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Emerging Technologies - E-Counselling Amidst Covid-19 and the Role of ICT for Quality Teaching-Learning in Private Universities in Nigeria: A Case Study of Veritas University Abuja

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Abstract:- The outbreak of Corona virus in 2019 necessitated the emergence of new technologies in search for alternative means of teaching and learning in Institutions worldwide. Before this development, effective and standardized school structures like faculty blocks, classrooms, chairs, desks, learning boards and affective learning were emphasized. With emerging new technologies for adequate learning due to COVID-19 now, standardized school structures, learning boards, chairs, classrooms, etc; all seem obsolete because almost everywhere people are being advised to adhere to COVID-19 guidelines which include social distancing from physical persons and surfaces. Although, Information and Communication Technology (ICT) had been around for some time, for example, learning was carried out through Mails, Google classroom, WhatsApp, Zoom, etc, the advent of COVID-19 has brought to the fore its importance and usage. More and more schools are beginning to step outside of the box to explore and employ the use of ICT in teaching and learning. Hence, the prime question is, how can ICT affect teaching and learning in light of the new normal and the challenges it has entrenched on the school environment where people are being encouraged to stay at home and learn online? This study discussed the role and immense contributions of ICT for quality education amidst COVID-19 pandemic in Veritas University, Abuja. A sample of 500 respondents was selected for the study out of a population of 3,490. The sample was selected using a simple random sampling technique. The instrument for data collection was an organized questionnaire titled: "Role of ICT for Quality Education Amidst COVID-19 Pandemic Questionnaire" (RICTQECPQ). Two experts validated the instrument. In order to obtain the reliability of the instrument, test re-test was carried out on some respondents outside the sample area. 0.81 correlation co-efficient was gotten which was high enough to determine the reliability of the instrument. The collected data were analyzed using mean to answer the research questions while t-test was used to test the hypothesis at 0.05 level of significance. The results indicated that ICT usage had a positive impact on teaching and learning amidst COVID-19 pandemic in Veritas University Abuja. Based on the results of the findings, it was recommended that the university management should provide ICT facilities and lecturers and students should ensure that there is internet facilities especially during teaching-learning process.

Keywords:- *Information Communications Technology (ICT), COVID-19 Pandemic, E-counselling, Veritas University, Education.*

I. INTRODUCTION/STATEMENT OF THE PROBLEM

The educational system in most private Universities in Nigeria including Veritas University Abuja had been the classical form of education which involved some kind of arrangement where the lecturers meet with the students face-to-face during lectures in any given convenient lecture hall or classroom. However, with the coming of Covid- 19 into Nigeria in 2020 and its rapid spread, the traditional system of learning had to be suspended for sometimes from March to August, 2020 on most University campuses of which Veritas University was not left out. In order not to experience a total collapse in educational activities in the private Universities in Nigeria, most of the private universities in Nigeria like many other universities around the world, opted for an alternative online teaching and learning approach using Information Communications Technology (ICT) such as Gmail, Google Classroom, Zoom, WhatsApp, etc. Most of these platforms have been tested and have proven to be reliable alternatives for large meetings, conferences as well as teaching and learning in the present circumstances of the Corona virus pandemic and ravaging insecurity in Nigeria especially. Amiran Gamkrelidze, the Director for National Centre for Disease Control and Public Health (NCDCPH) United States of America advised universities in the U.S.A to create "online environments instead of traditional approaches." In the same vein, Basilaia, et al. (2020) rightly opined, "we needed to pick an online education platform for this situation. The platform must meet the following criteria:

- Connecting with the Lecturer and at least 50 other students at the same time, via video interactive conference;
- In case of online lectures, lecturers may need to use discussion to make the teaching process more organic and realistic;
- For students that do not have access to high-speed internet connections, the streams have to be recorded and uploaded;
- The online lectures should be accessible not only by computers but mobile phones;
- Students should have the option to watch recorded lectures that they missed with capability of rewind;
- The ability for students to complete and hand in their assignments or homework, quizzes and tests.

