Full Length Research

Analytical Study on the Application of Information Communication Technology (ICT) Devices for Teaching Enhancement in South West Nigeria Federal Colleges of Education

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Abstract

Education is considered globally as the instrument per excellence for social and economic transformation of the society and teachers are the centre upon which the process of education is accomplished. However, despite the commitments of Nigerian government agencies and regulation bodies to ensure production of quality teachers for primary education, scholars have identified gap in the content delivery which is undermining the quality of basic education teachers. The low quality of basic school suggests that Nigeria Colleges of Education may not be using ICT devices to their advantage. While there are numerous studies on the advantages derived from using ICT devices by the higher institutions in the developed countries, it is possible that Colleges of Education in Nigeria recognize the significant role of using ICT devices in enhancing effective teaching learning process but may not be using it to their advantage. Hence this study investigated the use of ICT devices in South West Colleges of Education, with a view to find out the ICT devices available, its adequacy, benefits of use and the challenges of using ICT devices for teaching learning process. The study employed survey research design. The population of the study comprised 17,981lecturers and students of four Federal universities in the South West, Nigeria. The sample size of 392 was determined by using Taro Yamane (1967) formula. Stratified and simple sampling techniques were used to select 92 lecturers and 300 students from the 4 Federal colleges used for the study. Data was collected with structured and validated questionnaire. Cronbach Alpha reliability coefficient for the constructs ranged from 0.82 to 0.95. Data were analysed by using descriptive analysis. Findings showed that the level of teaching learning process was moderate, ICT devices were available but not adequate. It was also found that use of the available ICT tools was beneficial to both the students and the lecturers. Respondents also identified the challenges facing the use of ICT tools to include inadequate funding to procure ICT infrastructure and modern ICT tools, unstable network and power supply and lack of policy on ICT use in the tertiary institutions. The study concluded that college authorities should liaise with TETFUND to provide ICT infrastructures such as broadband access that will facilitate speedy internet access as well as alternative power supply to resolve the challenges of unstable power supply for enhanced teaching learning process. Furthermore, the College administrators should make available adequate ICT devices and these should be properly maintained by the college departments and units to optimize its use. In addition, college authorities should sensitize and encourage lecturers to use tutorial hours to resolve the challenges of limited hours allocated to courses.

Key Words: Application, ICT devices, South West Colleges of Education, Teaching learning process.

INTRODUCTION

Education is considered globally as the instrument per excellence for social and economic transformation of the society and teachers are the center to which the process of education is accomplished. Hence, teachers are indispensable instrument and very crucial in inculcating the right kind of values through effective instructional delivery of curriculum in the educational system. According to Phillips (2018), teachers are mandated to equip the students with the cognitive, affective and psychomotor behavior required to cope effectively as a member of the society. Through the teachers, knowledge for understand the evolving world are passed to the pupils. It is therefore the aspiration of every society to give her citizens sound education. Colleges of Education are integral part of higher educational institution in Nigeria that award Nigeria Certificate in Education. The concept of the Nigerian College of Education is to produce quality professional teachers for basic education in Nigeria. Positioning the Colleges of Education for production of quality teachers has therefore continue to attract researchers' attention. This is because the quality of teachers' performance on the job depends on the quality of training they received, bearing in mind that the quality of any educational system depends to a great extent on the quality of teachers and no education can rise above the quality of its teachers. According to Akpan and Ita(2015), the quality of teachers determines the quality of teaching and knowledge impacted to the students and the learning outcomes.

Specifically, National Commission for Colleges of Education (NCCE) was establish by Nigeria Government in 1989by Act 13 of January 1989 and amended by Act 12 of 1993 and saddled with the responsibilities of regulating the activities of Colleges of Education to produce quality teachers for basic education in Nigeria. Basic education is education that empowers the pupils with the relevant skills, knowledge, ideas values and attitudes needed to make informed decisions and live a self-sustaining life. They are taught basic knowledge in mathematics, English Language, Science, Social studies Religious knowledge and one of the three popular languages. To accomplish the above objective and ensure effective curriculum implementation in the NCE- awarding institution, NCCE mandated management of the Institutions to create Quality Assurance units to monitor institutions' curriculum inputs, process and products so as to produce quality basic education teachers equipped with knowledge and skills required by the educational advancement of 21st Century digital era. Further to the above, the units are to be managed by experienced Chief lecturers with Masters' Degree in Education Measurement and Evaluation. This is to ensure that all the guidelines provide in the implementation framework are adequately followed.

However, despite the commitments of NCCE to ensure production of quality teachers that can compete favorably with their counterpart in the developed countries of the world in the Nigeria Colleges of Education, scholars have identified gap in the content delivery (Obioma, 2006), Akpan&Ita, 2015;Akinola, 2017; Alile, 2018). Similarly, other scholars (Nordin, Davis &Ariffin, 2013; Aina & Olanipekun, 2015; Abdalla & Ali, 2017; Lawal and Braimoh ,2018; Okafor &Obikwelu (2019) observed some gaps in Nigeria teacher education and one of the gaps was not integrating ICT use into teaching and learning, which remains the key to sound education in all learning institutions. In addition, recent findings (Egesah & Wahome, 2016; Teschler, 2016; Uthman & Muhammed, 2018) about quality of basic education in Nigeria revealed high proportion of incompetent teachers which contradicted standard set for the NCE-awarding institutions. The low quality of basic school teachers suggests that Nigeria Colleges of Education may not be using ICT devices to their advantage. This observation is further supported by Johnson (2019) who noted that the level of using ICT devices to engage students for teaching enhancement in Nigerian tertiary institutions was still in its infancy and very low. While numerous studies (Baishakhi& Kamal, 2016; Uthman & Muhammed, 2018;Olaiya, 2019) have revealed the advantages derived from using ICT devices by the higher institutions in the developed countries for smooth delivery of instructions, it is possible that Colleges of Education in Nigeria recognize the significant role of using ICT devices in driving effective academic engagement of students but may not be using it to their advantage. The use of adequate ICT devices present viable opportunities through which colleges of Education graduates teaching in the nursery and primary schools can ascertain smooth delivery of instructions to their students.

Given the importance of ICT devices use to achieve effective teaching learning process in the educational institutions, it becomes imperative for Nigerian colleges of Education lecturers to use ICT devicesto supplement their work in this digital era. The use of ICT devices provides the learners with realistic experience, which capture their attention and assist in understanding the historical phenomena (Baishakhi & Kamal, 2016). It promotes profound innovations, encourages the use of diversified approaches aimed at increasing flexibility of academic engagement, affords students opportunity to learn anytime and anywhere and interact simultaneously with ease and convenience. Researches (UNESCO, 2015; Hayter, 2016) have also shown that higher educational institutions in the developed countries derived a lots of advantages in using ICT devices to impart knowledge and skills required by the educational advancement of the 21st century. This underscore the need for using appropriate ICT devices to make teaching-learning process simple, interesting and easy to apply the required 21st century skills.

