

Availability and Utilization of Digital Technologies in the Teaching and Learning of Economics at the University of Nigeria, Nsukka

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Abstract

This study investigated the availability and utilization of Digital Technologies (DT) in teaching and learning of Economics at the University of Nigeria, Nsukka, Enugu State. The study employed a descriptive survey research design. A stratified random sampling technique was used to select 245 students out of a study population of 806 undergraduate Economics students, and 12 lecturers out of 49 Economics lecturers in the Department of Economics, University of Nigeria. A questionnaire titled Availability and Utilization of Digital Technology (QAUDT) was used for Data collection. The instrument was validated appropriately, trial tested, and subjected to Cronbach Alpha reliability with an overall reliability coefficient of 0.871. The data obtained were analyzed using descriptive statistics. The study showed that DTs are moderately available, but well utilized in the teaching and learning of Economics in UNN. However, major challenges including the high cost of internet data and software, low internet bandwidth, and epileptic power supply, were the major challenges hindering the effective utilization of DTs in the teaching and learning of Economics in UNN. The researchers recommended the provisions of affordable internet data, adequate bandwidth, and regular power for effective teaching and learning of Economics.

Keywords: Digital technologies; availability; Utilization; Economics; Teaching and learning.

Introduction

Economics is a study of how people use scarce resources to meet their numerous needs or respond to incentives, or the study of decision-making. It involves the management of resources to get the highest satisfaction or reward from it. Economics is a broad discipline that helps us understand the historical economic trend, interpret today's economic headlines, and make economic policy and predictions about the coming years (Samuelson & Nordhas, 2010). This implies that Economics is a tool that enables an individual to comprehend past economic patterns, helps with the interpretation of present economic situations, and helps forecast things that can happen in a nation's economy or world economy. According to Chang (2015), Economics is the study of rational human choice. Rational human choices are deliberate choices that are made systematically. In other words, consumers are wise and know what they want therefore they make rational decisions to ensure that they enjoy maximum utility from the resources which are made available to them. The study of Economics is essential to all fields of study. Its concepts must be learnt to help in the utilization of the limited resource especially in the present economic situation of the country. It is important however for individuals to make a rational economic decision that will improve their wellbeing in an economy hence, the need for the study of economics. The place of Economics in everyday life is crucial and care should be taken to teach the subject in a way that the learners can make meaning out of it and apply it in their daily living, knowing that the principles of Economics is being applied in virtually all activities of man. A way of inculcating the subject meaningfully could be through digital technology. This will encourage diversification of learning via different means to achieve the objective of learning the subject.

The world is getting into a digitalized globe with new technologies and discoveries, this calls for the integration of digital technologies in our teaching and learning. Digital technologies (DT) is defined as information, communication, and administration technologies and software, which ranges from devices such as computers, laptops, and tablets that are either connected to the internet or not, and to mobile phones equipped with Global Positioning System (GPS) sensors of different kinds, as well as whiteboards and projectors with or without

interactivity (Sadaf, 2016). Schriever (2018) also defines digital technology as a branch of information communication technology (ICT) that enables access to share information and also provides a means of communication. Operationally, digital technology refers to any computer-related devices which can be in the form of software, systems used in the process of teaching and learning Economics at the University of Nigeria Nsukka. Far too often, school leaders fail to consider how technology might dramatically improve teaching and learning, and schools frequently acquire digital devices without discrete learning goals and ultimately use these devices in ways that fail to adequately serve students, schools, or taxpayers (Boser, 2013). In most developing countries these digital technologies are a handful available in tertiary institutions.

Availability of digital technologies in teaching and learning of Economics refers to the necessary digital technologies; such as the internet, laptops, e-library, projectors, smart boards, mobile services and so on that are available and accessible in the process of teaching and learning Economics which brings about good teaching and learning outcomes (Amesi & Yellowe, 2018). The availability of digital technologies makes a distinctive difference in the teaching and learning process. This huge gap in terms of the technology available in classrooms among countries continues to create creating a digital divide, a condition that had been forewarned by the World Economic Forum (2012). Digital technologies availability enhances teachers' and students' knowledge to become more self-sufficient but the absence of digital technologies in the teaching and learning environment destabilizes the students and makes them not current in the aspect of their field compared to others. In situations where these digital technologies are available but not utilized, can result in a low pace in the teaching and learning process and an outcome of producing students who cannot favorably compete with other Economists elsewhere in the world. Pathetic as it may be most universities in the developing countries fall in this category of which UNN is among. It is therefore saddening that the availability and usage of digital technologies in our universities are bedeviled by a lot of factors. Availability and utilization are two forces that may influence the impact of digital technologies in teaching and learning. There are implications for higher education practitioners in terms of decision-making about whether and how to require students to use particular technologies for course study. Going by the fact that the importance of digital technologies in our educational system particularly, at university levels can never be overemphasized. Therefore, the present study explored amongst others the availability and utilization of internet platforms and mobile services as digital technologies in teaching and learning of Economics at the University of Nigeria Nsukka.

