SosPoly: Journal of Science & Agriculture, Vol. 6(1&2), Dec., 23, ISSN: p2536-7161, e2714-3171
Available Online At http://uaspolysok.edu.ng/sospolyjsa/

USABILITY EVALUATION OF POLYTECHNICS AND COLLEGES OF EDUCATION WEBSITES IN NORTHWEST NIGERIA

Nafisa Sanusi Umar
National Open University of Nigeria, Sokoto Study Center
nafisasanusiumar84@gmail.com
Mansur Aliyu
Department of Computer Science, Sokoto State University

ABSTRACT
Usability evaluation of websites is necessary to guarantee good utilization and access to the website's content. The study assessed the usability of polytechnics and college education websites in Northwest Nigeria. Ten websites from each institution were identified and examined for the study. The study used a heuristic evaluation method to identify user interface design problems. The following usability features were used for the study: Functionality, Navigation, Interactivity, Attractiveness, Organization and Security/Privacy. The result shows that seven of the ten polytechnic websites examined have a 50% and above total usability score. One polytechnic website obtained the highest usability score of 77.6%, followed by two websites with the same score of 62.8%. For colleges of education websites, five of the ten websites examined have a total usability score of 50%; one website obtained the highest score of 66.6%, followed by one website with a score of 61%, and three websites scored the lowest score of below 50%. The study concludes that regular evaluation of the institution is key to maintaining the website's ability to satisfy and support users in achieving their academic goals and participating successfully with other standard academic websites.

Keywords: Usability Evaluation; Polytechnics website; Colleges of Education Websites.

INTRODUCTION

Polytechnics and College of Education websites play an essential role and act as an interface between the institution and diverse users as they enable the dissemination of information to the public. The primary purpose of academic websites is to enable prospective students to learn about the institution, courses offered, syllabus of each course, requirements for admission, research groups and publications, career counseling services, disability services, library services, financial aids, employment opportunities, policies, news updates etc. These services and many others have helped institutions reduce costs, improve service delivery, increase prospective student participation, and improve decision-making on which institution and program to apply. With the list of services these websites offer, the question of their usability and security is essential. The dream behind the web is to provide a common information space for communication and sharing of resources irrespective of disability or any other restrictions. As the need for information dissemination and the quest to remain competitive and globally visible increases, most institutions worldwide now have dynamic websites. With the widespread adoption of this technology, not all design requirements have been implemented to enhance and improve the use of these websites by all users.

Usability Evaluation focuses on how well students and visitors can learn and use a website to achieve their goals. Conducting usability evaluation is essential in taking websites to the next level when reaching the desired target and getting ahead of the competition. We all have experienced at least one site where the layout made no sense to us, you could not find anything you

were looking for (even if you knew the content was available on that site), and you kept getting errors or unnecessary redirects. And chances are, whenever you come across a site like that, you decide to move on to the next option on your search engine results page. Usability evaluations allow you to minimize and nearly eliminate the possibility of that happening when students and visitors view you by showing you where your design, categorization and layout are lacking. It gives you a better understanding of your target's thoughts, showing you how best to develop and optimize your site. The core principle behind a well-optimized site is a user-centered design, so you should start doing usability evaluation tests as early as possible and as often as possible.

Polytechnics are technical and vocational tertiary institutions that offer education in a particular line of study. The major aim of polytechnics is to provide education that will improve their students' practical and technical skills. As stated in the National Policy on Education regarding technology and technical education, polytechnics are integral to Nigeria's tertiary education level.

They offer multiple academic programs under the National Diploma (N.D.) and the Higher National Diploma (HND. All polytechnic programs ought to be approved by the National Board for Technical Education (NBTE). Therefore, candidates must ensure that the course they are applying for in a school is recognized by law. Colleges of education train students in their chosen careers as vocational teachers and for self-reliance. The colleges run Nigerian Certificate in Education(NCE) and degree programs in education in some colleges, and they are fast expanding with a wide range of courses.

