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Impact of Internet-Enabled Classrooms on Learners' Academic Performance in University of Ibadan Distance Learning Center

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Abstract

Modern educational view shows that technological integration changed both the method of delivery and student experience of educational content. Internet-enabled classrooms represent a fundamental development that transforms education delivery at worldwide institutions. A descriptive study of survey research approach was adopted for this study. Simple random technique was used to select 200 respondents in University of Ibadan distance learning center. Inferential statistics together with frequency tables and percentage analysis were employed to evaluate the results. The research findings show that research assistance from the internet is common for 59% of participants yet 34% called internet connections "essential for accessing modern info sources" while 10% acknowledged its value for exam preparation and 27% find the internet helpful for assignments and only 5% noticed it facilitates student-lecturer interactions. Internet-enabled classrooms are viewed as instrumental in improving access, collaboration, engagement, and essential skills, which collectively enhance academic performance. There was a significant relationship between internet and students' academic performance (R^2 = 0.402, $p<0.01$). There was a significant relationship between internet-enabled classrooms and students' academic performance (R^2 = 0.279, $p<0.01$). Based on the findings, it was recommended that university administrators should invest in premium high-speed internet service at the maximum bandwidth level in order to solve slow network speeds. Organized training should occur frequently to help users from all categories enhance their internet usage effectiveness.

Keywords: Internet-enabled classroom, learners, academic performance, University of Ibadan distance learning center, technology

INTRODUCTION

In the contemporary educational view, the adoption of technology has significantly transformed how learning is delivered and experienced. One notable development in this regard is the adoption of internet-enabled classrooms, which have revolutionized education delivery in various institutions around the world (El-Haggar *et al.*, 2023). The University of Ibadan Distance Learning Center (UIDLC), situated in Nigeria, is no exception to this educational transformation. The introduction of internet-enabled classrooms in this institution has brought about substantial changes in teaching and learning methodologies. While the adoption of internet-enabled classrooms in UIDLC holds great promise, it is essential to assess their impact on learners' academic performance. This study seeks to investigate whether these technological advancements have led to improved learning outcomes, student satisfaction, and overall academic success for distance learners at the University of Ibadan.

This study aims to explore and analyse the impact of internet-enabled classrooms on the academic performance of learners at the University of Ibadan Distance Learning Center.

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Internet

Distance learning happens through various internet entry methods along with different accessibility protocols. Students gain internet access through multiple devices including mobile phones and play stations and different electronic devices thanks to modern technology advancements. The World Wide Web provides numerous assets which simplify university work better than conventional practices did. Every modern-day instructional system fully depends on the internet as an essential element. Academics make continuous use of internet capabilities to deliver educational instructions. Higher institutions of learning provide internet-based devices to their staff and students as well as their research associates owing to the critical role which the internet plays (Ochionuoha, 2023).

Technological progress has produced substantial fundamental transformations which affect educational approaches. Various tertiary education institutions worldwide maintain growing investments in data technology (IT) focusing on internet infrastructure as they simultaneously build programs for internet adoption (Husnita *et al.*, 2023). Users view internet learning as a tool that enhances accessibility while boosting educational performance and offering superior instruction by enabling resource access alongside service access and knowledge sharing for collaboration (Liu *et al.*, 2020).

Internet delivers the latest knowledge as well as worldwide information making it an essential component for electronic services that educational institutions require. Internet functions today as a highly valued instrument for educational purposes including research collaborations across Nigeria. A total of 84.6% of global populations can access the internet as reported statistics show. As a daily occurrence the global community continues to welcome new internet users. Research shows African institutions operate at the highest level of internet connectivity with students and professors remaining the primary internet consumers (Alghamdi *et al.*, 2020).

Impact of Internet Access on Students' Academic Performance

Undergraduates can use internet facilities in the library for research tasks while also accessing Email and online chart. According to Femy (2023), students regularly use internet access to obtain library electronic resources. According to Amponsah, Aboagye, Narh-Kert, Commey-Mintahh and Boateng (2022), The number of students who use the internet in universities depends both on encapsulated computer locations and their stands inside or outside the university learning hubs. The benefits of the internet for educational activities include: Digital information access worldwide enables academic experts to work together across all disciplines while seamless data transfer supports better research participation and software adoption for educational advancement. The Internet serves as a fundamental enabler for digital resource accessibility because students and users receive current information along with multiple content sources through seamless information acquisition methods.

Computer systems functioning as educational enhancement tools affect the university student experience. Studies in literature show that limited internet access leads to poor levels of instructional satisfaction. Internet demonstrates remarkable powers to change instructional dynamics by restructuring the communication systems used between teachers and their students during classroom study. The Internet allows for device-based course material access which enables teachers to get together with students throughout virtual space (Anyim 2021c). Mukhid (2023) explored that there is no significant correlation between enhanced internet use and academic results. Internet users demonstrate persistently negative but relatively significant relationships with scholar achievement. According to Ali *et al.* (2021), the exponential expansion of digital resources transformed how students view and process and assess information. According to Medeiros *et al.* (2020), the internet significantly enhanced study efficiency because students could download resources.