Internet platforms are undertaking to operate in two or multi-sided markets, which uses the internet to enable interactions between two or more distinct but interdependent groups of users to generate value for at least one of the groups (Lamadrid, 2015). Internet platform refers to a network platform that connects users to enable them to access various information and communicate with one another. Internet access is the key that helps us to be updated on the current happenings in the world. Internet is indispensable to all disciplines including Economics lecturers and students not only because of its importance but also due to the nature of Economics. The nature of Economics is such that the subject needs further studies, opinions, experiences, analysis, and so on to be able to understand its abstractness. This can only be accessible at an instance with the availability and use of digital technology (as the internet, mobile services, and their likes) while teaching and learning Economics. However, the internet connects the teachers and students in the teaching and learning process and makes learning more effective. It exposes Economics students to various platforms where there is a need for them to share their economic views with various Economics students outside their domain. It also aids collaboration of various tertiary universities via conferencing this aid for better grooming in Economics all around its facets. For efficient use of the internet as digital technology, internet platforms are very necessary. It is disheartening that in the universities, the necessary connection for the accessibility of various internet platforms is absent, and even in a situation where they are present, they are either not functioning or poorly maintained. Internet platform gives access to numerous mobile services.

Mobile service is an activity or series of intangible activities that occur when mobile consumers interact with systems or service provider employees with the support of a mobile telecommunications network. Sanchez, Gallinas, Gutierrez, Vidales and Garcia (2011), defined mobile services to be services that one can obtain using a mobile phone. The range of services one can get from a mobile phone in this twenty-first century are numerous, emails, video-conferencing, and so on. Most of these services are technological and due to somewhat low digital literacy among people; they do not know about such services and therefore do not fully harness these services from their mobile phones. Most of the mobile services are accessible with smartphones and internet connections. Mobile service is important in teaching and learning. They facilitate collaborations among learners and lecturers and enhance pedagogical improvement through simulations, virtual experiences, and graphic representations. These tools provide a suitable platform for the teaching and learning process. Mobile tools can provide suitable learning platforms as they have a lot of applications lecturers and learners may use in their academic activities. Economic students can view their lecturers' web page or access some other online learning resources via mobile services and they can also take online Economics tests to help them to be grounded in the course. It is known that the internet

bandwidth in Nigeria is poor especially in the rural areas where most tertiary institutions are located due to landmass. Also, the cost of acquiring smartphones and internet bundles for internet connection is high and not affordable for students and coupled with the problem of poor power supply. These have deterred the extent of utilization of these digital technologies.

The utilization of digital technologies in teaching and learning has the potential of enhancing greater achievement among students and lecturers in teaching and learning of Economics through collaborations/improved communication with students/researchers in other institutions and opening of wider opportunities to share information. The utilization of Digital technologies in teaching and learning expands the range of choices and opportunities by facilitating greater access to educational resources. It also opens up equal opportunities as well as helps to level the playing field by increasing the students' participation in economic and human development. The ineffective use of digital technologies in teaching and learning limits the learning process and outcomes. Studies on the availability and utilization of digital technologies have shown their importance in the education system. For instance, White-Harris (2017) and Arzal (2017), demonstrate a relationship between technology and students' performance. Therefore, the study seeks to determine the availability and utilization of digital technology in the teaching and learning of Economics at the University of Nigeria.

