

## **Teaching and learning in a digital age: Challenges and prospects**

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### ***Abstract***

*There is no gainsaying that technology plays a vital role in teaching and learning. However, the question is whether technological resources are adequately employed in teaching and learning in tertiary institutions in Nigeria. To answer this question, this study examines the attitudes, responses and/or opinions of teachers and students' use of ICT with regard to teaching and learning in the Faculty of Arts, Nnamdi Azikiwe University, Awka. A questionnaire designed to elicit information about the activity of teaching and learning was randomly administered to one hundred selected students and teachers in the faculty. The responses were analyzed using the simple percentages. The analysis reveals that there is still lack of facilities, expertise and/or technical knowhow to adequately explore the available technological tools that enhance teaching and learning. The paper, therefore, advocates for the importance of redesigning and rethinking education from theoretical to practical strategies for effective teaching and learning.*

### **Introduction**

The role of Information Communication Technology (ICT) in higher institutions cannot be over-emphasized, especially in this technology-driven age where the use of technology cuts across and permeates all facets of the society and human endeavor. This ranges from education to socio-economic environments,

government, science, communication, religion, and so on. No wonder, the use of technological tools has been recognized as one of the important elements that can facilitate teaching and learning process (Ahmadi, 2017). Some of the technological tools include computer-based technology, mobile technology, multimedia technology and many others.

The use of these technological tools in education does not only enhance effective, interactive and collaborative teaching and learning and improve the quality of teaching and learning process; it also equips both the teachers and students to favourably meet up with the challenges of the 21<sup>st</sup> century. This is because we are in a technological-savvy generation where young people are more conversant and proficient in adapting new technological tools in learning than their teachers. As such, the teachers also need to be fully trained to be able to meaningfully impact on their students.

However, the dearth of technological tools available for teaching and learning in most institutions of higher learning in Nigeria has been a big challenge for both teachers and students in meeting up with the emerging trends in technology. Some factors and/or challenges have contributed to achieving this goal such as lack of trained personnel, specialization, competence, funding, infrastructure and facilities (power and internet), instability and many others. This study therefore is geared towards ascertaining the attitudes, responses and/or opinions of teachers and students use of ICT with regard to teaching and learning in the Faculty of Arts, Nnamdi Azikiwe University, Awka as an example. Structured questionnaires were randomly distributed to both teachers and students of Faculty of Arts in the ratio of 40:60 and the simple percentage was used for the analysis of the responses from the respondents. The questionnaires were structured based

on a 5-point rating scale of Strongly Agree (SA), Agree (A), No Strong Opinion (NSO), Disagree (DA) and Strongly Disagree (SD) corresponding to the value 5, 4, 3, 2, 1, respectively as a measure of the responses from the respondents.

The rest of the paper is structured as follows: section two discusses technology and education and the use of technological tools in teaching and learning. It also reviews relevant empirical studies. Section three presents and analyses the data, while section four forms the findings and conclusion.

### **A brief overview of technology and education**

The emergence of technology in all aspects of human endeavors such as science, industry, engineering, economy, education, and many others is greatly enhancing problem solving and facilitating both human resources management and knowledge production in the world today.

The internet is one of the major drivers of technology that has brought the world to a global village. According to Etim, Akpan, and Ibok (2013), the internet is the interconnection of system and subsystems of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission or reception of data or information. Dickson (2012) notes that the internet can be seen to provide resources and services that are used for accessing, processing, gathering, manipulating and presenting or communicating information. The use of internet in education is now growing in all parts of the world and its application is becoming an integral part of education in many parts of the globe. For instance, Raja & Nagasubramani (2018) aver that the use of the internet in education allows both the teachers and students to conveniently find the various kinds of help, including providing

tutorials and/or materials that will improve and enhance their academic experience.

Further explanation of the diverse nature of ICT by Hamilton-Ekeke and Mbachu (2015), state that ICT includes diverse set of technology and technological tools used to communicate, disseminate, store and manage information. It is in this light that Budhwar (2017) discusses the role of information and communication technology (ICT) in education with a view of tapping into the immense available resources for improved teaching and learning. The next section provides some of the gains and/orprospects cum challenges of ICT in teaching and learning.

### **Information and Communication Technology (ICT) in education: Gains and drawbacks**

Information and communication technology (ICT) is a boom for teachers and students today. It provides them not only with opportunities that enhance effective teaching and learning, but it also has significant and positive effect on students' achievement which includes; easy access to learning material, proper record keeping, distance learning, and continuous learning. Technology provides wide spectrum to learning and possesses an enormous power to alter traditional pedagogical environments (Alves, Schmidt, Carheat, & Hostins, 2015).

