

Students' Access to Online Learning Materials and Academic Achievement in Nigerian Colleges of Education

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Abstract

The purpose of this study was to ascertain the association between students' access to online learning resources and their academic achievement in Nigerian colleges of education. The study adapts the following elements of online learning materials: online learning tools, and online publications, in order to discover this link, the following aims of the study were generated by these elements of online learning: (1). To ascertain how students' use of online learning resources relate to their academic achievement in Nigerian colleges of education. (2). To ascertain the connection between students' access to online journals and their academic achievement in Nigerian colleges of education. NCE students from three colleges of education in the North Western Region of Nigeria were chosen. The study's population were 4766. The respondents' sample were chosen using stratified random sampling ($n = 367$ students). Data from the respondents was gathered using a questionnaire with a five-point Likert scale. The analysis of the study questions used is Pearson Product Moment correlation. The study's conclusions showed that there is a modest association ($r = 0.031$) between students' use of online learning resources and their academic achievement. Additionally, it was discovered that there is a strong positive link ($r = 0.751$) between students' academic achievement and their ability to access online publications. The creation of platforms for students to download lecture notes and other online learning materials for enhancing their academic achievement were advised in Nigerian colleges of education based on these findings.

Keywords: Students access, Online learning materials, Academic Achievement, Online learning tools, Online publication.

Introduction

Information and communication technologies (ICTs) provide new opportunities for learning and teaching. However, for students to benefit from these opportunities, they must have ready access to ICT and positive attitudes toward its usefulness for learning (Al-Mamary, 2022). The importance of universal accessibility to Web resources is widely acknowledged. Great efforts have been made to give every student equal access to high-quality learning and to remove barriers to the diversity of learners (Dalton, 2017). While standards and guidelines have been developed to support and assist with accessible web design, the primary focus of web-resource accessibility has been on technical specifications, assistive technologies, or legal issues.

Fewer studies have been conducted to investigate how online learning accessibility is perceived from a learner's perspective, and how helpful it is (Boskic et al, 2019). As distance

learning adapts to accommodate new technology, lecturers in higher educational institutions are becoming innovative in their relationship with their students, and the methods for developing educational content, accommodating the diverse needs and learning styles (Boskic et al, 2019). In many colleges around the globe, technology-based education programs are becoming dominant. However, in most of these Colleges, lack of internet access is a problem in Nigeria. In some colleges, many courses have not been encoded to support adaptive technologies. These result in equity issues concerning academic access (Kelly, Phipps & Howell, 2020). Making online learning resources accessible to students brings benefits to all students, regardless of their physical and mental condition (Draffan & Rainger, 2019). The World Wide Web Consortium (W3C) has established the Web Accessibility Initiative (WAI) with a remit to lead the Web to its full potential with a particular reference to promoting a high degree of accessibility for students. WAI has successfully raised awareness of the importance of Web accessibility and developed guidelines that helped to ensure that Web resources are accessible.

Students require course materials before the start of the semester to enable preparation for study and optimize the time available for learning when classes get underway (UTAS, 2019). The University has also a legal obligation to provide course materials in an accessible format, on time for students. Several studies state the role of participation and interaction in learning activities to assess equally all students (UNESCO, 2020; Kelly et al., 2021). Since learning is a social activity and understanding is socially constructed, e-learning should be designed to promote participation, allowing all students to take part in all subjects and activities, enhancing cooperative learning, and offering powerful opportunities. Effective learning can be achieved through content accessibility and integration into a virtual learning community. This means that technical accessibility in e-learning courses should be supported by pedagogical accessibility (access to contents, resources, and learning activities).

Internet use is a staple of college students' educational experience. Students use the Internet to communicate with lecturers and classmates, do research, and access library materials. For most college students, the Internet is a functional tool, one that has greatly changed the way they interact with others and with information as they go about their studies. According to Pew Internet research (2019), 73% of college and University students maintained that the internet is much more than a library. Others view the internet as a place for social support and interaction. Given these benefits of the internet to students' learning, it is pertinent that Universities provide e-learning resources to be accessible to a large community of learners to take learning beyond the classroom.

