INFLUENCE OF ICT USAGE INFLUENCE ON UNIVERSITY LECTURERS' TEACHING PROFICIENCY DURING A PANDEMIC ERA

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Abstract
This research investigated the influence of ICT usage on lecturers' proficiency in teaching during COVID-19 in private universities in Oyo and Osun States, Nigeria. The study was guided by three research questions. Mixed-methods approach was adopted. The population comprised all staff (both academic and non-academics) in private universities in Oyo and Osun states. The study adopted quantitative and qualitative data types using both primary and secondary data sources. Primary data were collected using individual structured questionnaires administered in the six sampled private universities and Key Informant Interviews (KIIs) for staff and heads of departments. A total of two hundred (200) respondents were selected as the sample for this study. In addition, a total of twelve (12) key informant interviews (KIIs) was conducted. Analysis of data was done using both descriptive statistics of frequency counts, percentages, charts, and content and thematic analysis was used. The findings revealed that, quite a few of the lecturers sampled were proficient in ICT usage, with many lecturers in private universities in Oyo and Osun States insufficiently skilled in ICT use. The study also revealed that prior to COVID-19 pandemic, most universities had not used ICT tools such as Zoom, Google Meet, and other virtual platforms. The study also found the obstacles faced by lecturers in ICT usage during COVID-19 to include; low power supply, lack of quality phones, laptops and personal computers, huge cost of data, infrastructural challenge and unreliability of the telecommunication. It recommended that the private university owners in Nigeria should urgently develop a policy framework to ensure that university lecturers acquire the necessary ICT skills through training and development programmes that will assist them in teaching, research, and other allied duties.

Keywords**:** *Influence, ICT, Lecturers, Proficiency, Teaching, COVID-19*

Introduction

Information and communications technology (ICT) encompasses all technologies used to manipulate and communicate information. The ubiquitous impact of ICT on education is undeniably felt all across the world. Information and communication technology has had an important influence on the value and extent of instruction, learning, and enquiry in the establishments where it is used. The usage, integration, and dissemination of ICT have ushered in a new era in educational practices, significantly altering conventional ways of information delivery and consumer behaviour in the domain while also delivering current learning experiences for both lecturers and students.

Information and communications technology (ICT) is largely considered as a trustworthy and efficient tool for promoting growth, reforms, and development at all levels in Nigeria and around the world. It serves as a forum for dialogue and a tool for accomplishing the fourth Sustainable Development Goal (SDG-4). Since the "No Child Left Behind" (NCLB) Act of 2001 and the SDG-4 were established, many nations have embraced permanent schooling for all by incorporating ICT into instruction and learning at all stages of the school. The need of transforming teaching and learning through ICT to enable "education anytime, anywhere, for every citizen" cannot be overstated. Following the outbreak of COVID-19, which has compelled many governments and educational institutions throughout the world to implement remote instruction, there is a pressing requirement to completely integrate ICT into the educational system, particularly in Nigeria, given its position as Africa's giant.

According to Agbetuyi and Oluwatayo (2012), ICT has greatly facilitated the acquisition and absorption of knowledge and improved the Nigerian educational system; improved access to distance/remote learning resources and resource persons worldwide; promotes the shift to a learner-centred environment; improved ICT skills acquisition through videos, television, multimedia computer software, and combined through drill and practice, helps ICT improve the transmission of basic skills. Tens of thousands of schools were forced to close in March 2020 as a result of the COVID-19 pandemic lockdown in a number of countries, including Nigeria. The COVID-19 problem had made the global educational system extremely challenging. Over 191 countries had stopped their schools for over three months of 2020 using World Health Organization (WHO) recommendations. Over 1.5 billion students from prekindergarten through tertiary institutions have been affected by the lockdowns, and online instruction has been disrupted for an unknown amount of time. Millions of educational institutions, teachers, students, and parents did not want to accept new virtual education platforms and programmes, despite some of them being keen to do so. In view of COVID-19 school lockdown, remote and distance learning platforms became critical for the combined provision of learning for everyone (Montoya & Barbosa, 2020).

Universities, as knowledge-generating and dissemination institutions, have played a significant part in the expansion of new thoughts, abilities, technology, and knowledge and experience in a variety of fields. They act as nexuses for creative efforts, ideas, and inventions, and they educate all individuals who qualify for enrollment in these areas in appropriate skills. Universities are becoming progressively important in establishing a nation's economic ability to participate mutually in a knowledge-based global economic environment. Because universities are critical to national development (Nweze, 2010). For the purposes of this research, private universities are those that are not owned or managed by the government, either federal or state. Private individuals, organizations, and missionaries own and manage them.

Principal evaluations, classroom artifact analysis, teaching groups, teacher individual-reports of practice and student scores/assessments of teachers' performance are all used to evaluate teaching. The capacity of a teacher to increase students' test scores on standardized achievement examinations as well as other emotional competencies, such as cooperation and self-control, in order to ensure their success both inside and outside of the classroom, is also evaluated. Calculating the quantity of time consumed using a computer for teaching and learning or any other job-related task involves taking into account the vanity of the systems used, the quantity of job responsibilities that use computer expertise, the rate of system use, and the quantity of time consumed using a computer for any other on-the-job assignments (Adegun, Akomolafe & Adesua, 2013).