Statement of the Problem

Website usability shows the extent to which users find a particular website easy to use and efficiently perform a specific task satisfactorily, courtesy of its content-rich-information resources and the visual appeal of its aesthetic qualities. By this clarification, an academic institution's website is considered usable when users can do their intended task without any frustration, making sense of users' ease of carrying out information search tasks on the institution's website. The rationale behind the present research work is to assess how the websites under study have structured their sites to serve the purpose they are supposed to serve effectively. Therefore, the study evaluates the usability of Polytechnic and College of education websites in northwest Nigeria, using six usability features: Functionality, navigation, interactivity, Attractiveness, organization, and security/privacy.

Objectives of the study

Generally, the objective of the study is to examine the usability of polytechnics and colleges of education websites in Northwest Nigeria; specifically, the study assessed:

- To evaluate the following usability factors of Polytechnics and Colleges of Education Websites in Northwest Nigeria.

LITERATURE REVIEW

Polytechnics and colleges of education websites are essential information infrastructure that ensures remote access to institution information resources and services in cyberspace. The Polytechnic and College of Education website is no longer seen as an extra service but an essential part of a significant campaign for widespread information services. Incidentally, the Polytechnic and College of Education website must be well developed with rich content and a good design layout that ensures the user's ease of use (Velasquez and Evans, 2018).

Website evaluation has been a significant concern right from inception. Still, the evaluation criteria keep changing with time and technological advancement, such that there is hardly any fixed

or globally accepted evaluation criteria since there are various dimensions to its evaluation process. On the other hand, the evaluation of the Polytechnic and College of Education websites is not much different from university collection evaluation since focus and emphasis are placed on content quality and ease of accessibility. The university website is task-oriented and requires regular evaluation of its information content and the visual appeal of its design and layout, which are subject to users' impressions of the website (Anyaoku and Akpojotor, 2020). The rationale behind the evaluation process was essential to ensure users were furnished with timely and accurate information and to design user-centered polytechnics and college websites to maximize usability, hinted-at information structure, simple display layout, consistency, user feedback and ease of navigation.

In contrast, usability in this context denotes ease of use, which must be considered when designing Polytechnic and College of Education websites (Kous et al., 2018). Polytechnic and College of Education website evaluation is an emerging study area among LIS professionals. The parameters for measuring its usability include content quality analysis and aesthetic feature quality for display layout (Devi and Verma, 2018). The Polytechnic and College of Education website's usability is essential in making its content visible to users. Hence, evaluation criteria deal with how well users interact with the institution's information system. It is one step towards improving ease of use from the design and development stage or process.

The aesthetic quality of polytechnic and college websites encompasses the layout, presentation of content, color separation, graphics design and the website's visual appearance. Majumder and Bose argue that websites may be visually and structurally overwhelming, but what determines the best aesthetics for polytechnics and College of Education websites depends mainly on the categories of users that both institutions are to serve (Majumder and Bose, 2015). Suppose the polytechnics and College of Education websites truly symbolize the institution's luxury. In that case, it should be a repertoire with accurate information without compromising the invigorating features that make the website attractive to users. This implies that there must be a balance between design and content. This expression perfectly aligns with Polger's position that polytechnics and college websites should adhere to design trends and etiquette without compromising content accessibility and organization (Polger, 2011). Aesthetic features of polytechnic and college websites that can encourage a high level of both institution websites utilization include but are not limited to ease of navigation, loading speed, graphic design, catalog accessibility, downloading speed and many more that constitute website attributes, which stimulate these institution websites credibility in the mind of users (Chow 2014). The aesthetic appearance of these institution websites posited the first impression on the minds of users, and this will go a long way in determining whether or not the user will reinforce their patronage of the institution's website.