So far, in line with the above criteria among most private Universities in Nigeria (including Veritas University Abuja}, studies have been ongoing online on at least three major known Information Communications Technology; WhatsApp, Zoom, and Google classroom depending on the suitability, efficiency and effectiveness of any of these platforms.

COVID- 19 has caused serious problems to every facet of human life globally. This Pandemic has affected every sector of human endeavor: economic, political, health, religious and education. With regard to education during this period of the Pandemic, it has been observed by some experts, and rightly so that for a while, perhaps, one year, even the well-known traditional system of education all over the world had to be suspended for reasons of adherence to social distancing and other non-pharmaceutical measures that has been put in place. This problem has given birth to more emphasis on the need for the new emerging technologies that could enhance effective teaching and learning in our institutions as Covid-19 ravages on most cities and communities globally. Most countries of the world, including Nigeria, governments and institutions have been scrambling around looking for other new forms of education. It is a new development otherwise referred to by some people as the new normal and emerging technologies to enhance effective education in our universities in which Veritas University is not an exception.

Thus, this research proposes ICT as means of education amidst covid-19, briefly looking at the different type of ICT used for teaching/learning, and some of the inconveniences being faced by private universities including the Veritas University community consequent on the outbreak of the Corona virus pandemic. With emphasis on social distancing, restriction on class attendance and movement of people in and around the school compound by the government, what can the University authorities adopt as the new method of teaching and learning to sustain her academic programes?

The term ICT has defied one single definition. However, scholars have not shied away from attempting a definition of ICT over the years. Therefore, some definitions and descriptions are worthy of mention in this study as well as some various types of ICT. According to Gokhe (2000), ICT is technology that supports activities involving information. Such activities include gathering, processing, storing and presenting data. Increasingly, these activities also involve collaboration and communication. Hence, IT has become ICT- Information and Communication Technology. A good way to think of information and communication technology is to call to mind all the uses of digital technology that exists and are already serving our needs in the areas of personal development, businesses, organizations, education, etc. ICT covers any products that will store, retrieve, manipulate, transmit or receive information electronically in a digital form. For example, personal computers, digital television, email, robots (Gokhe, 2000). The term ICT is also used to refer to the convergence of audio-visual and telephone networks with computer networks through a single cabling or link system (Shimawua, 2020). In some cases, the term Info-communications is used as a shorter form of information and communications technology. In fact, info-communications is the expansion of telecommunications with information processing and content handling functions on a common digital technology base (Asafe, 2014). Asafe further buttress that ICT is commonly used as a synonym for computers and networks, but it also encompasses other information distribution technologies such as television and telephones. Adding that several industries are associated with information technology, such as computer hardware, software, electronics, semi-conductors, Internet, telecom equipment, e-commerce and computers services Asafe (2014).

In 2003, the United Nations Conference on Trade and Development (UNCTAD) clarified the distinction between information and communication technology and information and communication technologies. The former is an umbrella term, which encapsulates all communication device or application, while the latter refers to associated technologies which are employed at the service of information and communication. Thus, “in keeping with their complex nature and multiple applications, information and communication technologies (ICTs) may be viewed in different ways” (UNCTAD, 2003). According to the World Bank, ICTs are “the set of activities which facilitate by electronic means the processing, transmission and display of information” (Rodriguez and Wilson, 2000). ICTs “refer to technologies people use to share, distribute, gather information and communicate, through computers and computer networks” (ESCAP, 2001). In a similar vein, Marcelle (2000) affirms that “ICTs are a complex and varied set of goods, applications and services used for producing, distributing, processing, transferring information which, includes telecoms, TV and radio broadcasting, hardware and software, computer services and electronic media”. One key component that really enhances the activities or operations of these ICTs is the Internet. Hargittai (1999) offers an operational definition of the Internet saying, “the Internet is a worldwide network of computers, but sociologically it is also important to consider it as a network of people using computers that make vast amount of information available. Given the two basic services of the system: communication and information retrieval, the multitude of services allowed…is unprecedented.” When the reality of ICTs is represented through the Internet, it delivers “at once a

worldwide broadcasting capability, a mechanism for information dissemination, a medium for interaction between individuals and a marketplace for goods and services" (Kiiski and Pohjola, 2001).