Only a few Nigerian public universities, according to Adavbiele (2016), are able to provide for the ICT requirements of both staff and students. What will happen to the remaining institutions is now the question. For access to a computer with an internet connection, many university lecturers and learners must travel to a nearby commercial cyber café or, at best, purchase private modems. Universities seem to be in a better position in this regard, as the majority of them, including Covenant University, Afe Babalola University, American University of Nigeria, and others, offer constant internet connectivity on their campuses. However, their student and lecturer populations are smaller than those of public universities.

Numerous published research findings have addressed the use of information and communications technology in universities in advanced countries including Germany, the United States, the United Kingdom, Brazil, and France. To the best of the researcher's knowledge, however, such empirical studies appear to be restricted in scope in unindustrialized nations like Nigeria, especially at the level of private universities. Based on the aforementioned scenario, this study attempts to empirically close that gap in literature in the Nigerian states of Oyo and Osun.

Statement of the Problem

The COVID-19 virus, by all indications, seems to have come to stay. The pandemic's devastation on all aspects of human and national life cannot be overstated. Its numerous consequences, which include economic, social, political, educational, and overall human existence, are undeniable, particularly in developing countries such as Nigeria. As of April 12th, 2021, there had been 136,780,837 COVID-19 cases reported globally, with 2,951,943 deaths and 109,995,305 recovered cases (WHO). In Nigeria, there were 1,838,174 samples analyzed, 163,793 confirmed cases, 7,626 active cases, 154,107 discharged cases, and 2,060 lives lost, according to the Nigeria Centre for Disease Control (NCDC). These figures are disturbing, and all hands must be on deck to halt the spreading Influence of the COVID-19 pandemic.

More than half of the global students had been impacted by their inability to physically attend school in at least 120 countries (UNICEF, 2020). According to the UNICEF, closing schools had serious social and economic repercussions for individuals in all kinds of communities. The most defenseless and disenfranchised boys and girls, as well as their families, were disproportionately harmed by them. The ensuing instability exacerbated the disparities already present in the educational system. The majority of the countries, including Nigeria, decided to temporarily close schools in an effort to stop the spread of COVID-19. On the other hand, education had continued, and it was accessible online through the usage of virtual classrooms. One cannot overemphasize how important it is for university lecturers to adopt modern ICT facilities for teaching. The out-of-school learning gap varies by socioeconomic level, access to technology, and parental capacity despite the pandemic's broad interruption of classroom learning. Furthermore, how great of an effect COVID-19 will have on workers' ability to support themselves in the education system will depend on how successfully each worker adjusted to changes in how excellent education services were provided despite the outbreak.

Previous studies, such as Ukata and Onuekwe (2020), Luis, Gemma, Carmen-Maria, Hugo, and Jose-Luis (2020), have discovered the benefits and links between integrating ICT and digital skills because they enable students to acquire and master technology tools, making them suitable for virtual education. Furthermore, it is important to consider whether the teachers are knowledgeable about and proficient in the use of ICT tools. The purpose of this study was to see how the use of ICT influences lecturers' ability to teach during the COVID-19 pandemic in the Nigerian states of Oyo and Osun.

Research Questions

The following research questions guided the research;

(i) How effective is the adoption of ICT in teaching during COVID-19 pandemic in private universities in Oyo and Osun states, Nigeria?

(ii) What are the types of ICT tools used by lecturers in teaching during COVID-19 pandemic in private universities in Oyo and Osun states?

(iii) What are the obstacles faced by lecturers in ICT usage during COVID-19 pandemic in private universities in Oyo and Osun states?

Influence of COVID-19 Pandemic on Education in Nigeria

The last few weeks of March 2020 saw an unusually high level of awareness of the COVID-19 breakout threat. As COVID-19 spreads globally, we needed to essentially recognize what it implied for worldwide education systems. In order to contain the virus, many governments were making efforts to reduce large crowd gatherings. Our schools were not immuned to these activities or the spread of the virus. Many countries had put in place measures ranging from the prohibition of public gatherings to the temporary closure of schools.

The 2019-2020 corona virus pandemic had affected educational systems all over the world, resulting in widespread school closures. As of April 3rd, 2020, over 421 million students were absent from school due to COVID-19-related school closure. According to UNESCO monitoring, over 200 nations had implemented shutdowns, impacting 98 percent of the worldwide students' population.

More than 100 countries had closed primary, secondary, and tertiary schools as part of efforts to halt the spread of the virus using non-clinical therapies and preventative methods such as social distancing. Because the virus could be easily transmitted through close contact with the carrier, Nigeria had made it a priority to ensure that all schools and staff followed the rules. In reality, many unified examinations were rescheduled (Adelakun, 2020). Many countries had decided to shut down their institutions of learning. The issue highlighted the dilemma that policy makers had to face when deciding whether to shut down institutions or keep them exposed (permitting staffs to work and sustain the economy). Many families around the world had been significantly affected by the serious disruption; learning at home was not simply an enormous shock to parents' production, but also to children's common existence and knowledge. Education is transiting remotely on an exceptional scale. Furthermore, when it came to online student assessments, there was high percentage of trial-and-error and ambiguity for each person. Several evaluations had been canceled. Significantly, the interruptions were not only an immediate issue; they may have had long-term significance for the people affected (Adelakun, 2020).