The term "accessibility to online learning materials" when applied to the Internet and educational communication has a variety of meanings in different contexts. Accessibility of online learning materials in the context of this research refers to the utilization of online materials for academic purposes by NCE students in colleges of education in Nigeria. Though the Internet is still not in use in some colleges of education in Nigeria. So, it is

becoming an essential instructional media used by many students in higher education (Stephen, 2019). Online learning materials can be accessed from college libraries to facilitate information delivery by providing a direct connection to electronic information resources. In some colleges of education in Nigeria, libraries are made the first online learning accessibility centers (Stephen, 2019). Online learning materials were made available with funding from Nigerian Communication Commission, TETFUND, and some donor agencies. Internet utilization in libraries has made a shift from printed forms of information materials to electronic information materials to better the quality, efficiency, and effective research by students.

Problem Statement

Accessibility of online learning materials has been a major concern of higher institutions of learning. Accessibility of online learning materials ensures that students irrespective of their disability have equal access to academic materials in related lesson contents. This takes learning beyond the classroom thereby creating more engagement time among the students. In an ideal situation, it is expected that colleges of education in Nigeria should provide online content of different disciplines and course units to be accessible by the students anywhere and anytime given the numerous flexibility and affordances of the World Wide Web. It is anticipated that creating online content and making them accessible to NCE students increases students' engagement in lesson content and enable them to have the perception of control (Black, 2021).

Despite the numerous benefits and affordances of internet resources in some colleges and universities in Nigeria, accessible learning materials have not yet been fully integrated and embedded in all integrated systems of the colleges of education in Nigeria (Hassan, 2019). At the moment, students are still visiting websites and learning management systems to access online learning materials for research, course works, and the construction of knowledge. Making lesson contents inaccessible to the students has resulted in some of the students restricting themselves to what they were taught in the class. This has decreased the interaction with technological tools among the students which would have created an endless chain of knowledge construction (Hassan, 2019).

It is anticipated that effective learning can be achieved through content accessibility and integration into a virtual learning community. This means that technical accessibility in online learning materials should be supported by pedagogical accessibility (Kelly et al., 2021). Based on this, the research paper, therefore, focuses on investigating students' accessibility to online learning materials in colleges of education in Nigeria concerning the extent and forms of accessibility.

Objectives of the Study

The objective of the study is to determine the relationship between students' access to online learning tools and academic achievement in Nigerian colleges of education.

Furthermore, to determine the relationship between students' access to online publications and academic achievement in Nigerian colleges of education.

Research Questions

The following research questions were formulated from the objectives

1. What is the relationship between student access to online learning tools and academic achievement in Nigerian colleges of education?
2. What is the relationship between students' access to online publications and academic achievement in Nigerian colleges of education?

Literature Review

Increasingly, educational institutions are adopting online learning as the main delivery method to train employees (Simmons, 2020). At the same time, these institutions are moving toward the use of the Internet for delivery, both on campus and at a distance. In asynchronous online learning, students can access online resources at any time, while synchronous online learning allows for real-time interaction between students and the instructor (Anderson & Elloumi, 2019). According to Simmons (2020), learners can use the Internet to access up-to-date and relevant learning materials and can communicate with experts in the field in which they are studying. Situated learning is facilitated, since learners can complete online courses while working on the job or in their own space, and can contextualize the learning (Anderson & Elloumi, 2019).