A. Covid-19 and E-Counselling in Veritas University

Covid- 19 is a disease caused by a new strain of coronavirus. 'CO' stands for Corona, 'VI' for virus, and 'D' for disease. Formerly, this disease was referred to as '2019 novel coronavirus' or '2019-nCoV.' The Covid-19 virus is a new virus linked to the same family of viruses as Severe Acute Respiratory Syndrome (SARS) and some types of common cold (UNICEF, WHO & IFRC, 2020). Kaur et. al. (2020) elaborated further on the origin and pathogenic development of Covid-19 saying, coronaviruses are single-stranded RNA (ribonucleic acid) viruses with spike projections that give them a crown-like appearance and hence they are called coronaviruses. Historically, there have been two earlier outbreaks or occurrences of the disease (the Severe Acute Respiratory Syndrome Coronavirus- SARS-COV and the Middle East Respiratory Syndrome Coronavirus- MERS-COV) which killed over 350, 000 persons. Coronaviruses are composed of subfamily Orthocoronavirinae, in the family Coronaviridae, order Nidovirales, and realm Riboviria. They are envelope viruses with a positive-sense single-stranded RNA genome and a nucleocapsid of h.

The coming of covi-19 brought about terrible experiences of lockdown in almost every human aspect of life. There was lockdown of businesses, industries, hospitals, institutions of leraning, Hotels, Tourist centres to mention but a few. And these lockdowns were as a result of increasing fear displayed by the media of increasing numbers of daily deaths, fast transmissions and the trauma accompanied by covi-19 increasing mental illness and stress. School closures due to covi-19 affected learners/ clients (ie students) worldwide not only in Veritas University and this led to the emergence of E-counselling or online counselling to enable professional counselors reach out to their clients (students) and help those with problems where necessary. E-counselling is described by Sanders and Rosenfield (1998) as a counselling method through the medium of telecommunication technologies such as telephone, internet and teleconferencing. Digital counselling game is gradually emerging as an effective tool to leverage students in to holistic self-management and development. E-counselling has been described as the best way to offer psychological and counselling services during this covid-19 Pandemic both in school environments and out of school environments. Other methods of E-counselling include but not restricted to instant messaging, synchronous chat, text messaging, video-conferencing and asynchronous email (Barak, Hen, et al., 2009; Barnett, 2005; Dowling & Rickwood, 2003). Even though the face-to-face counselling method is still a necessity and is applicable, due to the challenges of social distancing being observed due to covid-19, E-counselling is suitable and is being used in Veritas University like in most other institutions worldwide.

Some of the factors militating against the availability and use of ICT in some universities identified by idreameducation.org are the same factors militating against it in Veritas University. These include: Lack of electricity: from primary to tertiary institutions, there has been a complete stoppage of real-time teaching and learning following the nationwide closure of all educational institutions occasioned by the coronavirus pandemic. Despite the intervention of the government, most students, particularly those in rural areas have been completely shut out. Stakeholders observed that online teaching and learning during the lockdown have been characterized by poor internet access, electrical failure, especially in rural areas as almost all technologies used to deliver education while schools remained closed required electricity (Njoku, et al. September 17, 2021, The Guardian).

Poverty is another issue. In an interview conducted by the Guardian Newspaper of November 17, 2021, Mala-Adebayo Omotayo reports, "most parents could not afford Android phones. In situations where children manage to get second hand phones, purchasing data and getting it to work was a problem. There are connectivity, data and lack of concentration challenges" (Njoku, et al. 2021).

Lack of technical know-how and resource related issues such as not using up-to-date hardware and software. Here the major challenge has to do with inadequate information for both teachers and learners on Information and Communication Technologies. Experience has shown that most users are oblivious of new versions of electronic hardware and software. For example, there is a limit to the volume of document a WhatsApp platform can support, in which case, the Telegram App is preferable. Currently, some applications cannot operate on old computer systems. And because they are obsolete, these computers or hardware cannot accommodate large volumes of data when it comes to storage. So, it is not enough to own a computer or have access to the Internet. Online teaching and learning could be marred when the technical know-how is lacking in both the teacher and the learner.