In Nigeria, efforts made by Federal and States government through their agencies in the Ministries of Education such as TETFUND, Quality Assurance units and other donor agencies at providing enabling environment for enhancement of ICT devices use for academic engagement of students have not yielded positive results. Johnson (2019) opinedthat the level of using ICT devices to engage students for teaching enhancement in Nigerian tertiary institutions was still in its infancy and very low. The above assertion was supported by Lawal and Braimoh's (2018) study which noted that critical among the gaps in teaching education in Nigeria is the challenge of the integration of technologies into classroom instruction and argue that integrating ICT globally into teaching and learning remains the key to sound education in all learning institutions. Further to the above Kafyulilo, Fisser, Pieters and Voogt(2015) observed that despite the many benefits of integrating technology into teaching identified in studies (Gur & Karamete, 2015; Sahin, 2011), studies indicate that many schools in Nigeria are yet to use these advantages. In addition, George's (2019) study revealed that the use of ICT devices in providing effective academic engagement in Nigerian higher institution of learning is being continually undermined and called into question. This is a gap and only few studies have investigated the use of ICT devices in the Federal Colleges of Education in South West, Nigeria. It is on this basis that this study investigated the use of ICT tools in South West Colleges of Education with a view to find out the level of teaching learning process, ICT tools available, its adequacy, benefit of use and the challenges of using ICT tools for enhanced teaching learning process so as to proffer solution that will put our students digitally at learning par with their counterparts in the developed countries of the world.

Research Questions

1) What is the level of students' engagement for enhanced teaching learning process by lecturers in the South West Nigeria Colleges of Education?
2) What are the perceptions of the students and lecturers on the ICT devices available for enhanced teaching/learning process in the South West Nigerian Colleges of Education
3) What is the perceptions of students and lecturers on the adequacy of ICT devices used for enhanced teaching leaning process in South-West Nigerian Colleges of Education?
4) What is the perceptions of students and lecturers on the benefit of ICT devices use for enhanced teaching learning process?
5) What are the challenges of the ICT devices used to engage for enhanced teaching learning process?

Literature Review

Education is considered globally as the instrument per excellence for social and economic transformation of the society. Hence, many nations of the world strive to commit much wealth to the establishment and management of educational institutions at various levels. Globally, higher institutions are established for training and production of skilled manpower for national development and teachers are the center to which the task is accomplished. According to George (2019), teachers are mandated to equip students with the cognitive, affective and psychomotor behaviors required to effectively cope as a member of the society and hence, are indispensable instrument in educational system. Students are trained to acquire skills, knowledge, positive value by engaging in academic activities offered by tertiary institutions. According to Ghasemi, Moonaghi and Heydari (2018), academic engagement' refers to students' participation in or giving attention to their academic work. Similarly, Delfino (2019) describes it as the students' attention to school work, interaction with their fellow students, teachers, school activities and school environments.

Engaging students with effective teaching goes a long way to influence students' achievement in higher education (Kahu, 2013). The core of educational engagement is teaching and learning process and this is more efficient when learning is reinforced to stimulate, motivate and as well as arrest learners' attention with instructional materials of different varieties. In the 21st Century era, the emergence of technology has made it possible for teachers to improve students' engagement. ICT devices constitute important tools for driving instructional delivery in the 21st Century. More importantly, development in the educational sector has made it mandatory for lecturers to engage students digitally so as to participate actively and acquire the knowledge and skills required to be at per with their counterpart internationally. Coleman, Gibson, Cotten, Howell-Moroney and Stringer (2016) argued that appropriate use of ICT in teaching had transformed the learning environment from teacher-centred to learner-centred. The authors stressed further that the shift in the role of the teacher from knowledge transmitter to that of a facilitator, knowledge navigator and a co-learner created more interactive learning environment for teachers and learners and opened new opportunities for learners to

engage in critical thinking. Besides, UNESCO World Education report (2019) emphasizes that the quality of professional development of teacher education depends on the extent of ICT integration in higher education program.

However, Oyefar, Adejoh, Adisa, Abdulsalam and Alabi (2021) noted that towards the end of the twentieth century, Nigeria and many other African countries, including South Africa, Kenya, Ghana, Uganda, Nigeria and Senegal keyed into the global reform of the public and the private sectors driven by ICT and integrated ICT into teaching, learning and research. Oyefar et. al. explained further that while it was easy for some countries such as South Africa to facilitate ICT-based education through National Research and Education Networks (NRENS), majority of African countries including Nigeria have not succeeded in creating conducive policy and institutional environments for ICT-based learning in their higher education. According to Nwankwoala (2015), Nigerian government acknowledged the importance of integrating ICT into education as emphasized in the revised National Policy on Education (FRN, 2004), section 11 subsections 102 (d) that 'Government shall provide facilities and necessary infrastructure for the promotion of information and communication Technology at all levels of education, but yet to have a separate ICT policy for higher or university education.

Similarly, World Bank Report (2016) also found that subsequent review of National Policy on Education have not radically taken into consideration the need to use public–private partnerships to support digital tertiary education. This lack of clear-cut policy framework has continued to limit the capacity of tertiary institutions' leadership to integrate ICT into teaching, learning and research thereby making the use of ICT devices less exciting to the lecturers. In addition, Commonwealth of Learning (2017) report argued that Nigeria suffers from a combination of lack of comprehensive policy on ICT in higher education, poor funding, poor supply of ICT infrastructure, poor power supply and lack of training for lecturers and students. The report stressed further that Nigerian government has attributed poor funding to the dwindling nature of the economy and hence has not developed any policy to rapidly use ICTs to change the face of teaching and learning in higher education in Nigeria.

Several other studies (Achimugu et al. 2010; Ajayi 1996; Akpan 2014; Idowo et al. 2004; Okafor et al. 2011; UNESCO 2015) have been conducted on ICT adoption, availability, accessibility, integration and policy support in higher institutions of learning in Nigeria. Current researches (Ghavifekr & Athirah 2015; Yusta, 2016; George, 2019, Sani, Alabi, Danjuma & Momoh, 2021) have also shown that various types of ICT tools are available in Nigerian tertiary institutions for smooth delivery of instructions and this include computer set/Lap top, internet facility, handset, LCD projector, Photocopier and Public Address, interactive white board, television, film projector, VCD/DVD players, multi-media projector, Scanner to Digital Audio and Video. The use of ICT devices was much beneficial to teaching learning process. It provides the learners with realistic experience, which capture their attention and assist in understanding the historical phenomena (Baishakhi& Kamal, 2016). The use of ICT devices promotes profound innovations, encourages the use of diversified approaches aimed at increasing flexibility of academic engagement, affords students opportunity to learn anytime and anywhere and interact simultaneously with ease and convenience.