Research personnel and academic students in universities face the persistent challenge of working with insufficient and outdated resources according to standard belief. Through the practice of studying people obtain knowledge and the internet impacts academic

procedures while changing how information is shared (Ibrahim & Ishartiwi, 2017). Saputri (2017) investigated how fitness lecturers use electronic information resources while also assessing their attention towards them. The data reveals libraries serve as primary resources for research investigations together with lecture consultation and modern knowledge acquisition. Internet facilities enable students to locate extensive databases located across multiple sources according to Alsaeedi (2020), internet technology enables professors and students to approach each other for meetings without physical encounters so they reach their common goals jointly despite separation. Teaching methods alongside learning activities together with academic research amplify when students have access to the internet.

RELATED WORKS

The study by Sa, Moreno and Carciofi (2020) reveals that the internet serves various purposes from information enhancement to communication improvement and instructional development to research capability along with assignment assistance and factual inquiry along with scholarly information retrieval. Students at Federal University of Technology Minna showed improved academic outcomes because of internet services within their library according to Sarker *et al.* (2022) research.

Research done by Qureshi and Megias Jimenez (2020) indicates students' primarily accessed internet at the library to improve their education. Numerous students now achieve better academic results since they started using internet resources. Students who take their studies seriously allocate extra extensive periods of internet time to academic ventures and career tasks but students who focus on social interactions; most of their online presence through digital communication and societal web engagement.

Research from Shahzad *et al.* (2020) shows that intense internet usage leads to improved academic performance among university students who obtain access to world information through simple clicks. Uniform global access introduced through internet technology has fundamentally altered how worldwide communities store and handle recorded information. Multiple studies documented that sub-Saharan Africans do not take full advantage of internet benefits. Studies by Theobald *et al.* (2020) low internet usage primarily due to students' inability to access equipment along with device implementation barriers. According to King *et al.* (2021) insufficient steering coupled with minimal ICT expertise and limited internet access infrastructure account for low usage. Anyim (2018c) concludes that the lack of appropriate ICT skills stands out as a major student obstacle in Internet services usage. Lindl *et al.* (2020) identifies inadequate ICT skill proficiency as a primary reason students do not utilize the internet. An effective Internet/server maintenance alongside online user guidelines and user-friendly interfaces would dramatically boost students' access to electronic resources according to Anyim (2020b).

METHODOLOGY

A quantitative research design was adopted for this study to explore the perceptions of students at the University of Ibadan Distance Learning Centre towards the impact of internet-enabled classrooms. Simple random method was used to select a 200 sample size for the study, ranging from 100 level to 500 level students in the selected institution. The data collection instrument was a self-structured questionnaire, designed to capture relevant information on the students' demographics and their responses to the research questions.

The questionnaire has two sections: A and B. Section A gathered demographic information such as level of study and gender. Section B addressed the research questions and objectives. Prior to distributing the questionnaire, participants were asked to sign a consent form to confirm their voluntary agreement to partake in the study. The study received institutional approval, and the Distance Learning Centre at the University of Ibadan facilitated access to students. The students were assured that their responses would be used strictly for research purposes and that their privacy and anonymity would be maintained. To ensure the validity of the instrument, content validity, including face validity, was employed. The items in the questionnaire were written in clear and simple language, arranged logically, and aligned with the objectives of the study and research questions raised to guide the study. A pilot test of the questionnaire was conducted with 25

learners from the National Open University, Awa Centre, who were not part of the target population. The reliability of the instrument was assessed using Cronbach's Alpha, which produced an overall reliability coefficient of 0.89, indicating that the instrument was both valid and reliable. Data gathered were analysed using descriptive statistics, including frequency counts and percentages.

RESULTS

Table 1. Analysis of Demographic Data of Students.

Level of Study	Frequency	Percentage (%)
100 level	44	22%
200 level	45	23%
300 level	40	20%
400 level	36	18%
500 level	35	17%
Total	**200**	**100%**

Source: Field Survey 2023.

Result in Table 1 shows that the 200 distributed questionnaires generated 44 responses (22%) from 100 level students and equal proportions (23%) from 200 level students and (20%) from 300 level students (18%) from 400-level students (17%) from 500-level students. Analysis finds that every level of study represented in this research.

Table 2. Sex Distribution of Student.

Sex	Frequency	Percentage (%)
Male	88	44%
Female	112	56%
Total	**200**	**100%**

Source: field Survey 2023.

Result in Table 2 shows that student population consisted of 88 male students who accounted for 44% of the total participants and 112 female students who made up 56% of the student population.