Another factor has to do with lack of adequate skills in ICT on the part of the teachers. While we acknowledge that many of the teachers have access to mobile apps and can operate them conveniently, the same cannot be said of them when it comes to use of other ICTs tools like the computer, power point projector, etc. During lectures, "Some teachers lack the right kind of knowledge required to operate the ICT lab and equipment. This lack of skills is also a reason why some teachers are not motivated and not motivating their students to learn from the ICT labs.

Rajan (2018) wrote an article on the factors influencing the effective use of ICT in Teaching and Learning- Indian Perspective in Research Gate. What is fascinating about the article is that most of the points raised are also suitable for our own context and experience. He argued: Poor network connectivity has continually affected online teaching and learning during Covid-19. Even in this digital era, the data network in Nigeria reaches only major cities and towns. Even though 3G and 4G networks are quite popular among mobile users in Nigeria, the impact is not up to the optimal mark in education. Many teachers still encounter this

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problem in the course of their duties. It is said that in our world of today, "data is life", hence, without it life becomes hell even in the area of teaching and learning.

Furthermore, Rajan (2018) explains that incorporating ICT in teaching mainly depends on the enthusiasm of the individual teacher. Some of them feel comfortable and satisfied with traditional methods of teaching like the chalk and talk. Hence, they put forth reasons like aging, lack of interest, control over learner and so on as arguments. In reality, such teachers need motivation and counseling towards the use of ICT in teaching in order to impact efficiently on their students.

B. Objectives of the Study

Three specific objectives guided this research:

- To find out the availability of ICT and the extent of the use of ICT in teaching and learning at Veritas University.
- To find out the factors militating against the effective use of ICT in teaching and learning at Veritas University.
- To identify some social media platforms with comparative advantages in teaching and learning at Veritas University and make some recommendations.

C. Research Questions

Three research questions guided the study:

- What is the level of ICT usage in teaching and learning amidst COVID-19 pandemic in Veritas University Abuja?
- What is the impact of ICT usage on teaching and learning amidst COVID-19 pandemic in Veritas University Abuja?
- What are the factors militating against ICT usage in teaching and learning amidst COVID-19 pandemic in Veritas University Abuja?

D. Research Hypothesis

One hypothesis guided this study:

Ho1: ICT usage has no significant impact on teaching and learning amidst COVID-19 pandemic in Veritas University Abuja.

II. METHODOLOGY

This study used the descriptive survey design. The population for this study was made up of students and lecturers in Veritas University, Abuja. The population comprised of 3,490 of which 229 are academic staff, and 3,261 are students from the seven academic faculties. The total sample of the study was 500. This number was made up of students from the seven faculties in Veritas University. The sample was selected using simple random sampling. The instrument for data collection was an organized questionnaire titled: "Role of ICT for Quality Education Amidst COVID-19 Pandemic Questionnaire" (RICTQECPQ). The instrument has the socio-demographic of those who responded to the questionnaires. It comprised of four sections. The items were developed using four-point modified Likert scale with 18 items coded as follows: Strongly Agree (SA) = 4 points, Agree (A) = 3 points, Disagree (D) = 2 points, and Strongly Disagree (SD) = 1 point. Two experts validated the instrument. In order to obtain the reliability of the instrument, test re-test was carried out on some respondents outside the sample area. 0.81 correlation co-efficient was gotten which was high enough to determine the reliability of the instrument. A total of 500 copies of the questionnaire were given to the respondents in their lecture theatres and offices in the various departments. The questionnaire was administered and collected immediately to avoid misplacement. Consequently, 480 copies were completed and returned putting it at a 95% of the total instrument. The collected data were analyzed using mean to answer the research questions while t-test was used to test the hypothesis at 0.05 level of significance. For decision making, 2.50 was used as the criterion mean. Any item that attained a response of mean score of 2.50 and above was retained while below 2.50 was rejected. For the test of hypothesis, the null hypothesis was rejected if the calculated t-calculated value was equal to or greater than the t-tabulated value whereas the null hypothesis was retained if the t-calculated value was less than the t-tabulated value. Also, the null hypothesis was rejected if the calculated p-value was equal to or less than the set p-value whereas the null hypothesis was retained if the calculated p-value was greater than the set p-value.

