r = 0.95; Website graphics (5 items) r = 0.96; Website typography (5 items) r = 0.92;Website colour attraction (5 items) r = 0.93; and Website interactivity (5items) r = 0.93. The overall reliability co-efficient of the whole 45 items instrument returned an r = 0.93 Cronbach alpha. This high reliability confirmed the adequacy of the instrument for data collection in the study.

Table 2: Instrument Reliability Co-efficients

Sub-scale	Reliability Co-efficients
Usability	0.98
Website navigation	0.83
Website interface design	0.95
Website page layout	0.91
Website information architecture	0.95
Website graphics	0.96
Website typography	0.92
Website colour attraction	0.93
Website interactivity	0.93
Overall Reliability of the Instrument	0.93

Procedure for data collection

Prior to the administration of the instrument, the participants in this study i.e. the students from the two different universities had examined each other's' Website. They were given two weeks to navigate each other's university library Website and observe all that have been discussed in class. Thereafter, the copies of the questionnaire on Undergraduate Students' Perception of Usability Features with University Library Websites were administered. Respondents were given voluntary opportunity of participation in the study but eventually, none of them indicated intention to opt out because they found the exercise very interesting to them and they were all willing to associate with it. The instructions given to the respondents at the commencement of the administration made the exercise a very easy one. The exercise was carried out on

two different occasions during lesson on Web design and management course (LIS 403) offered at the year 4 first semester undergraduate Bachelor Degree programme in LIS programmed. The data for the Department of Library and Information Science, University of Ilorin year 4 students and those of year 4 students in Kwara State University were captured during the first semester 2018/19 academic session. The entire population of undergraduate students in Year 4 taken LIS 403 (Web Design and Management) in the selected departments, were administered the questionnaire. All the 187 copies of the instrument were properly completed and useful for data analysis. This gives a 100% return rate.

Method of data analysis

Descriptive and inferential statistics including percentage, correlation and multiple regression analysis were used to analyze the data. Pearson correlation method was used to examine the relationships between the dependent variable (usability perception of university library website) with the independent variables – navigation, interface designs, page layouts, information architecture, graphics, typography, color, interactivity) while regression analysis was used to find out the contribution of the independent variables to the dependent variable. A statistical package for social sciences (SPSS) version 21.0 for Windows was used for the coding of the collected data.

RESULTS

Table 3 reveals that relationship exists between the overall Website usability score and the other usability related factors/features of University Library Website. The results show that navigation had the highest correlation with usability (r = 0.89). This is followed by interface design (r = 0.79). A correlation of other factors reveals page layout (r = 0.76), information architecture (r= 0.65), and graphics as having (r = 0.55), typography (r = 0.45), colour attraction (r = 0.33) while service quality had the lowest correlation with usability(r = 0.31). This suggests that all these factors/features correlate with library Website usability or usefulness of library Website.

Table 3: Descriptive and Inter-correlational Matrix among Website Usability Features

Features	**Mean.**	**Std Dev.**	**Usa.**	**Nav.**	**Int. De.**	**Page L.**	**In.Arc .**	**Graphics.**	**Typ.**	**C.A.**	**Inter.**
Usability	122.50	20.412	1.000								
Navigation	18.02	8.670	.890	1.000	.678	.921	.843	.544	.233	.344	.445
Interface designs	21.01	8.02	.789	.567	1.000	.831	.754	.654	.334	.551	.564
Page layouts	17.23	7.96	.756	.663	.637	1.000	.667	.566	.312	.223	.312
Information archi.	16.44	7.77	.645	.556	.456	.507	1.000	.518	.322	.213	.123
Graphics	15.34	7.21	.554	.506	.435	.447	.503	1.000	.316	.204	.108
Typography	12.02	7.04	.448	.500	.412	.433	.501	.327	1.000	.201	.102
Colour Attraction	11.80	6.78	.332	.488	.406	.411	.498	.307	.306	1.000	.100
Interactivity	10.04	5.02	.312	.443	.400	.401	.460	.300	.297	.190	1.000

NOTE: Navigation, Interface Design, Page Layout, Information Architecture, Graphics, Typography, Colour Attractiveness, Interactivity.

Nevertheless, the results reveal that some correlations are higher than others. Among the highest inter-correlations that are higher than 0.5 are navigation with page layout(r =0.92) and interface design with page layout (r = 0.83) and page layout with

architectural design (r = 0.67). These high correlations are what should be expected, as users are likely to link navigation with page layout, interface design with page layout and page layout with architectural design.

The other similarly high inter-correlations (above 0.5) are between information architecture with navigation (r = 0.56), between graphics and navigation (r = 0.51), and typography and navigation (r = 0.50). A few other inter-correlations are very close to 0.5. Among these are: navigation and interactivity (r = 0.45) and with graphics and page layout (r = 0.45), and typography and page layout (0.43).

However, some factors had much lower inter-correlations with one another: colour attraction with interactivity(r = 0.10), typography with interactivity (r = 0.10), and graphics with interactivity (r = 0.11); information architecture with interactivity (r = 0.12), interactivity and colour attraction (r = 0.19), graphics and colour attraction (r = 0.20), information architecture and colour attraction (r =0.21), and interactivity with colour attraction (r =0.23). These results indicate that the students' perceptions and ratings of typography, colour attraction and interactivity were low, which probably also explains why these features are also weakly correlated with the usability as reflected on the table.