In a nutshell, polytechnics and College of Education websites should be designed with a particular focus on users' understanding of accessibility and users' friendliness. Be as that may be, there should be a match between the system and real-life situations, an improvement in user control and freedom, ensuring consistency and standards, provision for user support, diagnosis and recovery from errors, improved aesthetic features and minimalist design. Also, Majumber and Bose stressed that polytechnics and College of education websites should be furnished with helping aids such as frequently asked questions (FAQ), user feedback, site maps, search tools and other emerging tools that aid users in getting help and fulfillment in patronizing the institution's website (Majumder and Bose, 2015). There are various standards by which website qualities are measured, including reliability, ease of access, navigation, search bar, recent/current information, and authority. Technically speaking, the polytechnics and college websites ranked very high in their aesthetic

qualities and would most likely have their content presented more professionally. Logical layout and strategic and professional use of color and graphics would invoke confidence and convey professionalism, which would convince users to want to stay on the institution's website for a long and recommend the library website to other potential users.

Usability is defined in different terms by multiple researchers. Shackel (2009) describes usability as "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." According to Preece (1994) "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." Zaphiris and Darin (2001) define web usability as "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 complete ability to interact with the site if that is necessary." Usability refers to terms such as ease of use and ease of learning that imply providing users with systems requiring minimum cognitive and physical effort to accomplish users' needs and expectations (Sindhuja and Surajith, 2009). Powell (2000) argues website usability is "the extent to which a specified group of users can use a site to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use." In other words, website usability is a test of the success of a website's user in doing some task or finding information on the website. (Yusof et. al, 2010). The website's usability is central to establishing healthy communication between the institutions and their stakeholders.

The healthy communication between the institution's management and the stakeholders can undoubtedly contribute to the governance of the institutions in many ways. First, a well-managed website with high usability can stimulate a healthy dialogue between the institutions and stakeholders. Dialogue lies at the heart of communication and plays a central role (Gutierrez-Garcia, 2008). Listening to the stakeholders' concerns will allow institution administrations to make well-planned decisions.

Thus, another contribution of dialogue with the stakeholders is the reduction of conflicts due to the increased confidence between the parties (Burchell and Cook, 2008). The engagement established on a healthy dialogue with stakeholders may lead to the inclusion of stakeholder demands and expectations to become a part of decisions made by the university administrators (Steinmann and Zerfaß, 1993). Including the stakeholders' expectations shaped via dialogue in the decision process will add value to good governance practices. Focusing on stakeholders with legitimate expectations and managing their relationships will contribute towards transparency (Columbine, 2009), which is the fundamental ingredient of good governance. There are numerous tests for evaluating website usability. Some examples are QUIS (Questionnaire for User Interface Satisfaction), SUMI (Software Usability Measurement Inventory), and NIST Web Metrics (The National Institute of Standards and Technology Web Metrics). More recently developed questionnaires to measure user satisfaction with websites are MUMMS (Measuring the Usability of Multimedia), which assesses multimedia software, and WAMMI, which assesses websites (Levi and Conrad, 2001). WAMMI is one of the most popular evaluation tools for websites. It was developed by Human Factors Research Group (HFRG) in 1999. WAMMI is based on a questionnaire from website visitors and measures how useful and easy it is to use the visitors to find the site (Claridge and Kirakowski, 2011).

METHODOLOGY

This study used an analytical survey method to collect data. The data-collecting tool is a usability checklist; the statistical population comprises polytechnics and colleges of education websites in northwest Nigeria. The data collection method was direct access to each website, and the checklist was filled out based on the researcher's observation. A simple percentage was used to evaluate the usability of various websites by applying six usability factors: Functionality, Navigation, interactivity, Attractiveness, Organization and Security/Privacy. Each checklist statement was checked to identify based on the 5-point Likert scale, where one represented 'strongly disagree,' 2 represented 'disagree,' 3 represented 'neutral,' four represented 'agree,' and five represented 'strongly agree.' From the thirteen polytechnic websites and twelve colleges of education websites in northwest Nigeria, only ten websites from each institution were identified and examined for the study.