III. RESULTS

- Descriptive Analysis of Research Questions

The three questions earlier raised in the study were answered descriptively.

Research Question 1: What is the level of ICT usage in teaching and learning amidst COVID-19 pandemic in Veritas University Abuja?

S/N	Item	Lecturers' Responses			
		Yes		No	
		F	%	F	%
1	I have computer	121	80.7	29	19.3
2	I have e-mail address	150	100.0	0	0
3	I have internet access	142	94.7	8	5.3
4	I have digital camera	35	23.3	115	76.7
5	I have scanner	48	32.0	102	68.0
6	I have video equipment	18	12.0	132	88.0
7	I have projector	23	15.3	127	84.7
8	I have telephone	150	100.0	0	0
9	I have video conferencing	13	8.7	137	91.3
10	I have closed circuit television	16	10.7	134	89.3

Table 1: Percentage analysis showing level of ICT usage in teaching and learning amidst COVID-19 pandemic in Veritas University Abuja

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From table 1 above, item 1 revealed that 80.7% of the lecturers have computers while 19.3% of them do not have. Item 2 revealed that all (100%) the lecturers have e-mail addresses. Item 3 showed that 94.7% of the lecturers have internet access while 5.3% of them do not have. Item 4 showed that 23.3% of the lecturers have digital camera while 76.7% of them do not have. Item 5 showed that 32.0% of the lecturers have scanners while 68.0% of them do not have. Item 6 showed that 12.0% of the lecturers have video equipment while 88.0% of them do not have. Item 7 showed that 15.3% of the lecturers have projectors while 84.7% of them do not have. Item 8 revealed that all (100%) the lecturers have telephones. Item 9 showed that 8.7% of the lecturers have video conference while 91.3% of them do not have. Item 10 showed that 10.7% of the lecturers have closed circuit television while 89.3% of them do not have. Therefore, the level of availability of ICTs is high in terms of computers, e-mail addresses, internet access and telephones. However, it is very low in terms of digital camera, scanners, video equipment, projectors, video conferencing and closed-circuit television.

S/N	Item	Students' Responses			
		Yes		No	
		F	%	F	%
1.	I have computer	281	85.2	49	14.8
2	I have e-mail address	330	100.0	0	0
3	I have internet access	219	66.4	111	33.6
4	I have digital camera	106	32.1	224	67.9
5	I have scanner	137	41.5	193	58.5
6	I have video equipment	98	58.5	232	41.5
7	I have projector	31	9.4	299	90.6
8	I have telephone	296	89.7	34	10.3
9	I have video conferencing	11	3.3	319	96.7
10	I have closed circuit television	16	4.8	314	95.2

Table 2: Percentage analysis showing level of ICT usage in teaching and learning amidst COVID-19 pandemic in Veritas University Abuja

From table 2 above, item 1 revealed that 85.2% of the students have computers while 14.8% of them do not have. Item 2 revealed that all (100%) of the students have e-mail addresses. Item 3 showed that 66.4% of the students have internet access while 33.6% of them do not have. Item 4 showed that 32.1% of the students have digital camera while 67.9% of them do not have. Item 5 showed that 41.5% of the students have scanners while 58.5% of them do not have. Item 6 showed that 58.5% of the students have video equipment while 41.5% of them do not have. Item 7 showed that 9.4% of the students have projectors while 90.6% of them do not have. Item 8 revealed that 89.7% of the students have telephones while 10.3% of them do not have. Item 9 showed that 3.3% of the students have video conference while 96.7% of them do not have. Item 10 showed that 4.8% of the students have closed circuit television while 95.2% of them do not have. Therefore, the level of availability of ICTs is high in terms of computers, e-mail addresses, internet access, video conferencing and telephones. However, it is very low in terms of digital camera, scanners, video equipment, projectors, and closed-circuit television.

