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Higher Education in Post –Covid 19 Nigerian Universities: Sustainable Development in Environmental Education

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Abstract

Due to the COVID-19 pandemic, there was a global shutdown of all physical businesses and activities, including higher education institutions. The shutdown was a measure to curtail the spread of the infection. Nigerian higher education institutions deduced a plan of action for the utilization of information and communications technology (ICT) to convey their programs online to their registered students. Regardless of the continuous development of students' own learning networks based on associations attributable to emerging technologies in the 21st century, higher education curriculum developers and teachers in Nigeria have neglected to engage students to find the degree to which students' own learning networks are of utmost importance. This case study applies a qualitative research approach. Semi-structured interviews were conducted with twenty Nigerian universities, and the semi-structured interview questions aimed to get the facts about the previous use of technology in teaching and learning in their respective departments. The semi-structured interviews also investigated whether the lecturers are ready for the emerging trend of a new era of digitalization for effective teaching. The analysis of the research findings shows that there are barriers that prevent effective and efficient ICT use and suggests possible solutions.

Keywords: Teaching and Learning, Information and Communications, Technology, Higher Education, Universities.

Introduction

The use of technology and network connectivity for teaching and learning is referred to as online learning, also known as electronic learning (e-learning) or digital learning. It is also known as transferring knowledge and skills to the student via technology. This teaching and learning approach makes use of computers and the internet, which makes learning accessible from anywhere at any time as long as the essential infrastructure and resources are in place. One of the more popular educational trends today is online learning.

Due to the COVID-19 pandemic, there was a global shutdown of all physical businesses and activities, including higher education institutions. The shutdown was a measure to curtail the spread of the infection. Nigerian higher education institutions deduced a plan of action for the utilization of information and communications technology (ICT) to convey their programs online to their registered students [1]. This crisis has given a chance to all higher education institutions to rapidly improve and expand their ICT activities. Because of the anticipated challenge between students of various social capital backgrounds, the wealthy who live in urban areas and the poor who live in rural areas with limited internet access, this research primarily targets mature students, those in the labor market, and those seeking to improve their qualifications. This study aims to show that the digitalization system of academic learning will not remain the same in universities after the COVID-19 pandemic. In Nigeria, universities are perceived as organizations built up for the advancement of knowledge, scholarship, and innovation [2]. Postgraduate programs are viewed as channels through which universities create research limits and produce the skills needed for an effective economy and to address complex issues, for example, the present worldwide financial downturn, global warming, destitution mitigation, and so forth [3]. This research is about the expected technological trend of higher education students after the coronavirus pandemic in universities. It is obvious that the COVID-19 pandemic has given a chance to all higher education institutions to rapidly improve and amplify their ICT activities. In any case, most of them don't have the ability to completely convey the entire program online. This study will explore the need for higher education institutions to shift to online teaching and learning in substitution for teaching at the four corner walls of the classroom and likewise explore the underpinnings of students' technology use in their own learning network in a higher educational environment.

Problem Statement

Regardless of the continuous development of students' own learning networks based on associations attributable to emerging technologies in the 21st century [4], higher education curriculum developers and teachers in Nigeria have neglected to engage students to find the degree to which students' own learning networks are of utmost importance. Nigeria is

seen as a nation with immense potential for development among different nations in Africa and is called upon to tackle its assets for the multiplication and development of the information, communication, and technology industries. The resultant impact of information, communication, and technology in our instructional conveyance framework is the adjustment in the learning patterns of our students [5]. The utilization of PCs, cell phones, and the Internet is at its highest level to date and is expected to keep expanding as technology turns out to be increasingly accessible, especially for users in developing nations [6].

Research Questions

In addressing the research problem, this study is guided by the following research questions:

Research Questions

- How effective was the use of technology and network connectivity for teaching and learning in Nigerian tertiary institutions?

- How can the technological system of education be improved in post-COVID-19 African higher education?

Aims and Objectives

This study aims to analyze how effective teaching and learning were in Nigerian universities during the COVID-19 pandemic and the need to integrate technology into the mode of teaching in Nigerian tertiary institutions. In order to achieve the aim of this study, the objectives are:

-To enumerate the effective use of technology and network connectivity for teaching and learning in Nigerian tertiary institutions?

-To investigate the factors that could improve the technology system of education in post- COVID-19 African higher education?