Data Collection Instruments

The instrument for data collection includes both a checklist and a questionnaire. The instrument used for data collection in this study was a heuristic checklist, which was used to evaluate websites based on specific usability principles. The heuristic checklist has evaluated aspects like functionality, navigation, interactivity, Attractiveness, organization, and security/privacy. A questionnaire was used to collect user feedback on the usability of the websites. The questionnaire had a single section, and each usability factor was evaluated with multiple questions. The functionality section of the questionnaire included questions about the functionality of the website's features and the functionality of the website's interface. The navigation section included questions about the clarity of the website's navigation system, ease of finding information, and the number of clicks required to navigate the website. The interactivity section included questions about the engagement of the website's features, the ease of interacting with a website and responsiveness of the website's interface. The questionnaire's attractiveness section included questions about the website's visual appeal, the clarity of the website's visual design and the consistency of the website's visual elements. The organization section of the questionnaire included questions about the structure of the website information, the consistency of the website's organization across pages and the clarity of the website's organization. The security/privacy section of the questionnaire included questions about the security of the website, the privacy policy of the website, the spyware policy of the website and the affiliation program available. "The questions were rated on a 5-point Likert scale.

Population and Sample

The population targeted in this study was all polytechnics and colleges of education in Nigeria. The population for this study consisted of all polytechnic and college education students in Nigeria. There are 159 polytechnics in Nigeria; to achieve the research objectives, due to time factors and resource constraints, this study will focus on only ten state and federal polytechnics, and the ten colleges of education in northwest Nigeria will be examined. There are 37 federal and 51 state-owned polytechnics in Nigeria. At the same time, there are 152 colleges of education in Nigeria, consisting of 27 federal, 82 private and 54 state colleges of education in Nigeria.

Table 1: list of polytechnics in northwest Nigeria

S. N.	Name of institution	Abbreviation	State	Ownership	Url:
1	Airforce Institute Of Technology Kaduna	AFIT	Kaduna	federal	https://.afit.edu.ng
2	Kaduna Polytechnic	KADPOLY	Kaduna	federal	https://kadunapoly.edu.ng

3	Nuhu Bamalli Polytechnic, Zaria	NUBAPOLY	Kaduna	State	https://nubapoly.edu.ng
4	Kano State Polytechnic	KANOPOLY	Kano	State	https://kanopoly.edu.ng
5	Waziri Umaru Federal Polytechnic, Birnin Kebbi	WUFPBK	Kebbi	federal	https://wufpbk.edu.ng
6	Kebbi State Polytechnic, Dakin Gari	KESPODAK	Kebbi	State	https:kespodak.edu.ng
7	Federal Polytechnic Kaura Namoda	FEDPONAM	Federal	Zamfara	https://fedponam.edu.ng
8	Abdu Gusau Polytechnic, T/Mafara	AGPMAFARA	State	Zamfara	https://agpmafara.edu.ng
9	Hassan Usman Katsina Polytechnic	HUKPOLY		Katsina	https://hukpoly.edu.ng
10	Umaru Ali Shinkafi Polytechnic	SOSPOLY	State	Sokoto	www.sospoly.edu.ng