Research Question 2: What is the impact of ICT usage on teaching and learning amidst COVID-19 pandemic in Veritas University Abuja?

S/N	Item	Lecturers' Level of Agreement				Mean	Decision
		SA	A	D	SD		
11	It encourages interactivity and flexibility on platforms like Google Classroom, Zoom, WhatsApp and Telegram	48	37	28	37	2.64	Agreed
12	It encourages self-study	45	41	29	35	2.64	Agreed
13	There is always distraction or inability to concentrate	18	27	51	54	2.06	Disagreed
14	Limited evaluation of learning outcomes	59	49	25	17	3.00	Agreed
15	Low engagement or participation of students during teaching-learning process	58	45	26	21	2.93	Agreed
16	Exclusion of students in rural areas	59	48	24	19	2.98	Agreed
17	Some students are not familiar with some of the platforms' interfaces	21	31	46	52	2.14	Disagreed
18	Inability of students to understand practical lessons through online platforms	44	42	39	25	2.70	Agreed
19	Parents' collaboration in the supervision of students	51	46	31	22	2.84	Agreed
20	Inadequate digital skills on the part of lecturers	48	51	35	16	2.87	Agreed
	Sectional Mean					**2.68**	**Agreed**

Table 3: Mean analysis showing impact of ICT usage on teaching and learning amidst COVID-19 pandemic in Veritas University Abuja

Scale Mean 2.50

From Table 3, it could be observed that the mean values of 2.64, 2.64, 3.00, 2.93, 2.98, 2.70, 2.84 and 2.87 respectively were in agreement with items 11, 12, 14, 15, 16, 18, 19 and 20 while the mean values of 2.06 and 2.14 were in disagreement with items 13 and 17. The sectional mean of 2.68 indicated that some of the respondents agreed that interactivity and flexibility on platforms like Google Classroom, Zoom, WhatsApp and Telegram, self-study, limited evaluation of learning outcomes, low engagement or participation of students during teaching-learning process, exclusion of students in rural areas, students' inability to understand practical lessons through online platforms, parents' collaboration in the supervision of students and inadequate digital skills on the part of lecturers are the impact of ICT on teaching and learning amidst COVID-19 pandemic while the remaining respondents disagreed with distraction or inability to concentrate and non-familiarity with some of the platforms' interfaces as impact of ICT on teaching and learning amidst COVID-19 pandemic.

S/N	Item	Students' Level of Agreement				Mean	Decision
		SA	A	D	SD		
11	It encourages interactivity and flexibility on platforms like Google Classroom, Zoom, WhatsApp and Telegram	124	86	73	47	2.87	Agreed
12	It encourages self-study	87	120	69	54	2.73	Agreed
13	There is always distraction or inability to concentrate	44	56	99	131	2.04	Disagreed
14	Limited evaluation of learning outcomes	100	93	73	64	2.69	Agreed
15	Low engagement or participation of students during teaching-learning process	89	92	67	82	2.57	Agreed
16	Exclusion of students in rural areas	93	86	71	80	2.58	Agreed
17	Some students are not familiar with some of the platforms' interfaces	79	109	74	68	2.60	Agreed
18	Inability of students to understand practical lessons through online platforms	101	84	69	76	2.64	Agreed
19	Parents' collaboration in the supervision of students	95	94	86	55	2.69	Agreed
20	Inadequate digital skills on the part of students	87	96	58	89	2.55	Agreed
	Sectional Mean					**2.60**	**Agreed**

Table 4: Mean analysis showing impact of ICT usage on teaching and learning amidst COVID-19 pandemic in Veritas University Abuja

Scale Mean 2.50

From Table 4, it could be observed that the mean values of 2.87, 2.73, 2.69, 2.57, 2.58, 2.60, 2.64, 2.69 and 2.55 respectively were in agreement with items 11, 12, 14, 15, 16, 17, 18, 19 and 20 while the mean value of 2.04 was in disagreement with item 13. The sectional mean of 2.60 indicated that some of the respondents agreed that interactivity and flexibility on platforms like Google Classroom, Zoom, WhatsApp and Telegram, self-study, limited evaluation of learning outcomes, low engagement or participation of students during teaching-learning process, exclusion of students in rural areas, students' not familiar with platforms' interfaces, students' inability to understand practical lessons through online platforms, parents' collaboration in the supervision of students and inadequate digital skills on the part of students are the impact of ICT on teaching and learning amidst COVID-19 pandemic while the remaining respondents disagreed with distraction or inability to concentrate as impact of ICT on teaching and learning amidst COVID-19 pandemic.