Model summary

Table 4: Regression of User Satisfaction on Blackboard system-relatedfactors (N = 503)

Multiple R	.832
R Square	.622
Adjusted R Square	.523
Std. Error of the Estimate	5.744
Log-likelihood Function Value	-1621.108

Table 4 presents the results of the regression of user satisfaction on the eight usability-related variables/features. The regression results show an adjusted R-square value of 0.523 Table 4, and an F-ratio of 27.763 Table 5, the latter of which is significant at 0.05 level (0.000 < 0.05). These results indicate that the eight independent variables (***Navigation, Interface Design, Page Layout, Information Architecture, Graphics, Typography, Colour Attractiveness, Interactivity***) jointly (as indicated by the R-square value) explained or predicted 52.3% of the variations in the usability/usefulness of university library Website. The prediction is also significant, as indicated by the F-ratio.

Table 5: ANOVA

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	14113.145	8	1.764.1431	27.763	.000
Residual	11374.270	179	63.543		
Total	25.4874.15	187			

Table 6: Coefficients

	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta	Std. Error	T	Sig.
Usability (Constant)	-.898	.867		.057	-.991	.368
Navigation	.567	.082	.244	.051	8.22	.000
Interface designs	.465	.080	.226	.046	4.44	.000
Page layouts	.423	.068	.201	.041	5.32	.000
Information archi.	.341	.061	.198	.038	2.88	.000
Graphics	.311	.056	.182	.031	2.66	.000
Typography	.301	.048	.164	.027	2.15	.006
Color Attraction	.289	.037	.122	.022	2.11	.005
Interactivity	.211	.031	.118	.018	1.78	.001

Table 6 provides information on the individual contributions of each of the eight features in predicting usability or usefulness of university library Website. The results show, firstly, that each of the features makes significant contributions to the prediction (as indicated by the significance of the t values, which are less than 0.05, as shown in the rightmost column of the table.

Secondly, the standardised coefficients (Beta values) which indicate relative strength of each feature in the prediction of usability/usefulness of the library Website show that navigation contributed most to the prediction of usefulness/usability (Beta value = .244), followed in declining order of strength by interface design (Beta = .226), page layout (Beta = .201), information architecture (Beta = .198), graphics (Beta = .182), typography (Beta = .164), Colour attraction (Beta = 122), and interactivity (Beta = 118). These results imply that all the eight factors/features exert significant contribution to the prediction of university library Website usability/usefulness.

CONCLUSION

The results show that navigation had the highest correlation with usability followed by interface design. Correlation also exists among other factors such as page layout, information architecture, and graphics, typography, colour attraction; while service quality had the lowest correlation with usability. This suggests that all these factors/features correlate with library Website usability or usefulness of library Website. Navigation has been reported to be one of the important factors/variables measure Websites' usability (Tuzun et al., 2013). No wonder its highest correlation with Website usability in this current study. However, the similarity in the results of the two studies might be connected with similarity in the scale and settings where the studies were conducted.

The eight independent variables (Navigation, Interface Design, Page Layout, Information Architecture, Graphics, Typography, Colour Attractiveness, and Interactivity) jointly (as indicated by the R-square value) explained or predicted 52.3% of the variations in the usability/usefulness of university library Website. This is in agreement with Mentes and

Turan (2012) who revealed that five of the six factors (attractiveness, controllability, helpfulness, efficiency and learnability) in their study positively and significantly affect the website usability perceptions of NKU members. There is a similar scenario except that this study identified eight factors compare to Mentes and Turan six factors. In addition, only attractiveness is relevant to the factors in this study. This gives another impression that confirms that several factors are available to measure Websites' usability.

Navigation contributed most to the prediction of usefulness/usability followed in declining order of strength by interface design, page layout, information architecture, graphics, typography, Colour attraction, and interactivity. All the eight factors/features exert significant contribution to the prediction of university library Website usability/usefulness. As earlier indicated navigation is an important variable in measuring Website usually, therefore having the highest contribution to Website usability is not a coincidence.

This study has examined a relational analysis of the usability features of university library features in Nigeria. The study has revealed among others that usability of a university library website is premise on factors such as Navigation, Interface Design, Page Layout, Information Architecture, Graphics, Typography, Colour Attractiveness, and Interactivity. This study has demonstrated that the combination of the eight variables explain 52.3%of the variance in usability features of university library websites. These results show that navigation of library website contributed mostly to the prediction of LIS students' usability perception of university library website, followed by interface design, page layout, information architecture, graphics, typography, Colour attraction, and interactivity. Though the findings may not be applicable to other university library websites but this depend on the experience of the users. The results call for formidable efforts to improve the users experience on the web, because the usability perception counts as it is considered to be usually last long. Similarly, the designers of university library websites are encouraged to work more on the interface design, page layout and information architecture as all of them return lower correlation with the usability of library website.

From the findings of the study, it can be infer that improving the usability of library Website in part is one of the ways of revitalisng the library. Improving the interface design, page layout and information architecture and others are process of making the library Website usable. Revitalisng the library Website by way of improving its usability is considered laudable project that Universities the world over must pursue.

IMPLICATIONS

This usability study helped develop a well organized and aesthetically appealing library website increased user satisfaction, optimized user experience, and allowed individuals to independently access information with greater ease. Another benefit gained from this usability study included reducing the number of ask a librarian reference queries to work more efficiently. By enhancing this website, it is hoped that other University of in

Nigeria will soon follow in order to improve and enhance user web experiences to promote the University library as a whole.

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