Table 2: List of Colleges of Education in Northwest Nigeria

S/N	Name of institution	Abbreviation	State	Ownership	Url:
1	Federal College Of Education Technical, Bichi	FCETBICHI	Kano	Federal	Htpps://fcetbichi.edu.ng
2	Saadatu Rimi College Of Education, Kumbotso	SRCOE	Kano	State	Htpps://www.srcoe.edu.ng
3	Federal College Of Education Technical, Gusau	FCETGUSAU	Zamfara	Federal	https://fcetgusau.edu.ng
4	Zamfara State College Of Education, Maru	ZCOEMARU	Zamfara	State	https://zcoemaru.edu.ng
5	Federal College Of Education, Katsina	FCEKATSINA	Katsina	Federal	https://fcekatina.edu.ng
6	Isah Kaita College Of Education, Dutsin-Ma	IKCOEDM	Katsina	State	https://ikcoedm.edu.ng
7	Federal College Of Education, Zaria	FCEZARIA	Kaduna	Federal	https://fcezaria.edu.ng
8	Adamu Augie College Of Education, Argungu	AACOE	Kebbi	State	https://www.aacoeargungu.edu.ng
9	Jigawa State College Of Education, Gumel	JSCOEG	Jigawa	State	https://jscoeg.edu.ng
10	Shehu Shagari College Of Education, Sokoto	SSCOE	Sokoto	State	htpps://www.sscoe.edu,ng

DISCUSSION OF FINDINGS

The result revealed the following significant findings. Evaluating polytechnics and colleges of education websites, focusing on crucial design factors can effectively shed light on the ability of a website to meet the needs of the website users. Usability factors of polytechnics and colleges of education websites in northwest Nigeria were evaluated using the following factors.

1. Functionality

Results on summary of the design functionality scores for each polytechnics websites study shows that four of the websites scored above 70%, AFIT scored the highest score with a score of 91%, followed by NUBAPOLY and KANOPOLY with a score of 80 and 81, respectively and AGPMAFARA score scored 60% and KESPODAK and HUKPOLY scored above 60%.

A study of colleges of education websites shows that only five websites scored above 70%. Regarding design functionality, FCETBICHI scored the highest, with a score of 80%, and four websites scored 60% or above. Examination of the individual items shows that the design functionality of the College's websites was rated very high, but there are still some areas for improvement in other websites. For ease of use all the websites studied have simple designs that facilitate ease of use.

2. Navigation

A summary of the total scores of polytechnics websites shows that three of the ten websites scored above 60%, the AFIT website scored the highest score with a score of 83.6, the SOSPOLY website scored 78.2%, NUBAPOLY scored 76.4%, and three websites scored above 50%. AGPMAFARA scored the lowest, with a score of 43.6%. The College of Education study shows that only four of the ten websites scored above 60% in design navigation. The SSCOE website had the highest score of 69.1%, and three websites scored 50% and above—two websites, SRCOE and KSCOE, scored below 50%, the lowest score.

Examination of the individual items shows that most websites stated the purpose of the website. Only AGPMAFARA has not stated the purpose of the websites. This study finding agrees with the findings of Sahni and Dubey (2014) that some websites never explain or tell users what the site is all about. The majority do not have a site map. The lack of some features will make website users fail to meet the user demand and expectations. Therefore, institutional websites should go through several design guidelines to ensure that users are more satisfied with the services provided by these websites.

3. Interactivity

The study results show poor interactive features of the polytechnic websites; only the AFIT website scored the highest score, 52%, and other websites scored below 50%. For colleges of education, the study shows poor interactivity features; all the websites scored below 50%. Examination of the individual items shows that most websites do not have a Q&A option, FAQ option, feedback option, Text chart option, email alert and current events /news update. Still, very few have links to other social media (e.g., Facebook, Twitter). The implication is that these websites have not provided interactive platforms and do not offer web-based digital reference services. Researchers, current and prospective students, will generally benefit if the website has feedback pages to communicate with users and address their concerns by including them in enhancing its services.

4. Attractiveness

For Attractiveness, a summary of the total scores of the polytechnic websites study shows that six of the ten websites scored above 70%, AFIT scored the highest with 95%, and three websites scored 80%. For colleges of education, a study shows that three of the ten websites scored above 70%. AACOE scored the highest with a score of 88.3%, followed by SSCOE website with a score of 85%, three websites scored above 60% and two websites scored the lowest score with a score of below 50%. The study shows that in terms of Attractiveness, almost all the websites were rated very high. The websites were attractive to facilitate ease of use and attract more users. The attractiveness feature items include: Good use of icons, Good use of font size, Good use of colors, Good use of animation and so on.