Research Question 3: What are the factors militating against ICT usage in teaching and learning amidst COVID-19 pandemic in Veritas University Abuja?

S/N	Item	Lecturers' Level of Agreement				Mean	Decision
		SA	A	D	SD		
21	High cost of data	48	46	38	18	2.83	Agreed
22	Inadequate expertise on the part of lecturers	38	42	43	27	2.60	Agreed
23	Inadequate confidence while using the equipment	19	27	48	56	2.06	Disagreed
24	Inadequate knowledge of how to evaluate the role of ICT for quality education	35	36	38	41	2.43	Disagreed
25	Inadequate ICT facilities	40	45	39	26	2.66	Agreed
26	Poor internet access	41	36	37	36	2.55	Agreed
27	Unstable power supply	42	50	31	27	2.71	Agreed
28	Software viruses	39	49	34	28	2.66	Agreed
29	Hardware failure	50	47	38	15	2.88	Agreed
30	Insufficient knowledge of application software	41	43	35	31	2.63	Agreed
	Sectional Mean					**2.60**	**Agreed**

Table 5: Mean analysis showing factors militating against ICT usage in teaching and learning amidst COVID-19 pandemic in Veritas University Abuja

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Scale Mean 2.50

From Table 5, it could be observed that the mean values of 2.83, 2.60, 2.66, 2.55, 2.71, 2.66, 2.88 and 2.63 respectively were in agreement with items 21, 22, 25, 26, 27, 28, 29 and 30 while the mean values of 2.06 and 2.43 were in disagreement with items 23 and 24. The sectional mean of 2.60 indicated the respondents agreed that high cost of data, inadequate expertise on the part of lecturers, inadequate ICT facilities, poor internet access, unstable power supply, software viruses, hardware failure and insufficient knowledge of application software were the factors militating against ICT usage in teaching and learning amidst COVID-19 pandemic while the remaining respondents disagreed with inadequate confidence while using the equipment and inadequate knowledge of how to evaluate the role of ICT for quality education as a factor militating against ICT usage in teaching and learning amidst COVID-19 pandemic in Veritas University Abuja.

S/N	Item	Students' Level of Agreement				Mean	Decision
		SA	A	D	SD		
21	High cost of data	126	98	78	28	2.98	Agreed
22	Inadequate expertise on the part of students	101	121	72	36	2.87	Agreed
23	Inadequate confidence while using the equipment	45	79	99	107	2.19	Disagreed
24	Inadequate knowledge of how to evaluate the role of ICT for quality education	94	92	76	68	2.64	Agreed
25	Inadequate ICT facilities	121	95	68	46	2.88	Agreed
26	Poor internet access	86	106	71	67	2.64	Agreed
27	Unstable power supply	76	123	69	62	2.65	Agreed
28	Software viruses	89	98	71	72	2.62	Agreed
29	Hardware failure	91	102	66	71	2.65	Agreed
30	Insufficient knowledge of application software	88	97	81	64	2.63	Agreed
	Sectional Mean					**2.68**	**Agreed**

Table 6: Mean analysis showing factors militating against ICT usage in teaching and learning amidst COVID-19 pandemic in Veritas University Abuja

Scale Mean 2.50

From Table 6, it could be observed that the mean values of 2.98, 2.87, 2.64, 2.88, 2.64, 2.65, 2.62, 2.65 and 2.63 respectively were in agreement with items 21, 22, 24, 25, 26, 27, 28, 29 and 30 while the mean value of 2.19 was in disagreement with item 23. The sectional mean of 2.68 indicated the respondents agreed that high cost of data, inadequate expertise on the part of students, inadequate knowledge of how to evaluate the role of ICT for quality education, inadequate ICT facilities, poor internet access, unstable power supply, software viruses, hardware failure and insufficient knowledge of application software were the factors militating against ICT usage in teaching and learning amidst COVID-19 pandemic while the remaining respondents disagreed with inadequate confidence while using the equipment as a factor militating against ICT usage in teaching and learning amidst COVID-19 pandemic in Veritas University Abuja.