According to the United Nations, the virus had caused the unimaginable interruption on education in history, touching nearly 1.6 billion learners across more than 190 nations and all regions. Furthermore, the United Nations reported that the shut-down of institutions and other learning facilities had adversely affected 94 percent of students worldwide. Except for a few private schools, government-owned public schools in developing countries such as Nigeria were unable to

provide online teaching and learning to their students. Nigeria had struggled to keep its students in school due to a high dropout rate prior to the outbreak. In reality, Nigeria accounted for nearly 20% of all globally absentee children. This figure was likely to rise as a result of the pandemic and the country's widening income disparity. According to a UNICEF report, 10.5 million Nigerian children aged 5 to 14 were not in school. Only 61% of children aged 6 to 11 regularly attended primary school. More than half of young girls in several states in the country's North East and North West were not registered in institutions of learning due to cultural biases against women going to school (Amorighoye, 2020).

The Use of Information and Communications Technology (ICT) in Teaching and Learning During COVID-19 Pandemic.

The cooperative and interaction nature of contemporary computer structure had given software developers the prospects to produce more thought-provoking structures. The computer system allowed for the creation of a wide-ranging and fascinating knowledge practices by making learning involving and social practice that supported individual objectives and desires. This was likely to keep students' attention; the cooperative and interactive programme structures of software could be used to help learners struggle to deal with curriculum ideas and concepts.

By delivering knowledge and intellectual undertakings everywhere and at any time, information and communication technology had the potential to increase the codification of knowledge about teaching and learning for innovation. In several teaching space conditions, it is challenging to allow learners to be satisfactorily lively contributors. If learners can take part and do it themselves, they are further expected to be fascinated and focused, as well as accomplish a wider range of learning results (Ukata & Unuekwa, 2020).

According to the Digital 2020 Global Overview Report, which was released in January 2020, about 60% of Nigerians lack accessibility to the internet and intranet facilities. Mobile handset, which can also be used as a learning support, are more positive. According to the study, 169.2 million Nigerians, or 83.5 million persons, have mobile phone services; however, half of these, or 84.5 million people, reside in metropolitan cities. Access would be unfair to higher socioeconomic families and built-up backgrounds, with the main stream of learners going to private schools, where they at present have a learning benefit over their public fellow learners. Children from low family backgrounds have inadequate accessibilities to intranet and internet, computers, and additional ICT tools, and will grow up in rural settings where indigenous dialects dominate over English language. Inequality in access to ICT-based education has the unplanned significance of worsening present learning differences along socioeconomic lines and the urban-rural gap.

Due to the length of the school closures, these learners will remain behind. Learners with learning incapacities and those living in easily broken and crises-

prone areas face even worse prospects. Given the technological background and income-driven numerical gap, this increases a serious issue of learning differences: how do we use available technology to serve children who are already marginalized during these closures? If this is not addressed, school closures may broaden the gap in learning value as well as basic socioeconomic inequality. A variety of learning delivery approaches, such as television, radio, and SMS-based mobile platforms, will be required to reach Nigeria's exposed population, all of which are more easily accessible to the poor. It is challenging to deny that more than 80% of grown persons have no access to radios and phones. While internet platforms allow for independent learning, other means of dissemination require the participation of a chief organizer as well as cooperation among all three levels of government and the private sector (media platform providers). This is where the Ministry of Education's involvement will be absolutely essential, as it will go beyond typical policymaking and regulation. While the federal government works to coordinate state initiatives by filling capacity and budgetary breaches, education commissioners could support states in implementing and utilizing this latest technology (Obiakor & Adeniran, 2020).

Challenges of ICT Usage in Teaching and Learning during COVID-19 Pandemic

Communication and Information in today's digital world, technology play a critical role in many areas of the economy, including education. These technology devices include, but are not limited to, internet-connected devices such as computers and smart phones. Other than that, having ICT skills is one of the obvious benefits for learners in a world driven by science and technology, particularly during COVID-19 lockdowns, when teaching and learning shifted from classroom to home locations in many parts of the world. Because technological advances in higher institutions have made online classrooms a necessary mode of instruction, ICT has been adopted for educational purposes (Carver & Rivers - Singletary, 2020).

Remote learning during the pandemic’s lockdown in Nigeria was studied, and it was found to be ineffective due to challenges such as a lack of digital equipment, skills, internet, and related resources. They proposed that responsible individuals provided teaching and learning material resources to enable multifaceted e-learning. One of the challenges of operating information technology in Nigerian institutions of higher learning was the extraordinary price of internet data and automated facilities, which is essentially the determining factor of ICT use and importance. The internet as we currently know, was created in the USA and quickly spread globally (Yekin, Adigun, Ojo, & Andakinwole, 2020). Because most third world countries pay huge amounts of money to the US government for a few megabytes of data annually, America maintains a stronghold of influence. This appears to be having an effect on the deployment and full utilization of

information and communications technologies in countries such as Nigeria. The high cost of internet data and fast charges by the service providers, mostly transnational companies doing business in the Nigeria with the main aim of income, are amongst the problems of ICT application in Nigeria. Fear of transitioning from old to new and modern methods is another impediment to ICT deployment in Nigerian universities.