Statement of the problem

Technology is perhaps the strongest factor shaping the educational landscape in this 21st century. Hence, digital technology is indispensable in all fields of study especially in Economics due to its relevance in everyday living. Its integration in teaching and learning Economics will help in building quality digital graduate that will make meaningful contributions in the digital world economy. Hence, it is disheartening that digital-age students are still taught conventionally without technology with the use of notebooks, textbooks, and handouts. Observations show that most lecturers and students are yet to acquire the requisite knowledge and skills of using digital technological devices. Internet bandwidth in the Departments is not functioning at its optimum point as expected; the computer laboratories have few or no computers in them. Lecturers' still lecture with just their notebooks and textbooks. Lecturers require students to come with their laptops during practical classes and still mandate them to pay some amount of money for the maintenance of a computer laboratory. These and more raise doubts on the availability and utilization of digital technologies in the teaching and learning of Economics at the University of Nigeria?

Purpose of the study

This study is aimed at determining the Availability and Utilization of Digital Technologies in the teaching and learning of Economics at the University of Nigeria, Nsukka, Enugu state.

Specifically, this study seeks to determine the:

1. digital technologies available in the teaching and learning of Economics in UNN.
2. The extent of utilization of available digital technologies by lecturers and undergraduate Economics Students of UNN.
3. impact of digital mobile services in the teaching and learning of Economics in UNN.
4. influence of internet platform in the teaching and learning of Economics in UNN.
5. Challenges confronting the usage of digital technology by lecturers and undergraduate Economics Students of UNN.

Methodology

A descriptive survey was employed to study the availability and utilization of digital technologies in the teaching and learning of Economics at the University of Nigeria, Nsukka. Similarly, Eze et al. (2020), Okeke et al. (2020a, b), Ugwuanyi et al. (2020), Okenyi et al. (2021), Ezema et al. (2021), Ezeaku et al. (2021), have adopted kind of design in their recent studies. A stratified random sampling technique was used to select 245 students and 12 Lecturers from a study population of 806 Economics students and their 49 lecturers respectively. The sampling ensured that all the four levels (1st, 2nd, 3rd, and final/4th year) of the Economics undergraduate programme were proportionally represented. A 56-item structured questionnaire titled "Questionnaire on Availability and Utilization of Digital Technology" (QAUDT) was used for data collection. The questionnaire was structured on a two-point rating scale of Available (A) and Not Available (NA) with a corresponding weight of 2 and 1 respectively for research question 1. Research questions 2-5 are on a four-point rating scale of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) with a corresponding weight of 4, 3, 2, and 1. The questionnaire was validated by three experts; one each from the Departments of Science Education (Measurement and Evaluation unit), Social Science

Education (Economics), and Arts Education (Educational Technology unit), in the University of Nigeria, Nsukka. The Data collected were analyzed using descriptive statistics.

Result

Research Question 1: What are the digital technologies available in the teaching and learning of Economics at UNN?

Table 1: Availability of digital technologies in the teaching and learning of Economics atUNN

S/no	Item Statement	Available%	Not Available%	Decision
1	Laptops	68	32	Available
2	Smartphones	71.1	28.9	Available
3	Electronic Libraries	24.9	75.1	Not available
4	Internet Services	71.9	28.1	Available
5	Projectors	76.3	23.7	Available
6	Electronic smart boards	14.2	85.8	Not available
7	Software	59.7	40.3	Available

The result in Table 1 shows the percentage availability of digital technologies in the teaching and learning of economics at UNN. The result shows that digital technologies represented in items 1, 2, 4, 5, and 7 with percentage availability of 68%, 71.1%, 71.9%, 76.3%, and 59.7% respectively are the available digital technologies in UNN, while those in items 3 and 6 are not available, using the 50% cut-off criterion.

Research Question 2: Utilization of Digital technologies by Undergraduate Economics Students and Lecturers?

Table 2: Utilization of digital technologies by Undergraduate Economics Students and Lecturers

S/no	Item Statement	Mean	Std. Deviation	Decision
8	Laptops are used to prepare lecture notes and assignments	3.20	0.84	Accepted
9	Smartphones are used to surf the internet for research purposes in teaching and learning.	3.48	0.68	Accepted
10	Students and lecturers of Economics utilized the Electronic Libraries for Effective Teaching and Learning of Economics	2.32	1.16	Not accepted
11	Internet services are used by economics students and lecturers to access bulk of information on the world wide web.	3.21	0.76	Accepted
12	Projectors are used to project lecture notes and for presentation by economics students and lecturers	3.07	0.90	Accepted
13	Electronic interactive smart boards are readily utilized by Economics teachers for instructional delivery	1.98	0.93	Not accepted
14	Software are used by economic students and lecturers to carry out economic analysis.	3.16	0.83	Accepted

Results presented in Table 2, show that items 8, 9, 11, 12, and 14 had mean scores above the benchmark of 2.5, and these were accepted, whereas, Items 10 and 13 had means below the benchmark, hence not accepted.