5. Organization

Result of the study of polytechnics shows that five of the ten polytechnics websites scored below 50%, four websites AFIT, FEDPONAM, AGPMAFARA AND SOSPOLY, scored the highest score with a score of 68.5%, followed by HUKPOLY website with a score of 54.2%. For colleges of education, the study shows poor organizational features; all the websites scored below 50%. The organizational feature items include About Us information, Contact Us details, etc. The implication is that these websites do not provide positive information about their sites. It's important to note that

a poorly designed website can lose 50% of prospective users and that when people cannot find what they want,40% of users do not return to that site since the first experience is negative (Herly, McCarthy & Souza,1998)

6. Security/Privacy

The results of the study of both polytechnics and colleges of education in terms of security/privacy were poor. Only two websites, AFIT and SSCOE, of all the institutions scored 62.5% and 65%, respectively, and all the websites scored below 50%. The study shows that a minority of Northwest Nigeria's polytechnics and colleges of education websites were found to secure their website. The findings reveal that the designer of a minority of websites is considered essential. This is alarming, given the pervasive cyber insecurity challenge in the country (Ubabukoh, 2016).

Table 1: Polytechnics website Design factors Usability evaluation results

	AFIT	KADPOLY	NUBAPOLY	KANOPOLY	WUFPBK	KESPODAK	FEDPONAM	AGPMAFARA	HUKPOLY	SOSPOLY	AVERAGE SCORE
Design Functionality (ITEMS 11)	(90.9%) 50	(80%) 44	(81.8%) 45	(72.7%) 40	78.2% 43	(65.4%) 36	(70.9%) 39	(60%) 33	(63.6%) 35	(78.2%) 43	88.6
Design Navigation (ITEMS 11)	(83.6%) 46	(69.1%) 38	(76.4%) 42	(54.5%) 30	(65.4%) 36	(56.3%) 31	(52.7%) 29	(43.6%) 24	(65.4%) 36	(78.2%) 43	76
Design Interactivity (ITEMS 9)	(51.9%) 23	(28.1%) 13	(40%) 18	(22.2%) 10	(37.7%) 17	(35.5%) 16	(37.7%) 17	(51.1%) 23	(42.2%) 19	(37.7%) 17	44.2
Design Attractiveness (ITEMS 12)	(95%) 57	(73.3%) 44	(78.3%) 47	(78.3%) 47	(75%) 45	(70%) 42	(80%) 48	(80%) 48	(76.6%) 46	(80%) 48	80
Design Organization (ITEMS 7)	(68.5%) 24	(34.2%) 12	(45.7%) 16	(34.2%) 12	(45.7%) 16	(48.5%) 17	(68.5%) 24	(68.5%) 14	(54.2%) 19	(68.5%) 14	61.1
Design Security/Privacy (ITEMS 8)	(62.5%) 25	(40%) 16	(35%) 14	(30.%) 12	(40%) 16	(35%) 14	(30%) 12	(27.5%) 11	(40%) 16	(42.5%) 17	44.2
TOTAL USABILITY SCORE (ITEMS 58)	**77.6%**	**57.6%**	**62.8%**	**52.1%**	**57.7%**	**53.8%**	**58.3%**	**52.8%**	**59%**	**62.8%**	**65.7**

Table 2: Colleges of education websites Design factors Usability evaluation results