Online learning has been the most used approach by college and university students since the inception of search engines and online Learning Management Systems. Evidence has shown that the use of the Internet has increased following its numerous benefits and flexibilities (Naidu, 2019; Anderson & Elloumi, 2020). Anderson (2021) supported the above view by claiming that the overall average online time of Internet-using students was 100 minutes per day. This indicates the extent to which college students use online learning materials. In another related study, Kandell (2019) opined that the accessibility of online learning materials is one of the factors of internet dependency use by college students. Colleges provide students with the ability to access the World Wide Web as well as email and related Internet activities. These enable college students to have access to online materials at all times (Kandell, 2019). For this reason, the researchers are of the view that online learning resources should be made accessible by students of colleges of education in Nigeria for both content and learner support activities. Based on the above report, the researcher submitted that online materials have been a major alternative used by university and college students for their learning. This means that learning can go beyond the classroom for more authentic and collaborative learning.

In another research on the extent to which college and university students access e-learning resources, Kellogg (2021) claimed that college students generally have a positive attitude about online resources and their impact on their educational experience. He further opined that university students' engagement rate in online resources ranges from 1 to 5 hours per

day. He concluded that most students prefer downloading online materials to reading lecturers' handouts.

Most of the studies reviewed above were based on policies for online learning accessibility and students' use of the Internet. For this reason, the present study focuses on the extent to which NCE students in colleges of education in Nigeria access online learning materials for academic purposes.

Studies have shown that students with disabilities have difficulty reading and accessing standard print learning materials, such as textbooks and supplementary materials (Kellogg, 2021). Other studies highlighted that students with visual impairment may not be able to read a standard print textbook and would likely require print or braille to read independently (Fisser, 2021). According to National Center on Accessible Instructional Materials (2021), auditory and visual learners may benefit from having an audio or digital version of the textbook. Kinesthetic learners may need virtual realities like simulations and games for their learning experience. To be successful in school, these students need learning materials in specialized formats.

A survey conducted by the electronic publisher Versaware (as cited in Rogers, 2022) claimed that 87% of the students' polled download e-books such as pdf files and other documents for learning purposes. The survey concluded that 87% of the students prefer e-books to traditional print volumes. However, several studies have shown that the majority of college and university students are not accessing e-books as their preferable reading materials (Mash, 2020; Rogers & Roncevic, 2022). Given this, the researcher is of the view that due to the flexibility and compatibility of most mobile phones, the majority of college and university students opted to download e-books for their learning process.

Students' access to online learning resources

Web-based communication systems have been widely advocated as tools for collaboration that can support self-explanation, social negotiation, and shared knowledge construction among students. According to Hay Thornthwaite (2020), three types of online communication served as the purpose of students' accessibility to online learning resources: content-related, planning of tasks and social support. Accessibility of online learning materials related to content is essential for learning. Just as in traditional education, online learners need to be able to ask questions and share information and ideas. Support for planning of tasks is essential, especially when learners produce some kind of product, such as an assignment, in collaboration with peers (Hay Thornthwaite, 2020). She further argues that social support relations are desirable for creating an atmosphere that fosters collaborative learning. Based on the above, the researcher is of the view that online materials should be made accessible for students in colleges of education for the purpose of content-related communication, planning of task and social support.

Research Methodology

The research design employed in this study is a cross sectional survey design. This design is adopted in order to study the respondents within a given setting. The population of the study include all NCE 3 students of the three colleges of education in the North Western Nigeria that is Adamu Augie College of Education Argungu Kebbi State, Zamfara State College of Education Maru and Shehu Shagari College of Education Sokoto. This population was chosen in order to suit the nature of the research. This population amount to a total number of 4,766 NCE students (Year three student only). A total sample of 367 has been selected based on Krejcie and Morgan (1970) table of sample size determination. A close-ended questionnaire titled "Students' Online Learning Accessibility Questionnaire (SOLAQ)" have been employed to collect data from the respondents. The table below shows a summary of the population and sample size.

Respondents' population, sample size and sampling technique

| College | Population | Sample size |
|---------|------------|-------------|
| AACOE | 1832 | 141 |
| ZSCOE | 597 | 46 |
| SSCOE | 2337 | 180 |
| Total | 4766 | 367 |

Source: Academic Registrar's Office (2020).