Literature Review

Instructors consider learning as a functioning procedure prompting the acquisition of knowledge that is durable, quantifiable, and explicit to changes in behavior [7]. The primary aim of learning is to urge an individual to become a problem solver and resourceful. There are numerous hypotheses planned for supporting the learning and teaching processes. For instance, [8] propose that visual and verbal codes for representing information are utilized to arrange approaching information into knowledge that can be acted upon, stored, and retrieved for future use [9]. In the present century, technology has been integrated into our system of education, taking the place of our traditional ways of teaching, learning, and conducting research. Technology can be characterized in terms of different innovations. [10] expressed that "Millenials consume and gain from varieties of media, regularly and at the same time", Technology goes beyond simply demonstrating recordings and

PowerPoint presentations. Indeed, one professor expressed, for one of her classes, "I don't think that students like PowerPoint" [10].

Technology goes beyond simply utilizing slides and visuals in the study hall. It is alluding to numerous new and current mediums, for example, iPods, online journals, CD-ROMs, and intuitive methods for sharing information. [10] clarified, "Nearly everybody today, it appears, is an information broadcaster, a blogger, or somebody who keeps up a website or puts out a podcast. Less individuals realize how to sit and listen (p. A36). A researcher depicted teaching at the four corner walls of the classroom as "a learning method that is just obsolete" [11]. In the event that students need more collaboration in the classroom, educators need to upgrade their teaching to meet the needs of students and apply for technology teaching. The questions that raise concerns are, "How would they learn? How would they like to learn?" [12]. There is a wide range of technology utilized in classrooms today.[10], sketched out the kinds of technology that traditional students need to utilize in the classroom.

Traditional students need study halls that are more involved and visual; they need study halls where they can utilize handheld gadgets, for example, computer games, intuitive recordings, or classes that are adaptable, giving them the opportunity to complete assignments through the Internet. While some traditional students are fed up with PowerPoint presentations [10], In any case, as Naomi Baron, a semantics educator at American University, expressed, she isn't sure students like or are getting anything from her PowerPoint introductions [12]. Traditional students are further developed by the way they get and send information. Educators who are not yet utilizing classroom teaching as their essential method of teaching are being described as boring to students [12]. A few teachers are starting to rebuild their class time to include more conversation and one-on-one time. One educator remarked that he even started to hate lecturing in light of the fact that he realized students were listening and focusing, so he started utilizing progressively intuitive exercises in the classroom [13]. In any case, as one educator observed, that isn't sufficiently even [10].

Doebel (2020) brought up that, on the grounds that traditional students observe more TV and take an interest in increasingly intuitive games nowadays, they presently have shorter capacities to focus, particularly in the study hall. However, in the study hall, regardless of the level of education, they are approached to sit unobtrusively and focus for extensive stretches of time. Despite how traditional undergraduates became masters with specialized gadgets, if educators are going to meet up with them, they should adjust their teaching to the most ideal ways students learn, and that might be through technology. [14] found that advocates for technology in education "need to improve current teaching, however, time and again they neglect to ask whether those 'traditional techniques' are being utilized to show the correct content" (p. 22). Others contend that the sort of technology utilized in the classroom is just as

significant as how it is utilized and in what setting it is utilized in the study hall to emphasize.

Digital Education around the World

As noted by Hoekstra [15], digital education (DE) has grown in significance within educational frameworks all around the world in recent years. With technological advancements, digital education is becoming more and more popular in Malaysia [16]. According to [17], the potential of accessing education through distant learning platforms is a timely answer to the challenge facing people in the workforce who need to continue expanding their knowledge and abilities but are hampered by time or distance. The success of the plan can be attributed to the availability of internet services that make it easier to distribute premium multi-media educational resources. [18] states that using a variety of learning platforms, including site-based instruction, print media, audio, and computer-supported interaction, is the preferred method of delivery from the perspective of Malaysian students (or a hybrid). Using various delivery methods primarily serves the purpose of reaping the advantages of each.

According to [19], the UK's Open University has increased access to education for persons who would not otherwise be able to pursue higher education. According to Ding and Orey (2010), digital education has developed into a crucial method for ensuring everyone has access to education in China. A large number of individuals in China's rural areas now have access to elementary education thanks to digital education's advancements in recent years. China's delivery method for digital education has evolved through three different means, from correspondence to radio and television to online multi-media delivery, which, according to [20], has become the country's most important delivery method at the moment.