However, Ghavifekr, Kunjappan, Ramasamy and Anthony (2017), was quick to point out that availability of ICT tools does not guarantee its effective use due to factors such as limited connection and network access, technical support, limited time and lack of effective training of staff on IT skills as revealed in Malaysia. This assertion was supported by Akyol and Erdem's (2021) study which revealed that equipment and facilities for effective teaching and learning were deficient in Nigerian schools. Literature has also established that while ICT tools were widely used in the developed countries of Europe, Japan, Russia, America and China higher schools amongst others to promote academic engagements, it has not been widely integrated into most African tertiary institutions until the onset of COVID 19 pandemic (Johnson, 2019). This finding gave credence to Edhereveno and Oniovosa (2014) and Coleman et. al. (2016) arguments that despite the efforts being made by Nigerian Federal and States government through their agencies in the Ministries of Education such as TETFUND, Quality Assurance units and other donor agencies at providing enabling environment for enhancement of ICT devices use for academic engagement of students, the influence of using ICT devices for academic engagements were not well felt due to its inadequacy.

Different from above, some set-backs are identified in literature. Edumadze, Ossei-Anto, Edumadze, Tamakloe, Asamoah & Boadi (2014) identified the challenges of ICT tools use to include lack of adequate funding for ICT, lack of adequate knowledge of the benefits of ICT in the teaching and learning process, and lack of support and training. Similarly, Suleiman, Yahya and Tukur (2020) found that high cost of ICT tools, exorbitant internet access fees and the peripherals such as printers, monitors, documents, modems, extra disk drives and other devices including basic computers were not available in a lots of higher institutions in Nigeria. In addition, several studies (Albirini, 2006; Ghavifekr & Wan Athirah, 2015) have also identified technical faults, lack of effective training, non-availability of some ICT infrastructures such as broadband access as factors that can hinder use of ICT tools for academic engagement.

In addition to the above, Nwakile (2018) identified challenges of ICT tools use to include lack of time to adequately use the tools, its unavailability in schools, users 'resistance to change, poor maintenance culture, technical problems and

lack of required skills on the part of the students and teachers. Empirical studies conducted by Bade *et al.* (2015) also highlighted the challenges of using ICT tools to include inadequate ICT tools, epileptic power supply, poor maintenance, high cost of facilities and peripheral parts, lack of ICT skills and poor internet access.

The above challenges notwithstanding, Universities and Colleges in the developed countries had been using ICT tools to their advantage for imparting in students the knowledge and skills required by the educational advancement of the 21st century (UNESCO 2015). Laronde *et al.* (2017) highlighted the benefits of using ICT tools to include teaching and enhancing students' retentive memory, explaining complex instructions and ensure comprehension of complex instructions, creating interactive classes and making lessons more enjoyable to improve student attendance and concentration. Laronde et. al. added that use of ICT devices afforded distance learners the opportunity to access online instructional materials easily for resource-based learning. Also, in their studies Suleiman, Muhammad, Zakari, Jyoti, Shitu and Ukashatu (2020) identified the advantages that students benefit from use of ICT tools to include motivation, cooperative learning, fast communication, e-conference, e-learning and collaborative research. The use of ICT tools adds new dimension to learning experiences because concepts were easier to present and comprehend when the words are complemented with use of ICT devices. In addition, research findings around the world (Suleiman, Yahya& Tukur, 2020) had shown that using ICT tools has led to improved learning and better teaching methods for students, make dynamic learning experience more concrete, relevant, realistic and improves students' critical and analytical thinking. This study therefore investigated the use of ICT tools in South West Universities, with a view to discovery how best to optimize it for enhanced teaching learning process.

Research Methodology

Descriptive survey design was used for the study because the study dealt with the current use of ICT devices for teaching learning process at the Federal College of Education in South West, Nigeria. The target populations were students and lecturers of all the four Federal Colleges of Education in South West Nigeria. Federal Colleges of Education were the focus of the study because they are well funded by TETFUND and are supposed to model both the States and Private colleges. The sample size of 480 from the population of 17,981 was determined by using Taro Yamane (1967) formula. Stratified and simple sampling techniques were used to select the 325 students and 165 lecturers across all the Colleges of Education investigated. The researcher gave more attention to the faculties than the Departments to ensure equitable representation of the sample. A total of 325 (comprising Part 1, 2 and 3) students currently being taught were randomly selected from the students list obtained from the student Affairs based on their best performance at the last session examination while the 165 lecturers used for the study comprised lecturer II, lecturer I and senior lecturers selected from each school using simple random sampling. A total number of 392 responses were collected and this comprised 92 lecturers and 300 students respectively making 87% of the 480 administered questionnaire.

The three (3) instruments used to collect data for the study were Teaching Learning Engagement Questionnaire, Lecturers' Perception Questionnaire(LPQ) and Student Perception Questionnaire (SPQ).The Teaching Learning Engagement Questionnaire instrument was adapted from NNSE instrument that has been extremely tested to ensure its validity and reliability (Strydom et al., 2010) while Lecturers' Perception Questionnaire (LPQ) and Student Perception Questionnaire (SPQ) were self-constructed by the researcher. The instruments contained sections A and B. Section A contained information on respondents' demographic data while section B contained information on the students and lecturers' perception on the use of ICT devices for teaching learning process. Accordingly, questionnaires were personally administered and collected on the spot by the researcher with 8 assistants. The questions were closed ended and placed on fivelikert-scale. Lecturers' Perception Questionnaire (LPQ) and Student Perception Questionnaire's (SPQ) contents and constructs validity were ascertained after subjecting it to responses of a comparable group of sample. The reliability of NNSE instrument together with the Lecturers' Perception Questionnaire (LPQ) and Student Perception Questionnaire (SPQ) were ascertained by test-retest method using standard correlation procedure and was found to be between 0.82 to 0.95. Descriptive statistic was used to analyse the data collected from the research questions. The criterion for decision making was determined by finding the mean of the nominal values assigned to the five likert options in each questionnaire items. Use of ICT devices for academic engagement was measured by the ICT devices available, its adequacy, benefits and challenges of ICT devices for enhanced teaching learning process.

Presentation and Discussion of Results

The results of data analysis are presented in this section. The results are presented in this section.