In addition, Savividis (2016) notes that the use of technology in teaching and learning improves engagement, knowledge retention, encourages individual learning, encourages collaboration and enables students to learn useful life skills. With regard to the teachers, according to Savividis, it benefits them in many ways with the countless online resources available for improved teaching.

Kurt (2010) states that the benefits of the use of technological tools in education includes; it enhances creativity in students and their problem solving abilities, it can serve as a tool for establishing projects to engage them in critical thinking and problem solving, it also helps the restructuring and redesigning of the classrooms to develop an environment that stimulates the development of higher-order thinking skills.

On the role of ICT in education, Habib (2017) asserts that ICT is a motivating factor which enhances fast communication and cooperative learning, improves classroom teaching learning process with a positive impact in teaching, learning and research. It also provides the facility for e-learning and enhances learning environment for future lives and careers.

In the same vein, Arifah (2014), states that the use of internet and/or technological tools in teaching and learning increases the learners' motivation. For instance, the use of film in teaching helps learners to realize the topic with enthusiasm and develop their knowledge. Learners can learn meaningfully when technology is used in the process of learning through using computer and internet. Raja & Nagasubramani (2018) also mention some of the various ways students can make use of technology. This includes; getting connected to the internet round the clock, making use of projectors or visuals to aid their learning making it appealing, interactive and interesting; digital footprint in the education sector assist students in development and learning; and lastly, online degrees employ various applications and the internet in the expansion and delivery of knowledge.

In spite of the enormous available online resources for teaching and learning, there is a challenge of available structures and infrastructure for training and re-training of teachers and students to keep them updated with the changing trends in

technology. This explains why Budhwar (2017) emphasizes that for teachers to tap into the online resources that are available to promote teaching and learning, they need to be kept abreast with the emerging technologies through constant training. According to the author, science and technology are likely to be the key elements and/or strategies to develop ICT as a resource for promoting teaching and learning. Also, Budhwar states that it is likely that science and technology teachers are better equipped, by virtue of their training, for this task than many of their colleagues. Although, they too likely need to have their skills brought up-to-date by means of suitable training programmes. He also captured some of the challenges in the use of technology in education viz:

- i. Access to inappropriate content: this is where materials like pornographic, violent, and other inappropriate materials can be easily accessed and viewed.
- ii. Disconnected youth
- iii. Cyber bullying trap
- iv. Inevitable Cheating

The author added that the mobile phone in the classroom is one of the major distractions. This is because the attentiveness drops drastically in the classroom when students have their cell phones or other technologies out. The focus shifts from their teacher and education, to whatever they are looking at, playing, or doing on their phones. Some other drawbacks include; students' imagination is affected and their thinking ability is reduced, technology is costly to install, its overuse can have health implications and some of the modern computer technologies cannot be afforded by students and poorly paid teachers (Raja &

Nagasubramani, 2018). In what follows, the discussion of the use of technological tools in education is presented.

### **Technological Tools in Use in Education**

There are enormous technological tools that abound in education today. No wonder, the use of technological-based tools in teaching and learning has dominated the academia in the 21<sup>st</sup> century. While many scholars have tried to ascertain its roles in teaching and learning, it is also pertinent to note that the technological tools that relate and are especially useful to the students' discipline should be prioritized. Kim and Kim (2017) stated that students find the use of technology particularly useful when it relates directly to their course or when they are learning about abstract concepts. Some studies on the available technological tools in use in education are reviewed.

Al Muhtadi (2014) highlighted some of the technological tools that are in use in education such as Online Classrooms, Tablets in the Classroom, SMART Board, Messaging and Texting, Computers and Virtual Gaming. Budhwar (2017) added television and internet as part of these tools.

Ain, Shahid, Aleem, Islam, Iqbal and Yousaf (2019) in their study of technological tools in use in education, broadly scrutinized the roles and effectiveness of technological tools in teaching and learning process. They discussed some of the technological tools by reviewing the available theoretical literature about the influence of technology and its effectiveness in education. Some of the technological tools discussed include; computer based technology, games based (serious games, web games, micro-games, video-games), mobile based (laptop, Personal Digital Assistance (PDA), tablets, mobile phones), online learning tools (flipped classroom, web Massive Open

Online Courses (MOOCs)) and Multimedia technologies (Video, Multidimensional Concept Maps (MCMs), Multimedia and a Multidimensional Concept Map (MAMCM)). The authors observed that in the teaching and learning process, the use of technological tools increases interaction between teachers and students. They concluded that educators must implement the right technological tools so as to make the learning environment more innovative for the students.