Table 3. Frequency of Internet Use.

Frequency	Freq.	%
Everyday	111	55%
Once in a Week	31	15%
Once in two Weeks	9	5%
Once in a Month	26	13%
Occasionally	20	10%
Never	3	2%
Total	**200**	**100%**

Source: Field Survey 2023.

Results in Table 3 shows that 111 respondents (55%) visit the internet daily and 31 students (15%) browse it weekly while 9 use it twice weekly and 26 students (13%) access it monthly both exclusive of the 20 students (10%) who occasionally surf the web along with the 3 respondents (2%) who abstain from internet use. Our analysis indicates that most students spend their days online.

Table 4. Student's Purposes for Using the Internet.

Items	Freq.	%
Access Broad Information	108	54
Acquire Course-Specific Information	43	21
Send and Receive E-mails	19	10
Download E-books and Journal	30	15
Total	200	100

Result in Table 4 shows that 54% of respondents employ the internet for general information access whereas 21% use it for course-related materials and 15% utilize it for downloading e-Books and journals and 10% make use of it for sending and receiving emails.

Table 5. Influence of Internet on Students Academic Performance.

Items	Freq.	%
The internet helps me access current and relevant information sources for my studies.	117	59%
The internet aids my research by providing access to a wide range of academic resources.	67	34%
The internet assists me in preparing for examinations and tests by offering useful study materials.	20	10%
The internet supports me in completing assignments efficiently by providing tools and resources.	54	27%
The internet facilitates communication and collaboration between students and lecturers, enhancing my academic learning experience.	10	5%

Source: Field Survey 2023.

Result in Table 5 shows that majority (59%) reporting that the internet helps them access current and relevant information sources for their studies. A smaller proportion (34%) indicated that the internet aids their research by providing access to a wide range of academic resources. Other factors, such as the internet assisting in exam preparation (10%), supporting assignment completion (27%), and facilitating communication between students and lecturers (5%), were less frequently cited. Hence, findings indicate that while the internet is widely used for research and information access, its role in exam preparation, assignments, and communication is less prominent among students.

Table 6. Influence of Internet-enabled classrooms on Learners' Academic Performance.

Items	Freq.	%
Internet-enabled classrooms improve access to diverse educational resources, enhancing academic performance.	170	85.0%
Internet-enabled classrooms create opportunities for collaborative learning and knowledge sharing among students.	165	82.5%
Internet-enabled classrooms make it easier for students to complete assignments and research tasks effectively.	160	80.0%
The use of online learning platforms in classrooms helps students develop critical digital literacy skills.	155	77.5%
The integration of internet tools in classrooms fosters better engagement and participation among learners.	149	74.5%

Source: Field Survey 2023.

Result in Table 6 shows that the highest level of agreement (85%) was recorded for the statement that internet-enabled classrooms improve access to diverse educational resources. Similarly, 82.5% of respondents acknowledged that such classrooms create opportunities for collaborative learning and knowledge sharing. Internet-enabled classrooms were also perceived to facilitate task completion, with 80% indicating that they make assignments and research more manageable. Additionally, 77.5% of respondents agreed that online learning platforms in classrooms enhance students' critical digital literacy skills. Finally, the integration of internet tools was recognized for its ability to foster learner engagement and participation, as agreed by 74.5% of respondents. Hence, internet-enabled classrooms are viewed as instrumental in improving access, collaboration, engagement, and essential skills, which collectively enhance academic performance.

Test of Hypotheses

Hypothesis One: There is no significant relationship between internet and students' academic performance

Table 7. Model Summary and Linear Regression Analysis of Hypothesis One.

Model	R	R^2	Adjusted R^2	Std. Error of the Est.	Sig.
1	0.634	0.402	0.398	0.563	0.000

The model summary and linear regression analysis in Table 7 show a correlation coefficient (R) of 0.634, indicating a moderate positive relationship between the internet usage and students' academic performance. The coefficient of determination (R^2) suggests that the internet explains 40.2% of the variance in students' academic performance. The adjusted R^2 is 0.398, indicating that the model accounts for approximately 40% of the variation in students' academic outcomes. The standard error of the estimate is 0.563, and the significance level (Sig.) of 0.000 indicates a statistically significant relationship between the internet and students' academic performance.

Hypothesis Two: There is no significant relationship between internet-enabled classrooms and students' academic performance.

Table 8. Model Summary and Linear Regression Analysis of Hypothesis Two.

Model	R	R^2	Adjusted R^2	Std. Error of the Est.	Sig.
1	0.528	0.279	0.275	0.678	0.001

The model summary and linear regression analysis in Table 8 demonstrate a correlation coefficient (R) of 0.528, indicating a moderate positive relationship between internet-enabled classrooms and students' academic performance. The coefficient of determination (R^2) reveals that internet-enabled classrooms explain 27.9% of the variance in academic performance. The adjusted R^2 value is 0.275, suggesting a slightly lower model fit. The standard error of the estimate is 0.678, and the significance level (Sig.) of 0.001 indicates that the relationship is statistically significant.