Data collected from the demographic characteristics of the respondents was analyzed using Pearson Product Moment Correlation as follows:

Q1. What is the relationship between student access to online learning tools and academic achievement in Nigerian colleges of education?

| | | Online Tools | Academic Achievement |
|----------------------|---------------------|--------------|----------------------|
| Online Tools | Pearson Correlation | 1 | .032* |
| | Sig. (2-tailed) | | .031 |
| | N | 370 | 370 |
| Academic Achievement | Pearson Correlation | .032* | 1 |
| | Sig. (2-tailed) | .031 | |
| | N | 370 | 370 |

*Correlation is Significant at the 0.05 level (2-tailed)

From the above the result revealed that there is a moderate correlation between students access to online learning tools and their academic achievement ($r = .032$). Considering the

P-Value (sig. = .031 < .05) there is a statistically significant relationship between students access to online tools and their academic achievement.

Q2. What is the relationship between students access to online publications and academic achievement in Nigerian colleges of education?

| | | Online Publications | Academic Achievement |
|----------------------|---------------------|---------------------|----------------------|
| Online Publication | Pearson Correlation | 1 | .751* |
| | Sig. (2-tailed) | | .000 |
| | N | 370 | 370 |
| Academic Achievement | Pearson Correlation | .751* | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 370 | 370 |

In order to determine the relationship between online publication and students' academic achievement the result revealed that there is a very high positive correlation ($r = .751$) between student access to online publications and academic achievement considering the P – value (sig. = .000 < .05). This indicate that there is a statistical significance relationship between students access to online publication and academic achievements.

Conclusion

It is concluded that when students are provided with online learning materials on their college portals, it will improve their academic achievement through educational games, simulations and other multimedia educational applications.

Recommendations

- It is recommended that colleges of education in Nigeria should provide online platforms that students can have access to courses learning materials.
- It is recommended that training should be given to students on the use of different platforms in the college portals.
- It is recommended that more researches should be carried out using other research methods and instruments on accessibility of online learning materials in colleges of education in Nigeria.
- Funds should be made available by government for the supply and maintenance of ICT facilities in colleges of education in Nigeria.

References

Anderson, J. K. (2021). Internet Use Among College Students: An Exploratory Study. *Journal of American College Health*.