Explaining the computer-based technologies, Ain, Shahid, Aleem, Islam, Iqbal and Yousaf also noted that, it is any prospectus in which learners interact with a personal computer as a key factor of the studying process, whereas Multimedia technologies is usually accompanied by multimedia animations tools such as images, words, sounds, pictures and moving images that can be used in education. On the other hand, Mobile-based technologies are useful resources in that they provide excellent prospects for assisting advanced academic techniques (Montrieux, Vanderline, Schellens, & De Marez, 2015). In addition, Lovrenčić & Čubrilo (2015) stated that the advancement in mobile-based technologies have led most people to use their laptops, mobile phones, Personal Digital Assistance (PDAs) personal computers, tablets and e-book reader to enhance their processing capability. Chinyamurindi (2020) added that mobile devices have been found to play a key role in the transmission of information among young people, but also the elderly. He provided some of the online platforms that can be useful to host learning content such as YouTube, Sound Cloud, Twitch and Audiomack. Some of the recorded learning content can be downloaded online onto a device and replayed later by the user. The next section provides empirical studies of the use of technology in education.

## **Empirical studies**

Some works carried out by scholars with regard to the use of technology in teaching and learning are highlighted and discussed in this section.

Balázs' (2017) studied Online Educational Environments and ICT Tools in Higher Education with a survey on teachers in order to find out their use of ICT tools in teaching. Balazs' findings show that teachers who work in higher education prefer ICT tools related to traditional educational methodology in teaching, while the web 2.0 tools are relegated to the background. Teachers use the computer, a projector and a slide show (power point) the most often. Though, there are still unsolved issues whereby some teachers do not know how to handle ICT devices.

Similarly, Archibong & Effiom (2009) discussed ICT in University Education, usage and challenges among Academic Staff of Cross River University of Technology, Calabar Campus, Calabar, Nigeria. Using 80 structured questionnaires in order to find out the use of ICT and its challenges among academic staff, the study reveals that there is relatively high percent of academic staff who do not have personal computers. Secondly, their access to internet in the school is limited. The major obstacles to ICT usage among academic staff are weak infrastructure, power failure, financial constraints and lack of access to ICT facilities. The study concluded that there is need for training of academic staff in ICT in order to facilitate new learning activities, electronic presentation of materials, and the use of internet and office application.

Hamilton-Ekeke and Mbachu (2015) also investigated the availability of ICT facilities as well as its usage in one of the newest government owned universities in the oil rich Niger Delta region of Nigeria which is Niger Delta University, Wilberforce

Island, Bayelsa State - Nigeria. A survey research design was used with a sample size of 843 undergraduate students from three faculties out of the six faculties in the university. Quantitative and qualitative methods of data collection were employed in the study and it was observed that basic ICT facilities like computers are unavailable, students are unable to afford personal laptop which grossly affected e-learning and e-communication channels like email, e-board, internet and organized networking system between staff and students. The study concluded with some recommendations that, there should be provision of student workstation and the inculcation of ICT in the curriculum to enable students to be computer literate so they can accept and use ICT in their everyday studies.

Adeoye, Oluwole, & Loto's (2013) study appraised the role of information communication technology (ICT) as a change agent for higher education in Nigeria. In their research, they stated how ICT has impacted on the quality and quantity of teaching, learning and research in tertiary educational institutions in Nigeria. For instance, many educational institutions who offer distance learning do so through ICT support. Furthermore, they discussed the constraints to effective utilization of ICT as a change agent for higher education in Nigeria such as inadequate computer trained and certified teachers, poor funding, irregular power supply, cost of equipment and lack of relevant software. They concluded by predicting that the impact of ICT would grow considerably in years to come, if the various problems hindering effective utilization of ICT as a change agent for tertiary education are properly ameliorated.

In the same view, Ajegbelen (2016) discussed the use of ICT to enhance university education in Nigeria. The author used descriptive survey that assessed five universities for the most

urgent solution. A total of 120 respondents which include; university lecturers and the students were used for the research. A yawning gap was observed between the teachers and students with regard to ICT usage in classrooms. It was observed that due to low access to ICT facilities, non-possession of personal computers and some essential software, lack of power supply, lack of qualified teachers to teach ICT, lack of internet, among others, students were required to visit commercial cyber cafés in town for ICT related works, while teachers were also faced with some challenges such as availability of facilities which prevent them from employing ICT in the classroom. Among the recommendations proffered by the author include; funding, provision of technological facilities and technical expertise in Nigeria universities.