Table 1: List of sampled Federal Colleges of and sample size

State	College of Education	Ownership	Proposed sample size		Achieved sample size	
			Lecturers	Students	Lecturers	Students
Lagos State	Federal College of Education (Technical) Akoka, Yaba Lagos.	Federal government	35	80	24	77
Ogun State	Federal College of Education, Abeokuta	Federal government	40	85	20	70
Oyo State	Federal College of Education (Special), Oyo (SPED)	Federal government	30	80	18	68
Ondo State	Adeyemi College of Education, Ondo, Ondo – State	Federal government	50	85	30	85
	Total		165	325	92	300

A sample of 480 samples was drawn from the study population of 17, 981 colleges of Education lecturers and students in a manner that ensured equitable representation of all the schools and departments in the college using Taro Yamane (1967) formula. From the 480 administered questionnaire, only 392 were properly completed and returned making 87% of the questionnaire administered. For the qualitative data, 24 number of lecturers and 77students were used from Federal College of Education (Technical) Akoka, Yaba , Lagos, 20 lecturers and 70 students from Federal College of Education, Abeokuta, 18 lecturers and 70 students from Federal College of Education (Special), Oyo (SPED) and 30 lecturers and 85 students from Adeyemi College of Education, Ondo were the questionnaire duly completed and collected and used in each of the Colleges of Education investigated.

Research Question One: What is the level of teaching learning process in South West Nigerian colleges of Education?

Table 2. Teaching learning process engagement of students in South West Colleges of Education.

	My lecturers …	Very High Level 5	High Level 4	Moderate Level 3	Low Level 2	Very Low Level 1	N	Mean	Decision
1	Encourage course discussions in class during teaching learning process	18	60	184	110	20	392	3.12	Moderate Level
2	Always explain topics taught to our understanding	42	105	148	65	32	392	3.15	Moderate Level
3	Teaching learning engagements are often affected by incessant strikes embarked upon by COEASU	51	90	225	20	6	392	3.42	High Level
4	Give us assignments regularly and return it promptly after marking	45	140	70	72	65	392	3.07	Moderate Level
5	Apply theories to practical during teaching learning process	23	90	210	45	24	392	3.11	Moderate Level
6	Analyse topics taught in depth by examining all parts of the topic	32	95	205	43	17	392	3.21	Moderate Level
7	Evaluate their point of view to our understanding	12	122	107	118	33	392	2.90	Moderate Level
8	Form new ideas from various pieces of information	51	70	146	80	45	392	3.01	Moderate Level
9	Use examples to illustrate difficult areas of the topics taught	44	70	190	81	7	392	2.96	Moderate Level
10	Uses tutorial hours to complement the short time allocated to courses.	10	26	102	130	24	392	1.90	Low Level
11	Relate their teaching to societal issues during teaching learning process	46	95	200	27	24	392	3.29	Moderate Level
12	Summarise topics taught before commencing another topic	22	95	138	120	17	392	2.96	Moderate Level
	Over-All Mean = 3.01								

***Decision Rule: Very Low Level (VLL) = 1.00-1.79; Low Level (LL) = 1.80-2.59; Moderate Level (ML) = 2.60-3.39; High Level (HL) = 3.40-4.19; Very High Level (VHL) = 4.20-5.00.**
Source: Field Survey, 2020

Table 1 shows the descriptive statistic result for research question one. The result showed that the level of engaging students in teaching learning process in South West Colleges of Education was moderate with overall mean score of 3.01. The result revealed further that responses on all the items except items 3 and 10 indicated that their levels of engagement were moderate with mean score between 2.90 and 3.29. Responses on item 3, which sought opinion on how often teaching learning engagements are affected by incessant strikes embarked upon by COEASU revealed high level with mean score of 3.42 while responses on item 10 which investigated lecturers' Use of tutorial hours to complement the short time allocated to courses by lecturers indicated low level with mean score of 1.90.This may not be unconnected with the low excitement in using ICT devices for teaching learning process, inadequate hours allocated to

lecture engagements, poor funding of the system and incessant strikes embarked by College of Education Academic Staff Union (COEASU).

Research Question Two: What are the perceptions of students and lecturers on ICT devices available to engage students for teaching learning process in the South West Colleges of Education?

Table 2A: Students' perception on the availability of ICT devices used to engage students

	ICT Devices Availability for teaching-learning process	VERY MUCH AVAILABLE	MUCH AVAILABLE	AVAILABLE	LESS AVAILABLE	NOT AVALABLE	N	MEAN	DECISION
1	Instructional White Board	15	23	180	75	7	300	2.88	Available
2	Television Access	35	50	180	30	5	300	3.27	Available
3	LCD/Film projector	8	20	75	180	17	300	2.41	Less Available
4	Public Address System	40	75	160	20	5	300	3.42	Much Available
5	Laptop computer/Handset	24	45	150	75	6	300	3.17	Available
6	Sound system and speaker	12	43	220	23	2	300	3.31	Available
7	Digital Camera	15	30	68	165	14	300	2.48	Less Available
8	CD ROM/DVD Player	10	25	72	175	18	300	2.45	Less Available
9	Internet Facility	10	30	70	1	30	300	2.43	Less Available
10	Laser Printer	14	25	185	60	16	300	2.87	Available
11	Photocopy Machine	20	50	140	75	15	300	2.95	Available
12	Optical disks CD/DVD	45	90	120	35	10	300	3.12	Available
13	Desktop Computer	25	40	150	75	10	300	2.98	Available
14	Digital Scanner	18	42	82	145	13	300	2.69	Available
	Grand Mean	**2.89**							

Key: Very Much Available (VMAv) = 4.20-5.00, Much Available (MAv) = 3.40-4.19, Available (Av) = 2.60-3.39, Less Available
(LAv) = 1.80-2.59, Not Available (NAv) = 1.00-1.79
Source: Field Survey, 2020

Students were asked to indicate their views on the availability of ICT tools used in their college for teaching learning process. The result in Table 2A shows that ICT tools were available with overall mean score of 2.89. The result shows further that only Public address system with mean score of 3.47 was considered to be much available. Instructional White Board with mean score of 2.88,lasser printer with mean score of2,87, photocopier machine with mean score of 2.95, Digital scanner with mean score of 2.69 Television access with mean score of 3.27, laptop computer/ handset with mean score of 3.17, sound system with mean score of3.31, photocopy machines with mean score of 2.95, optical disk with mean score of3.12 and Desktop Computer with mean score of2.98 were all considered to be available while

LCD/film projector with mean score of 2.41,digital camera with mean score of 2.48, CDRom/DVD player with mean score of 2.45 and internet facility with mean score of 2.43 were less available. Implicitly, the moderate level of teaching learning engagement recorded confirmed that all the ICT tools investigated were either much available, available or less available to engage students with teaching learning process. None was un-available.