DISCUSSION OF RESULTS

The data from table 3 shows that participants who accessed the internet daily formed the largest group with 55% of the total. Out of the total sample participants 31(15%) log into the internet only one time weekly. According to the data 9(5%) connect to the internet once during periods of two weeks and 26(13%) do so once monthly and 20(10%) access it sporadically. Only 2% of respondents claim they do not use the internet. Survey results demonstrate that everyday internet usage dominates across all participants. The research outcomes match previous findings by Nurbaiti (2023) demonstrating that most users utilize the internet for one hour each day which translates to 5-7 hours of weekly usage.

According to Table 4 fifty-four percent (108) of respondents use internet services to gain general information while twenty-one percent (43) access internet services primarily for course relevant material and fifteen percent (30) respectively for e-books and journal downloads and ten percent (19) for email communication. The study results support the study of Schnauber-Stockmann and Karnowski (2020) who found that college students access the internet for educational material alongside work tasks alongside social online interactions. Correani *et al.* (2020) discovered students download resources (Ebooks and Journals) through the internet to simplify their studies according to their research. This study shares findings with Abayigbodi and Oghenetega (2024) who studied that most students access online database services together with electronic

journals, Online Public Access Catalogues and e-mail functions and collaboration services.

Result from table 5 showed that while the internet is widely used for research and information access, its role in exam preparation, assignments, and communication is less prominent among students. A study by Anyim (2020) demonstrated that the internet helps undergraduate researchers at different institutions worldwide to obtain extensive research materials.

Result from table 5 showed that internet-enabled classrooms are viewed as instrumental in improving access, collaboration, engagement, and essential skills, which collectively enhance academic performance. This finding aligns with the study of Alghamdi *et al.* (2020), who asserted that students' use of internet resources in classrooms significantly improved their academic performance, particularly through enhanced collaboration and access to a wealth of educational materials. Internet-enabled classrooms provide students with instant access to information, fostering engagement and improving academic outcomes by enabling both independent and collaborative learning. Similarly, Anyim (2021b) highlighted that internet resources allow students to connect with peers and faculty, enriching their learning experience. These resources also enhance skills development, providing opportunities for students to learn in more dynamic and interactive environments. The use of internet technology fosters better engagement by allowing students to access diverse learning materials beyond textbooks, thus improving their overall academic performance.

Result in hypothesis one showed that there is significant relationship between internet and students' academic performance. This finding aligns with the study of Ferriz-Valero *et al.* (2020), who found that the internet is a critical resource in enhancing students' academic performance in Nigerian universities. The access to a vast array of online resources, including databases, journals, and academic papers, allows students to conduct more thorough research, improving their academic performance. However, this finding contrasts with the study of Malik *et al.* (2020) which found no clear positive correlation between internet use in education and academic performance, which indicate that while internet access can potentially enhance academic outcomes, its effectiveness may depend on factors such as students' ability to effectively use these resources, the availability of proper guidance, and the specific context in which internet use occurs.

Result in hypothesis two showed that there is significant relationship between internet-enabled classrooms and students' academic performance. This finding is in line with the study of Akpen *et al.* (2024), who asserted that internet-enabled classrooms have a significant impact on students' academic performance. These classrooms provide students with access to digital resources, e-learning platforms, and virtual collaboration opportunities, which contribute to improved academic outcomes. The availability of internet in the classroom enhances the learning experience by allowing students to interact with a variety of educational materials, from scholarly articles to interactive simulations.

CONCLUSION AND RECOMMENDATIONS

Internet usage with its accompanying services influence student academic outcomes to such an extent that we cannot overstate this observation. Academic performance from students directly relates to how much time they spend using the internet. This study demonstrates that student academic achievements correlate directly with their usage of internet resources toward educational purposes. Survey participants showed regular daily usage of internet access systems. Internet-enabled classrooms have a profound impact on students' academic performance by improving access to resources, fostering collaboration, and enhancing essential skills. The relationship between internet usage and academic success is significant, as it provides students with tools to engage more effectively with the curriculum,

facilitating better learning outcomes. In view of the findings, the following recommendations were suggested:

1. University should purchase high-speed internet service with peak bandwidth as its solution for slow internet connectivity.
2. Extensive training sessions must occur regularly to boost all user categories in their internet competence development.
3. Organized training activities need to remain regular to help groups of internet users achieve better efficiency when using this technology.
4. The university body needs to buy high speed internet connectivity with maximum bandwidth to address slow internet connections.
5. The university must lower browsing costs to expand student internet access.
6. Improving the current power state in the nation constitutes an essential duty of the government.

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