Hypothesis Testing

The null research hypothesis earlier formulated in the study was tested at 0.05 level of significance.

Ho1: ICT usage has no significant impact on teaching and learning amidst COVID-19 pandemic in Veritas University Abuja

Variables	N	Mean	Std. deviation	Df	$t\text{-}_{cal}$	$t\text{-}_{tab}$	Sig ($P\text{-}_{cal}$)	Remarks
ICT usage	480	8.24	1.321					
				958	21.549	1.646	0.024	Reject Ho_1
Teaching and learning	480	6.47	1.221					

Table 7: t-test analysis showing impact of ICT usage on teaching and learning amidst COVID-19 pandemic in Veritas University Abuja

Significant at df=198; $P \leq 0.05$, $t\text{-}_{calculated} > t\text{-}_{tabulated}$

Table 7 showed t-test analysis of impact of ICT usage on teaching and learning amidst COVID-19 pandemic in Veritas University Abuja.The $t\text{-}_{cal}$value of 21.549 was found to be greater than the $t\text{-}_{tab}$ value of 1.646 given 958 degrees of freedom at 0.05 level of significance. The $t\text{-}_{cal}$value was significant since it was greater than $t\text{-}_{tab}$ value, the null hypothesis was rejected. Also, $P\text{-}_{cal}$was less than the $P\text{-}_{set.}$ It implied that ICT usage had a positive impact on teaching and learning amidst COVID-19 pandemic in Veritas University Abuja.

IV. DISCUSSION

This study has shown that ICT usage had a positive impact on teaching and learning amidst COVID-19 pandemic in Veritas University Abuja.

In research question one, it revealed that the level of availability of ICTs was high in terms of computers, e-mail addresses, internet access and telephones. However, it was very low in terms of digital camera, scanners, video

equipment, projectors, video conferencing and closed circuit television. The finding was in line with Olowe and Kutelu (2014) who opined that few desktop computers were available in schools. They stressed further that chalkboard and chalk were the only materials reported as being adequately available by the schools. There were very few schools reporting availability of charts, posters and bulletin board.

In research question two, the study revealed that information and communication technology usage played a positive role in teaching and learning amidst COVID-19 pandemic. It showed that there was flexibility on platforms like Google Classroom, Zoom, WhatsApp and Telegram, self-study, limited evaluation of learning outcomes, low engagement or participation of students during teaching-learning process, exclusion of students in rural areas, students' not familiar with platforms' interfaces, students' inability to understand practical lessons through online platforms, parents' collaboration in the supervision of students and inadequate digital skills on the part of students as impact of ICT on teaching and learning amidst COVID-19 pandemic. The findings agreed with Bolstad (2018) who reported that ICT stimulate the pupils' interest during teaching-learning process.

In research question three, there were many factors militating against the utilization of ICT in the university. These included high cost of data, inadequate expertise on the part of lecturers and students, inadequate knowledge of how to evaluate the role of ICT for quality education, inadequate ICT facilities, poor internet access, unstable power supply, software viruses, hardware failure and insufficient knowledge of application software among others.

Owing to this, the study revealed that both lecturers and students could gain confidence while using ICTs through regular practice.

A. Recommendations

Based on the findings of this study, the following recommendations were made:

- The university management should provide ICT facilities in the institution. This can be supported by philanthropists and donor agencies.
- Lecturers and students should utilize ICTs during teaching-learning process and ensure that they avoid distraction while using them.
- The university management and lecturers should ensure that there is internet access in the university. Parents also should purchase data for the students in order to meet the factors militating against ICT usage in the institution.
- The university management to ensure an effective and standard functional couselling clinic and counselling laboratory as well as available various counselling services to help students and others with problems in the university.

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