- Anderson, T., & Elloumi, F. (2019). *Theory and Practice of Online Learning*. Athabasca University Printing Press.
- Black, N. E. (2021). Blessing or Curse: Distance Delivery to Students with Invisible Disabilities. *Journal of Library Administration*, 41(1/2), 47-64.
- Boskic, N., Bole, K., and Hapke, N. (2019). *Accessibility in Online Learning: Web Accessibility Process Manual*. University of British Columbia.
- Draffan, E. A., and Reinger, P. (2019). A model for the identification of challenges to blended learning. ALT-J.
- Hassan, B.A (2019). Student Access to e-Learning Materials and Academic performance in universities. Unpublished materials.
- Hay Thornthwaite, C. (2020). Building Social Networks via Computer Networks: Creating and Sustaining Distributed Learning Communities, In K. A. Renninger & W. Schumar. *Building Virtual Communities: Learning and Change in Cyberspace*. Cambridge: University Press.
- Kandell, J. J. (2019). Internet addiction on campus: The vulnerability of college students. *Cyberpsychology and Human Behavior*, 1, 11-17.
- Kellogg, A. P. (2021). Facing More, and Possibly Pickier. *Chronicle of Higher Education*, 37.
- Kelly, B., Phipps, L., and Howell, C. (2020). *Implementing a Holistic Approach to E-Learning Accessibility*. University of BATH online Publication.
- Kumar, R. & Kaur, A. (2005). Internet and its Use in the Engineering Colleges of Punjab, India: A case study. *Webology* 2(4).
- Leadbeater, W. (2013). Evaluating the use and impact of lecture recording in undergraduates: Evidence for distinct approaches by different groups of students. *Computers Education*, 61, 185-192.
- Mash, S. D. (2003). Libraries, books, and academic freedom. *Academe*, 89(3), 50-55.
- Miles, M. B., & Huberman, M. A. (1994). *Qualitative Data Analysis: An Expanded Sourcebook* (2nd ed.). Beverley Hills, Sage.
- National Center on Accessible Instructional Materials (2011). *Accessible Instructional Materials: A technical Guide for Families and Advocates*. CAST and PACER Center.
- Opitz, C. (2002). Online Course Accessibility: A call for Responsibility and Necessity. *Educational Technology Review*, 10(1), 56-77.
- Oravec, J. A. (2002). Virtually accessible: empowering students to advocate for accessibility and support universal desing. *Library Hi Tech*, 20(4), 452-461.
- Otunla, O. A. (2013). Internet Access and Use among Undergraduate Students of Bowen University Iwo, Osun State, Nigeria. *Electronic Journal of Library Philosophy and Practice*, 1(1), 1-16
- Pallant, J. F. (2005). *SPSS survival manual: A step by step guide to data analysis using SPSS for Windows* (2nd ed.). Crows Nest: Allen & Unwin, Pp. 215.
- Pew Internet and American life project (2002). *The Internet goes to College: How students are living in the future with today's technology*. Washington, D.C.
- Philips, R. (2010). Using academic analytical tools to investigate studying behaviors in technology-supported learning environments. In Ascilite 2010. Sydney, 761-771.
- Philips, R. (2011). Learning analytics and study behavior: A pilot study. In G. Williams, P. Statham, N. Brown & B. Cleland (Eds), *Changing Demands, Changing Directions*. Proceedings ascilite Hobart 2011. 997-1007.
- Rogers, M., & Roncevic, M. (2002). E-book aftermath: Three more publishers fold electronic imprints. *Library Journal*, 127(1), 4.
- SETDA. (2014). *Leadership Technology Innovation Learning: A policy Brief*. Retrieved on 15/04/2015 from: www.setda.org
- Sekalema, H. (2012). *Final ERP Project Report*. A report presented at the Islamic University in Uganda.

- Settle, A., Dettori, L. & Davidson, M. J. (2011). Does lecture capture make a difference for students in traditional classrooms? In *Proceedings of the 16th annual joint conference on Innovation and technology in computer science education*.
- Simmons, D. E. (2002). The forum report: E-learning adoption rates and barriers. In A. Rossett (Ed.), *The ASTD e-learning handbook* (pp. 19-23). New York: McGraw-Hill.
- Soong, S. K. A., Chan, L. K. & Cheers, C. (2006). Impact of video recorded lectures among students. In *Proceedings of the 23rd annual ascilite conference*. 789-783
- Stephen, N. (2011). *Access and Use of the Internet: A case of Undergraduate Students in Public Universities of Uganda*. A seminar presented Makerere University, June 2011.
- Traphagan, T., Kucsera, J. V. & Kishi, K. (2009). Impact of class lecture webcasting on attendance and learning. *Educational Technology Research & Development*, 58(1), 19-37.
- Udende, P. & Azeez, A. L. (2010). Internet Access and Use among Students of University of Illorin, Nigeria. *Journal of Communication and Media Research*, 2(1), 33-42
- UNESCO (2005). *Guidelines for Inclusion: Ensuring Access to Education for All*. Paris, UNESCO.
- UTAS (2007). *Making Course Materials Accessible to All: One of a series of fact sheets for staffs*. UTAS.
- Williams, J. (2006). The Lectoria service and students with disabilities. In *Proceedings of the 23rd annual ascilite conference: Who's learning? Whose technology?* Ascilite 2006. The University of Sydney. 881-884
- Woo, K. (2006). Web-based lecture technologies: blurring the boundaries between face-to-face and distance learning. *Research in Learning Technology*, 16(2), 81-93.
- Von Konsky, B. R., Ivins, J. & Gribble, S. J. (2009). Lecture attendance and web based lecture technologies: A comparison of student perceptions and usage patterns. *Australasian Journal of Educational Technology*, 25(4), 581-595.