Without a doubt, the majority of the staff have computer literacy or received basic computer training at some point, but computer training devoid of continuous practice is as worthy as nothing, because practice makes perfect. Nowadays, when virtually every mortal action depends on information and communications technology, computer illiteracy is a serious threat to any establishment, particularly in educational institutions (Anene, Imam & Odumuh, 2014). Furthermore, in Nigeria, electricity supply is the most significant impediment to the growth and development of most industries, and it is a significant setback to Nigeria's progress, as it is challenging to brag of a full day without power outages. This is a significant impediment to ICT in Nigerian tertiary institutions, as ICT and electronic devices require power source in all sectors (Azuh & Modebelu, 2014). Despite the government's significant investment in power, there is still room for improvement. This is because the management and deployment of ICT services rely heavily on electricity supply.

In addition, a lack of facilities hinders the use of ICT in Nigerian universities. In most Nigerian universities, printers, photocopiers, fax machines, computers, binders, projectors, and other basic devices and technologies are lacking. Internet access is also occasionally unavailable. The scarcity of these basic facilities contributes significantly to ICT integration challenges in Nigerian tertiary institutions, as no institution can function effectively in this modern ICT trend without them (Musa, Mahmud & Jalic, 2018). The following challenges to ICT adoption were identified by Olukayode (2015): a lack of computers, a lack of internet facilities, students' lack of access to e-learning facilities and tools, high software costs, and erratic power supply. The following are the barriers to ICT facility use: limited/restricted user access, poor maintenance culture, poor networking, lack of trained manpower, illiteracy, poverty (cost), inadequate infrastructure, irregular power sources, government policy structure, political factors, cultural factors, technological factors, and so on. It is therefore critical to address the issues that are impeding the effective integration of ICT tools in teaching, particularly in Nigerian universities. This will go a long way toward ensuring that the flaw affecting ICT and its applications is properly corrected.

Methodology

Research Design

This study adopted a mixed-methods approach. Mixed-methods research (MMR) is a research methodology that incorporates multiple methods to address research questions in an appropriate and principled manner, which involves collecting, analysing, interpreting and reporting both qualitative and quantitative data. This design was appropriate to the present study because combining two methods might be superior to a single method as it is likely to provide rich insights into the research phenomena that cannot be fully understood by using only qualitative or quantitative methods.

Population

The study population comprised all staff (both academic and non-academics) in private universities in Oyo and Osun States. These private universities are shown in Table 1.

Table 1: Private Universities in Oyo and Osun States

S/No	Names of Universities
1	Lead City University, Ibadan
2	Ajayi Crowther University, Ibadan
3	Dominican University, Ibadan
4	Kola Daisi University, Ibadan
5	Precious Cornerstone University, Oyo
6	Atiba University, Oyo
7	Fountain University, Osogbo
8	Adeleke University, Ede
9	Bowen University, Iwo
10	Joseph Ayo Babalola University, Ikeji-Arakeji
11	Oduduwa University, Ipetumodu
12	Westland University, Ode Omu
13	Redeemer's University Nigeria (RUN), Ede
14	Kings University, Ode Omu

Sampling Technique and Sample

The study adopted a multi-stage sampling approach. Six private institutions were sampled for the study in the first stage using the purposive sampling technique: Atiba University, Oyo; Lead City University, Ibadan; Ajayi Crowther University, Ibadan; Adeleke University, Ede; Bowen University, Iwo; and Oduduwa University, Ipetumodo. A random selection of faculties from each of the sampled universities was done in the second step. Thirdly, Departments from the sampled faculties were selected using a random sampling approach. Finally, the teachers from each department at the sampled institutions were chosen using a

straightforward random selection procedure. 200 Lecturers were sampled at random from the six private institutions in the study areas. In addition, twelve key informant interviews were carried out on lecturers and Heads of Departments in the sampled universities.

Research Instruments

Data was collected using a structured questionnaire and key informant interviews. The questionnaire was structured on a 4-point Likert rating scale. The benchmark for decision-making was based on the real limits of numbers as follows; 3.50-4.00 = Very High Proficiency (VHP), 2.50-3.49 = High Proficiency (HP), 1.50-2.49 = Low Proficiency (LP), while 0.00-1.49 = Very Low Proficiency (VLP) for positive statements. The scores were however reversed for negative statements of the instruments.

Data Analysis

The data was analyzed using descriptive statistics and thematic content analysis was adopted for the qualitative data. Table 1 indicates the data requirements, sources of data and method of analysis.

Findings and Discussion

Research question one of the study which was to find out the effectiveness of the adoption of ICT in teaching in private universities in Osun and Oyo States, Nigeria was analysed with a set developed questionnaire that assessed the effectiveness of the adoption of ICT using three components of teachers' proficiency in ICT, knowledge deepening and knowledge creation and it is as described in Table 2:

Table 2: Lecturers' Proficiency in ICT Usage

Proficiency in ICT Usage	**Very High Proficient**	**High Proficient**	**Low Proficient**	**Very Low Proficient**
1. I download or upload curriculum resources from/ to websites or learning platforms for students' use.	86 (44.8%)	85 (44.3%)	21 (10.9%)	
2. I organize computer files in folders.	73 (38%)	81 (42.2%)	38 (19.8%)	
3. I use power point presentation in my lectures.	68 (35.4%)	91 (47.4%)	27 (14.1%)	6 (3.1%)
4. I prepare materials to use with an interactive whiteboard.	41 (21.4%)	92 (47.9%)	49 (25.5%)	10 (5.2%)