Table 2B: Lecturers' Responses to Availability of ICT devices used to engage students for Teaching and Learning process

	ICT Devices Available for teaching-learning process	VERY MUCH AVAILABLE	MUCH AVAILABLE	AVAILABLE	LESS AVAILABLE	NOT AVALABLE	N	MEAN	DECISION
1	Instructional White Board	3	7	44	25	3	92	3.02	Available
2	Television Access	16	20	45	10	1	92	3.43	Much Available
3	LCD/Film projector	2	6	27	50	7	92	2.41	Less Available
4	Public Address System	25	40	22	5	---	92	3.92	Much Available
5	Laptop computer/Handset	20	25	40	6	1	92	3.62	Much Available
6	Sound system and speaker	8	15	42	25	2	92	3.02	Available
7	Digital Camera	4	15	66	7	--	92	3.17	Available
8	CD ROM/DVD Player	5	15	26	40	6	92	2.71	Available
9	Internet Facility	5	10	22	48	7	92	2.54	Less Available
10	Laser Printer	3	9	30	42	8	92	2.53	Less Available
11	Photocopy Machine	15	25	36	10	6	92	3.36	Available
12	Optical disks CD/DVD	2	8	31	45	6	92	2.49	Less Available
13	Desktop Computer	8	15	42	25	2	92	3.02	Available
14	Digital Scanner	4	8	56	20	4	300	2.87	Available
	Grand Mean	**3.01**							

Key: Very Much Available (VMAv), Much Available (MAv), Available (Av), Less Available (LAv), Not Available (NAv)NAv = 1.00-1.79 ;LAv = 1.80-2.59; Av = 2.60-3.39; MAv = 3.40-4.19; VMAv = 4.20-5.00.
Source: Field Survey, 2020

Table 2B shows the descriptive statistic result of research question one. Lecturers were asked to indicate their views on the availability of ICT tools used in their college for teaching learning process. The results in Table 2B shows that ICT tools were available with overall mean score of 3.01. The result shows further that only Public address system with mean score of 3.92, television access with mean score of 3.34 and laptop computer/ handset with mean score of 3.62 were considered to be much available. Instructional White Board with mean score of 3.02, sound system with mean score of 3.02, digital camera with mean score of 3.17, CDRom/DVD player with mean score of 3.02, desktop computer with mean score of 3.02, digital scanner with mean score of 2.87, photocopier machine with mean score of 3.36 were all ICT tools considered by the lecturers to be available. LCD/Film projector with mean score of 2.41, internet facility with

mean score of 2.54, laser printer with mean score of 2.53 and optical disk with mean score of 2.49 were less available. Implicitly, the moderate level of teaching learning engagement recorded also confirmed that all the ICT tools investigated were either much available, available or less available to engage students with teaching learning process. None was un-available.

Research Question Three: What is the adequacy of the ICT devices used to engage the students?

Table 3A: Students' Perception on the Adequacy of ICT devices used to engage students for Teaching and Learning process

	ICT Devices Adequacy for teaching-learning process	VERY MUCH ADEQUATE	MUCH ADEQUATE	ADEQUATE	LESS ADEQUATE	NOT ADEQUATE	N	MEAN	DECISION
1	Instructional White Board	10	18	25	160	87	300	2.01	
2	Television Access	8	15	50	150	77	300	2.09	
3	LCD/Film projector	4	10	20	162	104	300	1.83	
4	Public Address System	12	20	68	140	60	300	2.28	
5	Laptop computer/Handset	5	8	15	180	92	300	1.85	
6	Sound system e.g. speaker	5	10	25	174	86	300	1.91	
7	Digital Camera	5	13	25	145	112	300	1.85	
8	CD ROM/DVD Player	7	15	25	145	108	300	1.89	
9	Internet Facility	5	8	15	180	92	300	1.85	
10	Laser Printer	6	15	25	162	92	300	1.94	
11	Photocopy Machine	5	10	56	134	95	300	1.99	
12	Optical disks CD/DVD	6	15	20	145	114	300	1.85	
13	Desktop Computer	4	8	46	140	102	300	1.93	
14	Digital Scanner	10	15	25	148	102	300	1.94	
	Grand Mean	**1.94**							

Key: Very Much Adequate (VMAQ), Much Adequate (MAQ), Adequate (AQ), Less Adequate (LAQ), Not Adequate (NAQ)
NAQ = 1.00-1.79; LAQ = 1.80-2.59; AQ = 2.60-3.39; MAQ = 3.40-4.19; VMAQ = 4.20-5.00 .
Source: Field Survey, 2020

Table 3A shows the descriptive statistic result of research question two. Students were asked to indicate their views on the adequacy of ICT tools available for use in their college for teaching learning process.The result shows that the ICT tools available was less adequate with overall mean score of 1.94. The result shows further that Instructional White Board with mean score of 2.01, Television access with mean score of 2.09, LCD/Film projector with mean score of 1.83, public address system with mean score of 2.28, laptop with mean score of 1.85, sound system with mean score of 1.91, digital camera with mean score of1.85,CD Rom with mean score of 1.89, internet facility with mean score of 1.85, laser printer with mean score of 1.94, photocopier machine with mean score of 1.99, optical disk with mean score of 1.85, desktop with mean score of 1.93 and digital scanner with mean score of 1.94. were considered by the students to be

less adequate. From the above finding, none of the ICT tools investigated had mean score below non adequate (n=1.79). Implicitly, all the investigated ICT tools were being used by the lecturers to engage the students with teaching learning process but are less adequate with mean score that ranged between 1.83 and 2.28.

Table 3B: Lecturers' Perceptions on Adequacy of ICT devices used for teaching learning process

	ICT Devices Adequacy for teaching-learning process	VERY MUCH ADEQUATE	MUCH ADEQUATE	ADEQUATE	LESS ADEQUATE	NOT ADEQUATE	N	MEAN	DECISION
1	Instructional White Board	2	4	8	58	20	92	2.02	
2	Television Access	2	5	12	45	28	92	2.00	
3	LCD/Film projector	1	2	3	70	16	92	1.93	
4	Public Address System	3	7	54	24	4	92	2.79	
5	Laptop computer/Handset	3	4	7	60	18	92	2.07	
6	Sound system e.g. speaker	1	3	8	56	25	92	1.93	
7	Digital Camera	2	6	8	46	30	92	1.96	
8	CD ROM/DVD Player	2	5	8	50	27	92	1.97	
9	Internet Facility	1	4	9	48	30	92	1.89	
10	Laser Printer	1	4	10	42	35	92	1.85	
11	Photocopy Machine	2	5	10	50	25	92	2.01	
12	Optical disks CD/DVD	2	3	9	52	26	92	1.95	
13	Desktop Computer	1	3	16	46	26	92	1.99	
14	Digital Scanner	3	4	8	42	35	92	1.89	
	Grand Mean	**2.02**							