In North America, digital education has advanced since the early days when postal systems were the only means of delivering teaching and learning materials. Adams (2016) describes how digital education changed from relying solely on correspondence as a distribution method prior to the availability of the present internet choices. [21] claim that the quality has significantly improved as a result of the internet's and web-based course management's rapid expansion. [22] claim that text-based conferencing is the most common method of delivering digital education in North America.

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educational resources. [18] states that using a variety of learning platforms, including site-based instruction, print media, audio, and computer-supported interaction, is the preferred method of delivery from the perspective of Malaysian students (or a hybrid). Using various delivery methods primarily serves the purpose of reaping the advantages of each. [22] claim that text-based conferencing is the most common method of delivering digital education (DE) in North America. Scheduling live instructional synchronous sessions is difficult in North America, according to [22]. The recommended option is therefore web-based asynchronous sessions. Because practically all technological advancements occur in wealthy nations, using technology to digitize education has been extremely simple. The cost of services has decreased as a result of this. Information and communications technology (ICT) capacity increased significantly in the ten years prior to the release of Bates' article, "The Ongoing Development of ICT Capacity," which was published in 2001. Technology developments, expanded ICT capacity, and an increase in ICT supply, according to Bates, have significantly lowered the cost of digital communication (particularly with respect to telephone communication).

The fact that access to ICT is still a problem due to costs suggests that Africa has not benefited significantly from these trends. According to [24], only up to 40 percent of Africans have access to the internet, compared to almost 70 percent of people in South America, the Caribbean, and the Middle East. The world's wealthier regions have higher per-population internet usage rates. For instance, the rates are almost 90 percent for Europe and North America. It's interesting to note that despite having the lowest internet usage rate per capita, Africa has one of the highest rates of internet usage growth.

According to [25], The following problems have been highlighted as global trends in digital education:

(i) Digital education is becoming more popular around the world; (ii) technological advancements are fostering digital education's expansion; (iii) traditional delivery techniques for digital education programs are still used today, despite the use of internet-based technology. For instance, face-to-face interactions, print media, radio, and television are still combined with computer-supported interactions; (iii) there is still a digital divide in the world based on the economic position of countries. Wealthy nations have easier access to internet infrastructure than developing nations do.

Methodology

This case study applies a qualitative research approach. Semi-structured interviews were conducted with twenty Nigerian universities, and the semi-structured interview questions aimed to get the facts about the previous use of technology in teaching and learning in their respective departments. The semi-structured interviews also investigated whether

the lecturers are ready for the emerging trend of a new era of digitalization for effective teaching. On the other hand, possible challenges that might be faced in terms of facilities are another wonderful view to be gathered from the academic staff of the faculty. The data collected by the participants was analyzed using thematic analysis.

Findings And Conclusion

The analysis of the research findings shows the following barriers prevent effective and efficient ICT use:

TOO MANY DEVICES FAIL.

In an effort to conserve money, school districts frequently retain a fleet of devices that vary in age, manufacture, and model. Yet, as these devices get older, device failure occurs more frequently. Device malfunctions are becoming a big source of frustration for teachers because remote and digital learning depend on them.

Solution

In order to support digital learning, school districts should work to provide a regular and dependable refresh cycle for all devices. To increase efficiency and lower maintenance costs, districts should replace outdated technology with new, standardized equipment.

WORKERS EXPERIENCE STRESS

It's normal for teachers to have trouble adjusting to new digital tools. Understanding new digital platforms, knowing where to look for documents, and knowing who to ask for help can reduce student participation and possibly cause confusion. All of this might overwhelm employees and make learning less effective.

Solution

One of the easiest methods to provide the right assistance to overworked personnel is to create change champions within your institution. Put team members who have a proven track record of implementing new technologies in a position to assist others who are having trouble.

Transform your tech-savvy early adopters into knowledgeable advocates who encourage adoption and offer support.

EDUCATORS MAKING USE OF UNSUPPORTED APPLICATIONS

As not all technology is created equal, your teachers may frequently prefer to use options that are not approved by your district. This is a serious problem because it might fracture your user base, encourage employees to use unapproved apps, and cause problems for your IT team because of the complicated technological ecology that would develop.

Solution

Provide a uniform experience to teachers and students that is based on standardized technological solutions and integrated with efficient training. Provide instructors with a rich content library so they can collaborate and grow together. Always give teachers and students a way to offer feedback.

COMMUNICATION GAP

The lack of teacher connection is a significant barrier to digital learning. Via digital learning, many students find it challenging to interact and communicate with their teachers. When a teacher is not there, it can be difficult to hold the kids' attention. Likewise, courses like the sciences that frequently require actual presence are challenging to understand.