5. I can retrieve an existing document from saved file.	82 (42.7%)	89 (46.4%)	21 (10.9%)	
6. I use internet facilities in my lectures.	60 (31.3%)	94 (49%)	36 (18.8%)	2 (1%)
7. I can produce a text using word processing programme	78 (40%)	77 (40.1%)	36 (18.8%)	1 (0.5%)
8. I communicate with students online	78 (40.6%)	67 (34.9%)	43 (22.4%)	4 (2.1%)
9. Download and install software and plug-ins on the computer.	74 (38.5%)	58 (30.2%)	45 (23.4%)	15 (7.8%)
10. I use email to communicate with my students	49 (25.5%)	97 (50.5%)	30 (15.6%)	16 (8.3%)
11. I assess research materials online.	112 (58.3%)	72 (37.5%)	8 (4.2%)	

From Table 2, majority of the respondents 86 (44.8%) were very highly proficient, 85 (44.3%) were highly proficient, and 21 (10.9%) were lowly proficient in using ICT to download or upload curriculum resources from/ to websites or learning platforms for students' use. It was also reported that 73 (38%) were very highly proficient, 81 (42.2%) were highly proficient, and 38 (19.8%) were lowly proficient in organizing computer files in folders and 68 (35.4%) were very highly proficient, 91 (47.4%) were highly proficient, 27 (14.1%) were lowly proficient and 6 (3.1%) were very lowly proficient in using power point presentation in their lectures. 41 (21.4%) were very highly proficient, 92 (47.9%) highly proficient, 49 (25.5%) were lowly proficient and 10 (5.2%) very lowly proficient in using ICT to prepare materials to use with an interactive whiteboard.

Also, it was discovered that 82 (42.7%) were very highly proficient, 89 (46.4%), were highly proficient, and 21 (10.9%) were lowly proficient in using ICT to retrieve an existing document from saved files, and 60 (31.3%) were very highly proficient, 94 (49%) were highly proficient, 36 (18.8%) were lowly proficient and 2 (1%) were very lowly proficient in using internet facilities in their lectures. Additionally, 78 (40%) were very highly proficient, 77 (40.1%) were highly proficient, 36 (18.8%) were lowly proficient and 1 (0.5%) were very lowly proficient in producing a text using word processing programme and 78 (40.6%) were very highly proficient, 67 (34.9%) were highly proficient, 43 (22.4%) were lowly proficient and 4 (2.1%) were very lowly proficient in communicating with students online. The results indicated that 74 (38.5%) were very highly proficient, 58 (30.2%) were highly proficient, 45 (23.4%) were lowly proficient and 15 (7.8%)

were very lowly proficient in downloading and installing software and plug-ins on the computer and 49 (25.5%) were very highly proficient, 97 (50.5%) were highly proficient, 30 (15.6%) were lowly proficient, and 16 (8.3%) were very lowly proficient in using email to communicate with their students. Lastly, 112 (58.3%) were very highly proficient, 72 (37.5%), were highly proficient and 8 (4.2%) were lowly proficient in accessing research materials online. The implication of this result is that the lecturers had high proficiency in the use of ICT facilities in private universities in Oyo and Osun States.

Table 3: Lecturers' Knowledge Creation using ICT

Knowledge Creation	**Very High Proficient**	**High Proficient**	**Low Proficient**	**Very Low Proficient**
12. I use scanners to capture pictures, texts and graphics	78 (40.6%)	66 (34.4%)	42 (21.9%)	6 (3.1%)
13. I use ICT facilities to teach students in the classroom.	58 (30.2%)	82 (42.7%)	42 (21.9%)	10 (5.2%)
14. I use ICT facilities to ensure that students learn at their own pace	49 (25.5%)	112 (58.3%)	30 (15.6%)	1 (0.5%)
15. I use ICT facilities to create excited and conducive learning environment.	61 (31.8%)	80 (41.7%)	45 (23.4%)	6 (3.1%)
16. I use ICT facilities to care for individual differences of the students	46 (24%)	82 (42.7%)	63 (32.8%)	1 (0.5%)
17. I use ICT to help students learn to search for information, process data and present information.	86 (44.8%)	67 (34.9%)	34 (17.7%)	5 (2.6%)
18. I use ICT to keep track of students' activities	43 (22.4%)	93 (48.4%)	52 (27.1%)	4 (2.1%)
19. I use ICT facilities to help students find appropriate instructional path.	53 (27.6%)	81 (42.2%)	49 (25.5%)	9 (4.7%)
20. I use ICT facilities to make learning more diverse	50 (26%)	108 (56.3%)	33 (17.2%)	1 (0.5%)
21. I use ICT facilities to provide students with practical and useful knowledge.	67 (34.9%)	94 (49%)	30 (15.6%)	1 (0.5%)

From Table 3, it was revealed that 78 (40.6%) were very highly proficient, 66 (34.4%) were highly proficient, 42 (21.9%) were lowly proficient and 6 (3.1%) were very lowly proficient in using scanners to capture pictures, texts and graphics and 58 (30.2%) were very highly proficient, 82 (42.7%) were highly proficient, 42 (21.9%) were lowly proficient, and 10 (5.2%) were very lowly proficient in using ICT facilities to teach students in the classroom. It was also reported that 49 (25.5%) were very highly proficient, 112 (58.3%) were highly proficient, 30 (15.6%) were lowly proficient, and 1 (0.5%) were very lowly proficient in using ICT facilities to ensure that students learn at their own pace and 61 (31.8%) were very highly proficient, 80 (41.7%) were highly proficient, 45 (23.4%) were lowly proficient and 6 (3.1%) were very lowly proficient in using ICT facilities to create excited and conducive learning environment. Also, 46 (24%) were very highly proficient, 82 (42.7%) were highly proficient, 63 (32.8%) were lowly proficient and 1 (0.5%) were very lowly proficient in using ICT facilities to care for individual differences of the students and 86 (44.8%) were very highly proficient, 67 (34.9%) were highly proficient, 34 (17.7%) were lowly proficient and 5 (2.6%) were very lowly proficient in using ICT to help students learn to search for information, process data and present information. 43 (22.4%) were very highly proficient, 93 (48.4%) were highly proficient, 52 (27.1%) were lowly proficient and 4 (2.1%) were very lowly proficient in using ICT to keep track of students' activities.