	FCETBICHI	SRCOE	FCETGUSAU	ZCOEMARU	FCEKATSINA	IKCOEDM	KSCOE	AACOE	JSCOEG	SSCOE	AVERAGE SCORE

Design Functionality (11 items)	(80%) 44	(60%) 33	(72.7%) 40	(60%) 33	(74.5%) 41	(70.9%) 39	(63.6%) 35	(78.1%) 43	(63.6%) 35	(76.3%) 42	70
Design Navigation (11 items)	(65.4%) 36	(45.4%) 25	(54.5%) 30	(54.5%) 33	(63.6%) 35	(67.2%) 37	(38.1%) 21	(65.4%) 36	(50%) 28	(69.1%) 38	57.3
Design Interactivity (9 items)	(48.8%) 22	(37.7%) 17	(31.1%) 14	(26.6%) 12	(48.8%) 22	(42.2%) 19	(31.1%) 14	(31.1%) 14	(33.3%) 15	(44.4%) 20	37.5
Design Attractiveness 12	(61.6%) 37	(75%) 45	(71.6%) 43	(48.3%) 29	(65%) 39	(68.3%) 41	(41.6%) 25	(88.3%) 53	(71.6%) 43	(85%) 51	67.6
Design Organization (7 items)	(42.8%) 15	(34.2%) 12	(42.8%) 15	(25.7%) 9	(37.1%) 13	(40%) 14	(34.2%) 12	(48.6%) 17	(45%) 16	(45%) 16	40
Design Security/Privacy (8 items)	(35%) 14	(30%) 12	(30%) 12	(30%) 12	(30%) 12	(32.5%) 13	(27.5%) 11	(35%) 14	(30%) 12	(65%) 26	31.5
TOTAL USABILITY SCORE (58 items)	**57.9%**	**49.6%**	**53.1%**	**40.4**	**55.9%**	**56.2%**	**40.7%**	**61%**	**51.4%**	**66.6%**	**50.7**

Comparing Polytechnics and Colleges of Education Websites

Based on the data analysis, the following findings emerged. Regarding functionality, the average score is 88.6% of Northwest Nigeria's polytechnics, and 76% of Nigeria's colleges of education have an essential web presence. It's rated very high in terms of Attractiveness. However, it shows that most institutional websites in Northwest Nigeria's polytechnics and colleges of education were excellent in usability. Regarding organization, polytechnics websites were rated high, with an average score of 61.1% and colleges of education with 40%. Most of the websites of colleges of education lacked some features of design organization. Most of the websites in Northwest Nigeria Polytechnics and Colleges of Education were found to be poor in their social media. This shows that these websites lacked adequate connectivity to large social media networks like Facebook, Twitter, Instagram, etc. A minority of Northwest Nigeria's polytechnics and colleges of education websites were found to be good enough in terms of security. This concludes that polytechnic websites were rated high for every design factor.

Table 3: Average Score of Polytechnic and COE Websites

Design features	Polytechnic website's average score	College of Education website average score
Functionality	88.6	70
Navigation	76	57.3
Interactivity	44.2	37.5
Attractiveness	80	67.6
Organization	61.1	40
Security/privacy	44.2	31.5
Total average score	65.7	50.7

CONCLUSIONS

The study shows that all the polytechnics and colleges of education in Northwest Nigeria have a website. However, usability examinations show that these websites need improvements in many aspects of usability; these websites can serve their users better by improving on the areas of deficiencies identified in the study. Globally, the purpose of academic websites is to enable prospective students to learn about the institution and members of the institution community at large in pursuit of their academic and professional goals. It's worth noting that regular evaluation of academic websites is crucial to the usability of the website to satisfy these goals and a

RECOMMENDATIONS

Based on the significant findings of the study, the following recommendations are made:

1. The attention of the developers of these institutional websites and the stakeholders in these institutions need to be shifted towards improving their weak points while not relenting in maintaining their strong points in website quality.
2. Both institutional websites should improve in the following areas of navigation: making the the navigation menu easier to find and use, using consistent and intuitive navigation labels, providing clear and concise directions for users to follow, including a sitemap option and making sure all links work correctly and go to the correct page.
3. Both institutional websites should improve their website security by ensuring that they have a valid certificate that helps protect user data and information. I would also recommend that the websites use strong passwords and two-factor authentication for added security. Additionally, having a clear privacy policy that explains how user data is collected and used would be helpful.
4. Most of the websites of the polytechnics and colleges of education were not at the time of data collection taking social media sufficiently seriously despite full evidence of the great amount of time Nigerian youth spend on social media, as noted by Adaugo et al. (2015). The youth must undoubtedly be a key target audience for Nigerian polytechnics and colleges of education.
5. Based on the significant findings of the study, in terms of organization for some of the websites, these are my recommendations: include a summary of the organization, include details about the organization's mission values and history, include information about the organization's management board of directors and key people, and include multiple ways for users to contact the organization.

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APPENDIX: QUESTIONNAIRE

USABILITY EVALUATION OF POLYTECHNICS AND COLLEGE OF EDUCATION WEBSITES IN NORTHWEST NIGERIA QUESTIONNAIRE

NAME OF INSTITUTION: ----------

DESIGN FUNCTIONALITY	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
Quick home page loading	1	2	3	4	5
Good download speed	1	2	3	4	5
Good overall structure	1	2	3	4	5
No broken links	1	2	3	4	5
No download error	1	2	3	4	5
Content management option	1	2	3	4	5
The website indicates loading/responding on time	1	2	3	4	5
The website supports different browsers	1	2	3	4	5
It provides all the functions needed to find information	1	2	3	4	5
The website supports different platform	1	2	3	4	5
The website is accessible anytime/anywhere	1	2	3	4	5
DESIGN NAVIGATION					
Sitemap option	1	2	3	4	5
Relevant hyperlinks	1	2	3	4	5
Easy return to the homepage	1	2	3	4	5
Visible navigation button	1	2	3	4	5
Links to related websites/articles	1	2	3	4	5
Is it possible to find the inform	1	2	3	4	5
Easy to move from one page to another	1	2	3	4	5
Indication of user location within the website	1	2	3	4	5
Easy to move with hyperlinks without being lost	1	2	3	4	5
Easy menu structure	1	2	3	4	5
Easy information format	1	2	3	4	5
DESIGN INTERACTIVITY					
Q&A Option	1	2	3	4	5
FAQ Option	1	2	3	4	5
Feedback/Comments option	1	2	3	4	5
Test chart option	1	2	3	4	5
Call chat option	1	2	3	4	5
Forum/discussion board	1	2	3	4	5
Email to a friend option	1	2	3	4	5
Email alert and current events/news update	1	2	3	4	5
Links to Other social media (e.g. Facebook/Twitter)	1	2	3	4	5

DESIGN ATTRACTIVENESS					
Good use of icons	1	2	3	4	5
Good use of fonts/size	1	2	3	4	5
Goof use of colors					
Good use of animation	1	2	3	4	5
Good use of multimedia					
Good use of images	1	2	3	4	5
Consistent page title	1	2	3	4	5
Meaningful page title	1	2	3	4	5
Homepage not overcrowded	1	2	3	4	5
Visible logo brand	1	2	3	4	5
Alternative screen background	1	2	3	4	5
Adequate brightness of screen/pages	1	2	3	4	5
DESIGN ORGANIZATION					
About Us information	1	2	3	4	5
Contact us details: name, address, phone number, email.	1	2	3	4	5
Country of origin information	1	2	3	4	5
Ownership information	1	2	3	4	5
Organizational ethics information	1	2	3	4	5
Organizational history information	1	2	3	4	5
Website Reputation	1	2	3	4	5
DESIGN SECURITY/PRIVACY					
Certification Information	1	2	3	4	5
Security Certification	1	2	3	4	5
Term of use information	1	2	3	4	5
Privacy policy statement	1	2	3	4	5
Spyware policy statement	1	2	3	4	5
Affiliation program available	1	2	3	4	5
Overall, the website is safe to use	1	2	3	4	5
External recognition of website (e.g., site awards won)	1	2	3	4	5