Key: Very Much Adequate (VMAQ), Much Adequate (MAQ), Adequate (AQ), Less Adequate (LAQ), Not Adequate (NAQ)
NAQ = 1.00-1.79; LAQ = 1.80-2.59; AQ = 2.60-3.39; MAQ = 3.40-4.19; VMAQ = 4.20-5.00
Source: Field Survey, 2020

Table 3B shows the descriptive statistic result of research question two. Lecturers were asked to indicate their views on the adequacy of ICT tools used for engaging their students in teaching learning process. The result shows that the ICT tools available were less adequate with overall mean score of 2.02. The result shows further that except the public address system that was considered adequate with mean score of 2.79, all other ICT tools starting with Instructional White Board (n=2.02), Television access (n=2.00), LCD/Film projector (n=1.93), laptop(n=2.07), sound system(n=1.93), digital camera (n=1.96),CD Rom (n=1.97), internet facility (n=1.89), laser printer (n=1.88), photocopier machine (n=2.01), optical disk (n=1.95), desktop (n=1.99) and digital scanner (n=1.89) were considered by the lecturers to be less adequate. The overall finding reveals that apart from the public address system that was adequately available, all other available ICT tools investigated were less adequate but none of them was not adequate as they all had mean score above mean score of 1.79. Implicitly, all the investigated ICT tools were being used by the lecturers to engage the students with teaching learning process. Public address system was adequate in all the Colleges while all other ICT tools were less adequate with mean score that ranged between 1.85 and 2.07.

Research Question Four: What is the perceptions of students and lecturers on the benefits of ICT devices use?

Table 4A: Students' Perceptions on Benefits of ICT devices used for teaching learning process

	ICT Devices Benefits for teaching-learning process	VERY MUCH BENEFICIAL	MUCH BENEFICIAL	BENEFICIAL	LESS BENEFICIAL	NOT BENEFICIAL	N	MEAN	DECISION
1	Instructional White Board	35	150	90	15	10	300	3.62	
2	Television Access	45	145	85	16	9	300	3.67	
3	LCD/Film projector	25	100	140	20	15	300	3.33	
4	Public Address System	40	95	150	10	5	300	3.52	
5	Laptop computer/Handset	9	120	140	20	11	300	3.32	
6	Sound system e.g. speaker	25	120	110	25	20	300	3.35	
7	Digital Camera	30	90	140	28	12	300	3.03	
8	CD ROM/DVD Player	15	50	125	78	32	300	2.79	
9	Internet Facility	25	65	160	35	15	300	3.17	
10	Laser Printer	26	95	125	42	12	300	3.27	
11	Photocopy Machine	25	150	75	35	15	300	3.45	
12	Optical disks CD/DVD	32	90	120	40	18	300	2.96	
13	Desktop Computer	20	35	120	78	47	300	2.68	
14	Digital Scanner	36	78	145	30	11	300	3.33	
	Grand Mean	**3.25**							

Key: Very Much Beneficial (VMB), Much Beneficial (MB), Beneficial (B), Less Beneficial (LB), Not Beneficial (NB)
NB = 1.00-1.79; LB= 1.80-2.59; B = 2.60-3.39; MB = 3.40-4.19; VMB= 4.20-5.00
Source: Field Survey, 2020

Table 4A shows the descriptive statistic result of research question four. Students were asked to indicate their views on the benefits of ICT tools used for engaging them in teaching learning process. The result shows that the ICT tools used to engage students were beneficial with overall mean score of 3.25. The result shows further that all ICT tools investigated were considered to be beneficial to teaching learning process. Instructional White Board (n=3.62), Television access (n=3.67), public address system (n=3.52), photocopier machine (n=3.45) were considered by the students to be much beneficial while LCD/Film projector (n=3.33), laptop computer/handset (n=3.32), sound system (n=3.35), digital camera (n=3.03), CD Rom (n=2.79), internet facility (n=3.17), laser printer (n=3.27), optical disk (n=2.96), desktop (n=2.68) and digital scanner (n=3.33) were considered by the lecturers to be beneficial in teaching learning enhancement. The overall finding reveals that all the available ICT tools investigated were either much beneficial or beneficial for teaching learning process with none that is less or not beneficial. Implicitly, all the investigated ICT tools were being used by the lecturers and are beneficial in enhancing teaching learning process.

Perceptions of Lecturers on the Benefits of ICT tools used for enhanced teaching learning process

Table 4B: Lecturers' Perceptions on Benefits of ICT devices used for teaching learning process

	ICT Devices Benefits for teaching-learning process	VERY MUCH BENEFICIAL	MUCH BENEFICIAL	BENEFICIAL	LESS BENEFICIAL	NOT BENEFICIAL	N	MEAN	DECISION
1	Instructional White Board	11	50	24	3	4	92	3.66	
2	Television Access	14	41	30	5	2	92	3.65	
3	LCD/Film projector	8	46	32	5	1	92	3.60	
4	Public Address System	15	40	31	4	2	92	3.67	
5	Laptop computer/Handset	8	30	45	6	3	92	3.37	
6	Sound system e.g. speaker	7	30	45	8	2	92	3.35	
7	Digital Camera	10	30	40	9	3	92	3.80	
8	CD ROM/DVD Player	8	25	40	10	9	92	3.14	
9	Internet Facility	15	25	36	10	6	92	3.36	
10	Laser Printer	14	25	40	8	5	92	3.27	
11	Photocopy Machine	16	20	45	10	1	92	3.43	
12	Optical disks CD/DVD	10	15	28	25	14	92	2.80	
13	Desktop Computer	5	15	26	40	6	92	2.71	
14	14. Digital Scanner	8	15	56	9	4	92	3.17	
	Grand Mean	**3.36**							

Key: **Very Much Beneficial (VMB), Much Beneficial (MB), Beneficial (B), Less Beneficial (LB), Not Beneficial (NB)**
NB = 1.00-1.79; LB= 1.80-2.59; B = 2.60-3.39; MB = 3.40-4.19;   VMB= 4.20-5.00
Source: Field Survey, 2020

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  Lecturers were asked to indicate their views on the benefit of ICT tools in their college for enhancement of teaching learning process. The result in Table 4B shows that the ICT tools used to enhance students' engagement were beneficial with overall mean score of 3.36. The result shows further that all ICT tools investigated were considered to be beneficial to teaching learning process. Instructional White Board (n=3.66), Television access (n=3.65), LCD/Film projector (n=3.60), Public address system (n=3.67), digital camera (n=3.80) and photocopier machine (n=3.43) were considered by the students to be much beneficial while laptop computer/handset (n=3.37), sound system (n=3.35), CD Rom (n=3.14), internet facility (n=3.36), laser printer (n=3.27), optical disk (n=2.80), desktop computer (n=2.71) and digital scanner (n=3.17) were considered by the lecturers to be beneficial in teaching learning enhancement. The overall finding reveals that all the available ICT tools investigated were either much beneficial or beneficial for teaching learning process with none that is less or not beneficial. Implicitly, the lecturers considered all the investigated ICT tools as beneficial and being used by the lecturers to enhance teaching learning process.