The results further indicated that 53 (27.6%) were very highly proficient, 81 (42.2%) were highly proficient, 49 (25.5%) were lowly proficient and 9 (4.7%) were very lowly proficient in using ICT facilities to help students find appropriate instructional path. Also, 50 (26%) were very highly proficient, 108 (56.3%) were highly proficient, 33 (17.2%) were lowly proficient and 1 (0.5%) were very lowly proficient in using ICT facilities to make learning more diverse. Lastly, 67 (34.9%) were very highly proficient, 94 (49%) were highly proficient. 30 (15.6%) were lowly proficient and 1 (0.5%) were very lowly proficient in using ICT facilities to provide students with practical and useful knowledge. The implication of this result is that the lecturers had high proficiency in knowledge creation using ICT facilities in private universities in Oyo and Osun States.

Table 4: Lecturers' Knowledge Deepening using ICT

Knowledge Deepening	**Very High Proficient**	**High Proficient**	**Low Proficient**	**Very Low Proficient**
22. I use ICT to develop certain skills in students.	59 (30.7%)	90 (46.9%)	43 (22.4%)	
23. I use ICT to help students with special needs to learn.	43 (22.4%)	86 (44.8%)	55 (28.6%)	8 (4.2%)

24. I use ICT facilities to support students in cooperation and teamwork	54 (28.1%)	90 (46.9%)	47 (24.5%)	1 (0.5%)
25. I use ICT facilities to help students blend learning and instruction	53 (27.6%)	102 (53.1%)	27 (14.1%)	10 (5.2%)
26. I use ICT facilities to support problem or case-based learning	54 (28.1%)	91 (47.4%)	46 (24%)	1 (0.5%)
27. I use ICT facilities to expose students to diverse learning methods	62 (32.3%)	84 (43.8%)	41 (21.4%)	5 (2.6%)
28. I ensure students use the web safely.	65 (33.9%)	89 (46.4%)	34 (17.7%)	4 (2.1%)
29. Teaching students how to use and the reason for using the technology	73 (38%)	83 (43.2%)	33 (17.2%)	3 (1.6%)
30. I use ICT facilities to help students evaluate their own progress	49 (25.5%)	99 (51.6%)	38 (19.8%)	6 (3.1%)

Source: Fieldwork (2021)

Results from Table 4 indicated that 59 (30.7%) were very highly proficient, 90 (46.9%) were highly proficient and 43 (22.4%) were lowly proficient in using ICT to develop certain skills in students and 43 (22.4%) were very highly proficient, 86 (44.8%) were highly proficient, 55 (28.6%) were lowly proficient, and 8 (4.2%) were very lowly proficient in using ICT to help students with special needs to learn. Also, 54 (28.1%) were very highly proficient, 90 (46.9%) were highly proficient, 47 (24.5%) were lowly proficient, and 1 (0.5%) were very lowly proficient in using ICT facilities to support students in cooperation and teamwork.

Also, 53 (27.6%) were very highly proficient, 102 (53.1%) were highly proficient, 27 (14.1%) were lowly proficient and 10 (5.2%) were very lowly proficient in using ICT facilities to help students blend learning and instruction and 54 (28.1%) were very highly proficient, 91 (47.4%) were highly proficient, 46 (24%) were lowly proficient and 1 (0.5%) were very lowly proficient in using ICT facilities to support problem or case-based learning. It is also reported that 62 (32.3%) were very highly proficient, 84 (43.8%) were highly proficient, 41 (21.4%) were lowly proficient and 5 (2.6%) were very lowly proficient in using ICT facilities to expose students to diverse learning method

Lastly, 65 (33.9%) were very highly proficient, 89 (46.4%) were highly proficient, 34 (17.7%) were lowly proficient 4 (2.1%) were very lowly proficient

in ensuring students use the web safely and 73 (38%) were very highly proficient, 83 (43.2%) were highly proficient, 33 (17.2%) were lowly proficient, and 3 (1.6%) were very lowly proficient in teaching students how to use and the reason for using the technology. Additionally, 49 (25.5%) were very highly proficient, 99 (51.6%) were highly proficient, 38 (19.8%) were lowly proficient and 6 (3.1%) were very lowly proficient in using ICT facilities to help students evaluate their own progress. The implication of this result is that the lecturers had high proficiency in knowledge deepening using ICT facilities in private universities in Oyo and Osun States.

Research question two was to establish the types of ICT tools used by lecturers in teaching during COVID-19 pandemic in private universities in Oyo and Osun States, Nigeria and it is analysed using content analysis of the qualitative data collected by key informant's interview questions.