Research Question 3: What are the influences of digital mobile services in enhancing the teaching and learning of Economics in UNN?

Table 3: Influence of digital mobile services in enhancing the teaching and learning of Economics in UNN

S/no	Item Statement	Mean	Std. Deviation	Decision
15	It helps me in reducing cost in terms of having soft copies of textbooks.	3.37	0.69	Accepted
16	Makes it possible for me to have access to lecturer’s	3.11	0.77	Accepted

	materials.			
17	It reduces the time I usually spent on academic work.	2.63	0.89	Accepted
18	Encourage collaborative learning among my fellow course mate.	2.96	0.77	Accepted
19	It encourages my personal learning and independent work.	3.28	0.62	Accepted
20	It provides me the access to online learning forums.	3.35	0.69	Accepted
21	Aids students in doing their assignment	3.53	0.59	Accepted
22	Encourages learning outside my classroom	3.45	0.65	Accepted

The results on the influences of digital mobile services as presented in Table 3 shows that all the items in the cluster had mean scores that are above the 2.5 benchmark, hence they were all accepted.

Research Question 4: What is the influence of the internet platform in enhancing the teaching and learning of Economics at UNN?

Table 4: influence of internet platform in enhancing the teaching and learning of Economics at UNN

S/no	Item Statement	Mean	Std. Deviation	Decision
23	Internet platform provides opportunity for students and lecturers to exchange ideas globally	3.23	0.72	Accepted
24	Gives for continuous learning and teaching of Economics outside regular classroom sessions.	3.21	0.61	Accepted
25	Helps develop students in the creation of their own information.	3.28	0.61	Accepted
26	Aids research work	3.57	0.62	Accepted
27	Internet platform gives room for collaborative teaching and learning sessions in Economics	3.19	0.73	Accepted
28	Access to Internet platform improves students' academic achievement	3.28	0.65	Accepted
29	It encourages cooperative learning strategies among Economics students	3.24	2.01	Accepted
30	It can allow instant online evaluation of students' performance and achievement.	3.07	0.74	Accepted
31	It makes electronic and distant learning possible	3.37	0.69	Accepted
32	Makes learning more interesting by incorporating multimedia in the learning process.	3.34	0.69	Accepted

The results on the influence of internet platforms as presented in Table 4 shows that all the items in the cluster had mean scores that are above the 2.5 benchmark, hence they were all accepted.

Research Question 5: What are the challenges confronting the usage of digital technology by lecturers and Undergraduate Economics Students of UNN?

Table 5: Mean Responses of the Respondents on the Challenges confronting the usage of digital technology by lecturers and Undergraduate Economics Students of UNN

S/no	Item Statement	Mean	Std. Deviation	Decision
33	Inadequate internet bandwidth (Poor network)	3.49	0.66	Accepted
34	Unavailability of digital technological devices	3.06	0.81	Accepted
35	Irregular power supply	3.09	0.88	Accepted
36	High cost of internet data	3.13	0.89	Accepted
37	Low computer literacy	2.78	0.86	Accepted
38	Fear of online insecurity	2.53	0.89	Accepted

39	Internet is Distractive	2.76	0.98	Accepted
40	Lack of adequate ICT support	2.92	0.86	Accepted
41	Not sure if it is the best way to go; sticking to the traditional way of lecturing	2.32	1.02	Not accepted
42	Time constraint	2.67	0.83	Accepted
43	Usage of digital devices reduces cognitive ability	2.42	0.98	Not accepted

Results on the challenges confronting the usage of digital technology as presented in Table 5 show that items 41 and 43 had mean scores below the benchmark of 2.5, and these were not accepted, whereas, the rest of the items had means above the benchmark, hence, they were accepted.