Research Question five: What are the challenges of the ICT devices used to engage for enhanced teaching learning process?

Table 5: Responses on the challenges of using ICT devices for enhanced teaching learning process in South West Nigeria Colleges of Education

ITEMS		Strongly Agree(SA) 4	Agree (A) 3	Strongly Disagree (SD) 2	Disagree (D) 1	No	Mean	Decision
1	Inadequate time for usage of some ICT devices	175	160	40	17	392	3.26	Strongly Agree
2	Inadequate funding to procure ICT devices	145	160	52	35	392	3.06	Strongly Agree
3	Inadequate training on the use of ICT devices	120	170	65	37	392	2.95	Agree
4	Inadequate Broadband access	140	175	40	37	392	3.07	Strongly Agree
5	Poor attitude of students towards learning and assignments	22	65	150	145	392	1.86	Disagree
6	Exorbitant internet access fees	160	150	42	40	392	3.10	Strongly Agree
7	Epileptic power supply	160	150	52	30	392	3.12	Strongly Agree
8	Lack of commitments by the lecturers	25	40	160	167	392	1.80	Disagree
9	Poor maintenance culture	160	150	50	32	392	1.72	Disagree
10	Insufficient infrastructure to support the use of ICT devices	165	132	60	35	392	3.09	Strongly Agree
11	Lack of Policy on ICT use in the tertiary Institutions	164	170	40	18	392	3.22	Strongly Agree
12	Inadequate experts to handle technical faults arising from using ICT devices	130	180	60	27	392	3.08	Strongly Agree
	Group Mean = 2.89							

Key: Disagree (D) =1.00-1.99; Agree (A)= 2.00-2.99; Strongly Agree (SA)= 3.00-4.00.
Source: Field Survey, 2020

The respondents (lecturers and students) were asked to indicate their views on the challenges of using ICT devices in their college for enhancement of teaching learning process. The result in Table 5 reveal the agreement of respondents that the use of ICT tools for teaching learning enhancement was faced with a lots of challenges with overall mean score of 2.89.Further, the respondents strongly agreed that inadequate time for usage of ICT devices (n=3.26), inadequate funding to procure ICT devices (n=3.06), inadequate Broadband access (n=3.07), epileptic power supply (n=3.12), exorbitant internet access fees (n=3.10), insufficient infrastructure to support the use of ICT devices (n=3.09),lack of Policy on ICT use in the tertiary Institutions (n=3.22),inadequate experts to handle technical faults arising from using ICT devices (n=3.08) were challenges that hindered effective use of ICT devices for enhanced teaching learning process. In addition to the above results, the respondents agreed that inadequate training on the use of ICT devices (n=2.95) posed as challenge but disagreed that lack of lecturers' commitments (n=1.80), poor attitude of students towards learning and assignments (1.86) and poor maintenance of ICT devices constituted set-backs in enhancing teaching learning process.

Discussion of Findings

This study investigated the use of ICT tools in South West Colleges of Education, with a view to find out the level of teaching learning process, ICT tools available, its adequacy, benefit of use and the challenges of using ICT tools for enhanced teaching learning process so as to proffer solution that will put our students digitally at learning par with their counterparts in the developed countries of the world. Federal Colleges of Education are the choice of this study because they are regularly being funded by TETFUND and therefore expected to model both private and State Colleges in standard. The reason for this is hinged on the anticipated that the higher institutions under full TETFUND sponsorship will play a pivotal role in raising the standard of education in Nigeria.

Twelve (12) question items were used to measure the level of teaching learning process and findings revealed that with overall mean score of 3.01, the level was moderate, which indicated that both the students and lecturers were actively participating in the teaching learning process using the available ICT devices for best learning experience. Further to the above, the study revealed that the incessant strikes embarked upon by COEASU often affected teaching learning engagements and that the level to which lecturers uses tutorial hours to complement the short time allocated to courses was low. The finding corroborates George's (2019) study which attributed low academic engagement in the South West Universities to incessant strike embarked upon by ASUU compared with Colleges of Education Academic Staff Union (COEASU) due to outright neglect and poor funding. The finding also agrees with Ghavifekr, Kunjappan, Ramasamy and Anthony's (2017) study which identified limited time, limited connection and network amongst others as factors in teaching learning engagements. Conversely, the finding disagrees with Chukwuorji (2018) study that found the level of teaching learning process low in Nigerian tertiary institutions. The finding also contradicts Amparado and Son's (2018) study which argued that little academic work was happening in Nigerian higher institutions. Implicitly, the moderate level of teaching learning engagement could be due the fragile stability enjoyed by both the students and lecturers in the college system compared with their counterpart in the Nigerian universities as argued by George's (2019) study which attributed low academic engagement in the South West Universities to incessant strike embarked upon by ASUU due to outright neglect and poor funding

Findings in table 2 reveals the ICT devices available for teaching learning engagement in the universities investigated to include Interactive white board, television access, Digital Scanner. Desktop Computer, Optical disks CD/DVD, Photocopy Machine, Laser Printer, Internet Facility, CD ROM/DVD Player Digital Camera, Sound system and speaker, Laptop computer/Handset, Public Address System, LCD/Film projector. The overall mean scores of both students and lecturers' responses revealed that ICT devices were available with 2.89 and 3.01 respectively. Public address system was considered by both the students (n=2.89) and lecturers (n=3.01) as the most available devices in the colleges investigated, followed by television access, sound system and laptop/handsets; these facilities remain a major tool of disseminating knowledge and use of ICT provide the chances for students to be active and take more parts or roles for their best learning experience.

The finding of this study corroborates the findings of Sani Alabi, Danjuma, and Momoh (2021) in Federal universities, Lokoja, Kogi State, Nigeria, which reported availability and accessibility of computers and internet for faculties and departments. The findings also agree with earlier findings of Ghavifekr and Wan Athirah, 2015) who acknowledged availability of ICT devices in his study conducted in Malaysia but found that teachers lacked enough training opportunities in the use of ICT devices in the classroom. Since the findings revealed that ICT devices were available, it implies that the lecturers engage the students digitally and they participated actively and acquired the knowledge and skills required to be at per with their counterpart internationally. However, Ghavifekr, Kunjappan, Ramasamy and Anthony (2017) was quick to point out that availability of ICT tools does not determine use of ICT tools due to factor such as limited connection and network, technical support, limited time and lack of effective training of staff on IT skills as revealed in Malaysia. Hence there is need for the ICT devices to be adequate for enhancement of effective teaching learning process.