"*ICT tool like zoom, google meet etc. Yes, we use google meet, but now the university has taken further steps to have a designated platform for teaching, for examination, for recording, and for so many things."* **Head of Department 1, Adeleke University, Ede, Osun State.**

The ICT tools I can say is the one particularly I used, now when you talk about ICT tools individuals did the little, they can for their courses while the management was able to harness their resources and make sure they reach out to everybody, teaching is a bit less demanding but to conduct examinations online for all the students was the responsibility of the management of the Adeleke University and that they did perfectly using CBT and other ICT tools. **Head of Department 2, Adeleke University, Ede, Osun State.**

Before Covid-19 we make use of smartboard in the classroom During Covid-19 we make use of Google classroom, zoom. **Head of Department 1, Lead City, University**

The ICT tools used before COVID-19 are electronic board and marker while during COVID-19, Google classroom, Zoom, Computer laptops, software programme, interactive teaching box information etc. were used. **Head of Department 1, Ajayi Crowther University**

G*oogle classroom, zoom, e-mail, voice note and text messages on Whatsapp*. **Head of Department 2, Lead City University, Ibadan.**

Before the COVID-19 pandemic era, we were using desk top computers, projectors, laptops, digital cameras and so on. During the pandemic era, we were using popplet, pen drive, zoom platform, Whatsapp, messenger, audio/video recorders, and so on. ***Professor, Biochemistry Department, Lead City University, Ibadan.***

Content analysis shows that ICT tools used in teaching have changed from sparing use of Whatsapp for communication purposes before COVID 19 pandemic to Google meet, Zoom app, Duo and other specialized virtual platforms for both teaching and examination purposes.

Research question three was to find out the obstacles faced by lecturers in ICT usage during COVID-19 pandemic in private universities in Oyo and Osun State, Nigeria and it was analysed with qualitative data using in-depth interview and the question asked was what do you consider to be the obstacles or challenges faced by lecturers in ICT usage before and during COVID 19 pandemic in your university and the participants' responses are as reported as follows:

"*It is just power outage that is the obstacle. And another thing is that you know you access it through either your phone or laptop, many students still find it difficult especially for those who do not have good laptop you know it breaks down, the phone is not all that in good condition for many of the students, but those that have quality hand phone or laptop there wasn't any problem muc*h". **Head of Department 1, Adeleke University, Ede, Osun State.**

"Well, in the usage of ICT, the airtime, buying airtime if you are taking your ten courses this person is coming from here asking question this person is coming from here asking questions, it made little demand on the pockets of the lecturers, but here at Adeleke University we are happy to do it, in the sense that it was novel and being novel let try it and now we have tried it we have seen what it is, that it can be costly, it can be financially demanding, now that it is financially demanding we will now know what next to do when the issue of opportunity comes from we have not stop using the ict even in some of our large classes some lecturers are still using the ict in the mode of delivering lectures it is still in vogue yes still in vogue." **Head of Department 2, Adeleke University, Ede, Osun State.**

"It is basically the fault of anybody per se more or less the way we admonish ourselves, infrastructural deficit is a big challenge in our country no doubt about it. Aspect of energy is there, unreliability of the telecommunication and basically all these rob on the academic. Even the data we used the way the data runs before you know when you want to download materials the data has finished. May God help us" **Head of Department 1, Bowen University, Iwo, Osun State.**

The two main challenges were Lack of constant electricity and poor internet access before and during Covid-19. **Head of Department 1, Lead City, University**

The obstacles faced by lecturers in the use of ICT before COVID-19 was trying to adapt to the electronic board and most times electricity. While during COVID-19, most students could not sign in for the class due to network problem, high cost of Data usage, frequent interruption of the class and time limit set for the Google classroom. **Head of Department 1, Ajayi Crowther University**

Data expenses, laziness on the part of the students. We also experience the problems of power supply as well as network issues. **Head of Department 2, Lead City University, Ibadan.**

The challenges of we are facing in the use of ICT facilities are many. However, I can mention some of them to include; lack of power supply, inadequate facilities, poor infrastructure, lack of data, network issues, lack of adequate knowledge on

the part of some users, lack of funds, etc. ***Professor, Biochemistry Department, Lead City University, Ibadan.***

The overarching content of the obstacles faced by lecturers in ICT usage during COVID-19 are low power supply, lack of quality phones, laptops and personal computers, huge cost of data, infrastructural challenge and unreliability of the telecommunication and basically all these rob on the academic. poor internet access, trying to adapt to the electronic board, inability to sig in by most students for the class due to network problem, frequent interruption of the class, time limit set for the Google classroom, laziness on the part of the students, poor infrastructure, lack of adequate knowledge on the part of some users and lack of funds.

Summary of Findings

This study investigated how lecturers' proficiency in teaching was influenced by their use of information and communication technology (ICT) during the COVID-19 pandemic in private universities in Oyo and Osun States. According to the findings, quite a few of the lecturers sampled were proficient in ICT usage. However, many lecturers in private universities in Oyo and Osun States were insufficiently skilled in ICT use. The study also revealed that prior to COVID-19 pandemic, most universities had not used ICT tools such as Zoom, Google Meet, and other virtual platforms. The study also identified the obstacles faced by lecturers in ICT usage during COVID-19 to include; low power supply, lack of quality phones, laptops and personal computers, huge cost of data, infrastructural challenges and unreliability of the telecommunication and basically all these rob on the academic. poor internet access, trying to adapt to the electronic board, inability to sign in by most students for the class due to network problem, frequent interruption of the class, time limit set for the Google classroom, laziness on the part of the students, poor infrastructure, lack of adequate knowledge on the part of some users and lack of funds.