Discussion

In response to research question one, the study shows the following digital technologies (DT): Laptops, Smartphone, Internet services, Projectors, and Software are available for teaching and learning of Economics in UNN with percentage availability of 68%, 71.1%, 71.9%, 76.3%, and 59.7% respectively. On the contrary, Electronic libraries and Electronic smart boards are not available for teaching and learning Economics in UNN. There is no documented evidence on the availability or otherwise of DT for teaching and learning of Economics in Nigerian Universities. However, the finding in the present study is in line with the opinions of Egomo, Enyi and Tah (2012), Amesi and Yellowe (2018) which are of the view that digital technologies are moderately available for teaching and learning and there were no significant differences in the responses of the respondents on availability of digital technologies. Gabadeen, Alabi and Akinnubi (2015) noted that only a few digital technologies are relatively available to lecturers and students.

The result of the extent of utilization of digital technologies in the teaching and learning of Economics at UNN revealed the following that the following digital technologies are utilized in the teaching and learning of Economics: Laptops, Smartphone, Internet services, Projectors, and Software. This shows that all the available DT as was shown under research question one, are utilized for the teaching and learning of Economics in UNN. Expectedly, DTs such as Electronic libraries and Electronic smart boards were not utilized as they were not available ab initio. Gabadeen, Alabi, Akinnubi (2015) observed that just a few digital technologies are available for the lecturers and students, and hence fairly utilized.

Data on the influence of digital mobile services in enhancing teaching and learning show that all items had mean ratings above the 2.5 benchmark, indicating that digital mobile services significantly enhance teaching and learning of Economics in UNN. The agrees with the observation of Heinonen & Pura (2013) who found that mobile services been accessible with smartphones and internet connection, enhance the exchange of information between learner and lecturer or learner to learner. This takes place through the use of different digital technological tools including computers, mobile phones, and some other devices. The result is also in line with Dias & Victor (2017) who conducted research on Teaching and Learning with Mobile Devices in the 21st Century Digital World: Benefits and Challenges and found out that mobile devices hold great potential for transforming learning. Notedly, lecturers, and students have been influenced positively by the device, it has helped in communication, collaboration and ability to research

Findings on the influence of Internet platforms in enhancing the teaching and learning of Economics at UNN. showed that all items included in the study had mean ratings above 2.50 set as a criterion for acceptance. This shows that internet platforms enhance the teaching and learning of Economics in UNN. This result is in agreement with Rajshree & Edward (1998) who investigated the impact of the internet on Economic Education. The study of Rajshree and Edward noted that using Internet resources to enhance economic courses has two principal advantages for students and lecturers. First, these resources offer a new medium of interaction that complements classroom instruction and facilitates teaching and learning. Secondly, they offer students and lecturers the opportunity to learn and use Internet technology and yield positive externalities for future academic and career paths.

The result on the challenges confronting the usage of digital technologies by lecturers and undergraduate Economics Students of UNN shows that there are challenges confronting the usage of digital technologies by lecturers and Undergraduate Economics Students of UNN. The present study observed that inadequate internet bandwidth (Poor network), high cost of internet data, irregular power supply, unavailability of digital technological devices, and lack of adequate ICT support in that order, were the most important challenges confronting the

utilization of DT in the teaching and learning of Economics in UNN. This finding aligns with Agim, Iroeze, Osuji and Obasi (2018) who identified unreliable telecommunication networks, insecurity, epileptic power supply, unreliable internet, and high cost of ICT hardware/software were identified as major challenges of availability and utilization DT.

Conclusion

The findings of this study emphasize the importance of DT in enhancing the teaching and learning of Economics in Universities. The study showed that DTs are moderately available, but well utilized in the teaching and learning of Economics in UNN. However, major challenges including the high cost of internet data and software, low internet bandwidth, and epileptic power supply, were the major challenges hindering the effective utilization of DTs in the teaching and learning of Economics in UNN.

Recommendations

Sequel to the findings of this study the followings were made:

- School administration should endeavour to supply lecturers and students with adequate bandwidths (network)
- The government and school management should ensure the provision of a constant power supply
- There should be prompt ICT support including regular on-the-job training of lecturers on the usage of technological advances in Economic instruction,
- Economics classrooms should be Equipped with digital technological devices
- There should be regular maintenance of available technological devices
- Enacting Provision policies that make the use of digital technology in teaching and learning of Economics compulsory
- Internet data should be Provided at affordable rates

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