Peer social contact can also be problematic. Students can't collaborate on assignments in person and don't form relationships as easily. Pupils are unable to participate in engaging debates, classroom humor, or group projects.

Solution

Emulating the classroom environment is better than copying it. Throughout class, encourage students to speak up and identify themselves. Build an online community where students can interact and talk about topics unrelated to the classroom.

Provide forums where students can debate ideas and voice their perspectives. Establish ground rules to prevent debates from becoming out of control. In order to simulate the social contact they would have in a typical classroom context, encourage students to collaborate on projects. Using writing tools like Google Docs, several people can collaborate on one assignment.

SELF-DISCIPLINE

Self-discipline is a problem that many students face, and attending classes online might make it worse. Students who struggle with procrastination may find it difficult to sit down and complete their assignments without being prodded. Due to the fact that attendance is frequently not required in digital learning, it can be easy to ignore a task or even a whole class. If home life and school are not clearly segregated, life also gets complex. In contrast to in-person learning, when school and home life have more distinct borders, the two frequently intersect.

Solution

Provide your pupils with resources to help them avoid procrastinating. Provide the students (and parents, if applicable) with a thorough syllabus so they will know what to expect from the class and may mark off assignments when they are finished. Due dates are communicated more easily with the aid of calendars that have set reminders for chores and assignments.

[26] said that internet dispersion is primarily restricted to the larger cities. The majority of the rural inhabitants reside outside the coverage zones. The following barriers to the effective and efficient use of ICT are also listed by [27]:

The following factors contribute to poor internet service quality: (i) prohibitive subscription costs (ii) ineffective network traffic and infrastructure management (iii) insufficient advertising methods (iii) insufficient relevant user information (iv) and (v) an unfavorable legislative framework. According to [27], obstacles to the expansion of internet-based delivery systems in Africa include unequal access to the internet for urban vs. rural populations, unreliable internet services, and costly ICT costs.

[28] listed additional factors to the long list of difficulties that limit the use of technology for digital education, such as the absence of face-to-face tutorial support for students, the development of unreliable and unsustainable materials, the lack of staff development strategies that keep up with the rapidly evolving nature of technology, high course costs, and insufficient funding. According to [29], some prospective digital education students are unable to access the curriculum because they lack digital literacy.

Recommendations

Based on the challenges identified in this paper, the following recommendations are made to the Nigerian government and higher institutions of learning in Nigeria.

The federal government gains a number of advantages from extending access to education through the adoption and growth of a robust digital education system that depends on ICT. An increase in technological literacy in particular can result in a workforce that will meet a country's economic needs for human resources. In order to accommodate the demand for education, schools and colleges also need to be constructed and furnished. ICT-dependent digital education is an effective way to address the issue because it is less expensive than face-to-face teaching and learning delivery methods. Therefore, it is wise for national governments and their social partners to establish an atmosphere that is conducive to promoting ICT in education by taking the following actions:

(i) Creating plans to improve and sustain the quality of internet services (ii) Better network traffic and ICT infrastructure management (iii) Encouraging the growth of ICT research (iv) Creating a welcoming legal environment by enacting laws and policies (such as tax incentives) that draw and safeguard private companies that offer ICT services (such as internet service providers, suppliers of ICT software and hardware, and manufacturers of mobile ICT devices); and creating plans for reducing the cost of ICT service subscriptions. (v) Better public funding for institutions supporting digital education

In order to manage and provide ICT-based learning, digital education providers should embrace and uphold best practices, which include:

(i) choosing ICT learning platforms that are user-friendly; and (ii) supporting students who lack computer literacy (e.g., conducting basic computer skills at community-based digital education centers). (iii) Creating and routinely updating instructional materials that are suitable for transmission online (e.g., materials with clearly stated learning objectives, clearly structured content, relevant and authentic student activities, and clear rubrics for exercises). (iv) Hiring capable IT professionals to oversee educational technologies (v) Increasing faculty members' ability to uphold quality (e.g., training faculty in the development of online teaching and learning materials). (vi) Continuously tracking and assessing digital education actions (e.g., through soliciting feedback from learners and using the data for system improvement). (vii) Using cost-cutting tactics without sacrificing quality, such as promoting personal and mobile technology platforms that are more accessible and well-liked by the target demographics [30]; utilizing social media for academic objectives [31].

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