Conclusion

It was concluded that the use of information and communication technology (ICT) facilities have positive influence on lecturers' proficiency in teaching during COVID-19 in private universities in Oyo and Osun states, Nigeria. It has been discovered that the use of ICT enhances the value of instruction, contributes to the advancement of research, broadens the educational opportunities available to students, particularly those with restricted access to education, and generally improves the teaching-learning environment. ICT stands for information and communications technology, and it is a tool for raising educational standards. The 21st century will see a greater emphasis on ICT in education due to the world's rapid transition to digital media and information. The advancements in information

and communication technologies have created extremely exciting educational prospects. Higher processing power, more user-friendly and wireless technologies, and lower transmission costs have all helped to eliminate barriers to information flow and access in recent years. Modifications to the economic and social foundations necessitate a shift in the general public's abilities, attitudes, and skill sets. This necessitates changing the pedagogy and delivery methods employed in the current educational system. ICT makes educational delivery more flexible, enabling students to access knowledge at any time and from any location. Given that learning processes are increasingly learner-driven rather than teacher-driven, it may have an impact on how students are taught and how they learn.

Recommendations

The following recommendations are made;

1. The government and private university owners in Nigeria should urgently develop a policy framework to ensure that university lecturers acquire the necessary ICT skills through training and development programmes that will assist them in teaching, research, and other allied duties.
2. Nigerian government should urgently invest in ICT infrastructure in public universities through the relevant agencies such as NUC, NITDA, and NCC to provide and develop e-centres in universities.
3. The proprietors of private universities and the government in collaboration with the NUC should provide all the required ICT tools needed for teaching and learning in both private and public universities in Nigeria.
4. The government should provide and ensure regular power supply in the universities through the provision and installation of inverters and solar panels. Adequate provision should also be made for computer laboratories in all the universities in Nigeria. For university lecturers, ICT training programmes, including seminars, workshops, and conferences should be conducted.

References

Adavbiele, J.A. (2016). The use of ICT to enhance university education in Nigeria. *International Journal of Education, Learning and Development*, 4(5), 1-11.

Adegun, O.A., Akomolafe, C. O. & Adesua, V.O. (2013). The usage of information and communication technology by women in tertiary institutions in Ekiti State, Nigeria.

Adelakun, A.I. (2020). Corona virus (COVID-19) and Nigerian education system: impacts, management, Responses and way forward. *Education Journal*, 3(4), 89-102.

Agbetuyi, P.A. & Oluwatayo, J.A. (2012). Information and communication technology in Nigerian educational system. *Mediterranean Journal of Social Sciences*, 3(3), 41-45.

Amorighoye, T.A. (2020. COVID-19 has exposed the education divide in Nigeria. This is how we can close it. World Economic Forum COVID Action Plan. Retrieved from www.weforum/agenda/2020/education-nigeria covid-19 on 25th Sept. 2020.

Anene, J.N., Imam, H., & Odumuh, T. (2014). Problems and prospects of e-learning in Nigerian universities. *International Journal of Technology and Inclusive Education* (IJTIE), 3(2), 320-327.

Azuh, O.J. & Modebelu, M.N. (2014). Academic staff challenges to effective utilization of Information and Communication Technology (ICT) in teaching/learning of Agricultural education. *International Letters of Social and Humanistic Sciences*, 2, 88-96.

Carver, L.B. & Rivers-Singletary, G. (2020). Students' perception of preparation for online graduation course work. *Advances in Social Sciences Research Journal*, 7(6), 389-399.

Luis, E., Gemma, F., Carmen, - Maria, H., Hugo, & Jose-Luis (2020). Analyzing the impact of COVID-19 on education professionals. Towards a Paradigm shift: ICT and neuro-education is a binomial of action. *Sustainability*, 12 (14)5646.

Montoya, S. & Barbosa (2020). The importance of monitoring and improving ICT use in education post-confinement. UNESCO: Institute for Statistics.

Musa, U., Mahmud, R. & Jalil, H.A. (2018). A Review of obstacles of ICT usage in Nigerian tertiary educational institutions. *International Journal of Human Resource Studies*, 8(4), 169-178.

Nweze, C.M.T. (2010). The use of ICT in Nigerian universities: A case study of Obafemi Awolowo University, Ile-Ife. *Library Philosophy and Practice*, 4(9), 1-11.

Olukayode, S.A. (2015). Challenges and prospects of e-learning at the National Open University of Nigeria. *Journal of Education and Learning.* 9(3), 207-216.

Ukata, P.F. & Onuekwa, F.A. (2020). Application of ICT towards minimizing traditional classroom challenges of teaching and learning during COVID-19 pandemic in Rivers State tertiary institutions. *International Journal of Education and Evaluation*, 6(5), 24-38.

UNICEF (2020). Adverse consequences of school closures. Retrieved from http://iiep.unesco.org/covid-19/education response/consequences. On 4th May,2020.

Yekin, N.A., Adigun, J.O., Ojo, O. & Andakinwole, A.K. (2020). Learning during COVID-19 lockdown in Nigeria. *International Academic Journal of Education and Literature*, 1(1), 28-34.