The finding on inadequacy of ICT devices revealed that both the students (n=1.94) and lecturers (n=2.02) responded that the available ICT devices were less adequate. The result showed further that apart from the public address system that was adequately available, all other ICT tools investigated wereless adequate with mean score above 1.79. The fact that both the students and the lecturers responded that the ICT devices were inadequate showed that both the government and Administrators of Colleges of Education in the South West Nigeria need to improve their policies and focus their programs making ICT devices adequately available and integrate them into the higher education sector. The finding corroborates Johnson (2019) who noted that the level of using ICT devices to engage students for teaching enhancement in Nigerian tertiary institutions was still in its infancy and very low. The finding is also in agreement with the report of Commonwealth of Learning (2017) study which noted that, although, there had been a steady increase in internet connectivity between 2012 to 2016 (from 16.1 per cent to 25.67 per cent) and engagement in ODL, at best,

access to the internet in most higher institutions of learning is still very poor. The finding also agrees with the study of Edhereveno, Oniovosa (2014) which reported that the challenges of lecturers in tertiary institutions was no longer in covering the course contents or in adopting appropriate teaching pedagogy, but having accessibility and adequacy of ICT devices required to embrace teaching and learning. Similarly, the finding also agrees with Yusta (2016) that infrastructural requirements for the application of ICT in our educational system are presently not adequate due to constant power shortage which mostly discourages people from acquiring the ICT equipment. The study also aligned with Akyol and Erdem's (2021) study which revealed that equipment and facilities for effective teaching and learning are deficient in Nigerian schools.

Findings on the benefits of ICT devices for enhancement of teaching learning process shows that using ICT devices are beneficial with overall mean scores of 3.25 and 3.36 respectively from both the students and lecturers. The finding reveals further that all the available ICT tools investigated were either much beneficial or beneficial for teaching learning process with none that is less or not beneficial. The use of ICT devices therefore is more likely to benefit students in higher quality teaching than those institutions where they were not available.This implies thatadequate use of ICT use in the classroom is important for giving students opportunities to learn and apply the required 21st century skills in this digital era. The responses suggest that students were happy learning with digital technologies and this is in agreement with World Bank (2016) study that reported much enthusiasm among African students to apply digital technologies to learning, particularly following the rapid increase in mobile technologies in the continent. This finding is in agreement with that of Teng and Wang (2021) which found that the use of ICT devices such as LCD/Film projector, internet, digital camera assisted students to remember the concept taught for longer period of time and provided opportunities for effective communication between teacher and students. The finding is also in agreement with George's (2019) study which found that the use of ICT devices such as sound system, desktop computer, public address system and instructional white board enabled students to have better understanding of the taught behaviours thereby bringing effectiveness into learning. Also in agreement with this finding is Suleiman, Yahya and Tukur's (2020) study which found that use of ICT devices had introduced innovation in teaching, facilitates smooth delivery of instructions and saves time and energy.

Findings on the challenges of using ICT devices for enhanced teaching learning process showed that both the students and lecturers with overall mean score of 2.89 agreed that the use of ICT devices was faced with some challenges. This study found that the major challenges to the use of ICT tools in enhancing teaching learning process in South West Colleges of Education were inadequate funding to procure ICT devices, followed by lack of policy on use of ICT devices in the college, Inadequate Broadband access broad base access. Exorbitant internet access fees, Epileptic power supply, Inadequate experts to handle technical faults arising from using ICT devices, Insufficient infrastructure to support the use of ICT devices and insufficient time for usage of ICT devices. While they agreed that inadequate training on the use of some ICT devices constituted a barrier to using ICT devices, they however disagreed that poor attitude of students towards learning and assignments, lack of commitments by the lecturers and poor maintenance culture were barriers to use of ICT devices for enhanced teaching learning process. The finding was also in agreement with Nwakile' (2018) study which identified challenges of ICT devices use to include lack of time to adequately use the tools, poor maintenance culture, technical problems, space and lack of required skills. The finding also corroborates report of Commonwealth of Learning (2017) study which revealed that Nigeria suffers from a combination of lack of comprehensive policy on ICT in higher education, poor power supply and poor supply of ICT infrastructure such as broadband access that was not accessible in a lots of Nigerian Universities.

This finding also corroborates research studies (Adam 2003; Muianga et al. 2013; Sawyer 2004; World Bank 2016) which identified policy inconsistencies and poor strategic plans as some of the major problems deepening ICT-based education in Africa. It is also in agreement with Okafor et al. (2011) and World Bank (2012) studies which described Nigerian government's commitment to funding of higher education as abysmal and lackluster. However, the finding disagrees with Akpan (2014) and UNESCO (2015) which identified issue of competence and skills of students and lecturers as barriers capable of affecting their competing favorably in ICT-based teaching with their counterparts around the world. The finding also agrees with Teferra and Altbach (2004) study which considered insufficient electricity supply as a grave danger to higher education because access to internet is dependent on the amount of electricity supplied.

CONCLUSION

Based on the outcome of this study, it was concluded from the responses of both students and lecturers that the use of ICT devices can enhance teaching learning process in the South West Colleges of Education. ICT devices were available to both the students and the lecturers in the Colleges investigated but not adequate. The study also

established that the use of few ICT devices available was much beneficial to teaching learning process thereby facilitating better the taught behaviour and this brought effectiveness to teaching learning process. However, the effect of using ICT devices was not felt much due to its inadequacy in the Federal Colleges under study. The study also established that the use of ICT devices was also beneficial to lecturers in that it enables them to introduce innovation in teaching, which in turn facilitates smooth delivery of instructions.

RECOMMENDATIONS

The following recommendations were made based on the study findings.

1) The College administrators should liaise with TETFUND to fund the provision of ICT infrastructures such as broadband access that will facilitate stable internet facility.
2) The College managements should make available adequate ICT devices and these should be properly maintained by the experts, College departments and units so as to optimize its use.
3) The college managements should also provide alternative regular power supply to resolve the challenges of unstable power supply for enhanced teaching learning process.
4) Sufficient tutorial hours should be allocated to supplement all courses hours for lecturers to have enough time to use ICT devices for enhanced teaching learning process.
5) Lastly, government at all level should improve funding of education to reduce the incessant strikes embarked upon by COEASU so as to facilitate adequate engagement of students for academic works.

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