Kanos (2013) also studied the challenges in implementing ICT in Botswana higher learning institutions. Data were obtained from five major higher learning institutions in Botswana in the Gaborone city. The author observed that the major challenge has to do with funding, students' late exposure to ICT technology and the curriculum design of institutions. Among the recommendations made were early exposure of ICT to students and teachers and quantitative curriculum design on ICT in higher institutions.

From the foregoing, several works have been done on education and technology, including its benefits and challenges to both students and teachers. Some of these studies show that there is relatively high percentage of academics in some Nigerian schools, higher institutions to be precise, that are neither computer literate nor have adequate access to internet. The major obstacles to ICT usage among academic staff as shown in the literature include; weak infrastructure – power failure, financial

constraints and lack of access to ICT facilities, among others. Lack of ICT training of teachers is also one of the challenges to the use of ICT in teaching in the classroom in some Nigeria universities. This is evident as many academics still lack skills and the required training in the use of basic ICT tools and/or online resources available in the internet for teaching and learning. This paper, therefore, examines the use of ICT in teaching and learning in the Faculty of Arts, Nnamdi Azikiwe University, Awka as an example in a bid to ascertain the teachers and students' attitudes and experiences in the use of ICT. In what follows, we shall present the data showing the results.

### **Data presentation and analysis**

Structured questionnaires were administered to a total number of 100 respondents on the ratio of 40-60 of teachers and students randomly selected from the ten Departments in the Faculty. The selected teachers and students were required to show their attitudes and experiences of the use of ICT in teaching and learning by indicating whether they strongly agree, agree, have no strong opinion, disagree or strongly disagree to the questions. The questionnaire was subdivided into three sections. The first section elicited the socioeconomic status of the respondents such as age, gender, course of study, level of study, the second section focused on the respondents' attitude to ICT, while the last section aimed to explore their experiences in the use of ICT. The results from the respondents are presented on the tables below, showing the percentages of their responses with regard to their attitudes to ICT and experiences in the use of ICT.

Table 1: Attitudes to ICT

S/N	QUESTIONS	SA (%)	A (%)	NSO (%)	DA (%)	SD (%)
1	I enjoy using ICT	42	46	8	2	2
2	I find the use of ICT in teaching and learning very easy and exciting	38	46	8	5	3
3	I know that ICT can help me to learn many new things	51	41	2	3	3
4	I think using ICT saves time in class	35	51	9	4	1
5	I feel very confident when it comes to working with technology in class	25	45	16	10	4
6	I want to learn more about ICT in class	43	41	9	6	1
7	I really believe that ICT can improve my teaching and/or learning skills	58	33	6	2	1
8	I find ICT tools useful in the classroom environment?	39	46	9	3	3
9	I think the use of advanced tools is associated with the use of new teaching methods?	36	41	12	10	1
10	I suggest the use of ICT should be included in the school curriculum.	55	27	9	4	5
11	ICT devices are really difficult to use	20	9	23	31	17

Table (1) presents the percentage (%) results of the attitudes of both teachers and students towards the use of ICT. Observe that

regarding question (1), a total of 88% representing 46% and 42% respondents agree and strongly agree that they enjoy using ICT, while on question (2) a total of 94% representing 46% and 38% respondents agree and strongly agree that they find the use of ICT easy and exciting. Those who do not find ICT easy and exciting constitute only 6%.

Question (3) shows that a good number accept the fact that ICT in teaching and learning enables them to learn new things. This is obvious in the total of 92% respondents who agree and strongly agree to this question. With regard to the 4<sup>th</sup> question, 51% and 31% (i.e. 86%) respondents believe ICT saves time with great impact, whereas a total of 70% representing 45% and 25% who agree and/or strongly agree on question (5) expressed confidence working with technology in the classroom, 16% of the respondents do not have strong opinion and 14% disagree and strongly disagree. What this implies is that about 30% of the respondents are not sure they can confidently work with ICT in the class because they are not too conversant with their use in the classroom.

On the willingness of the teachers and students to get up-to-date information on ICT, question (6) shows that a total of 84% representing 41% and 43% respondents are eager to learn new ICT skills. A total of 91% representing 33% and 58% on question (7) who agree and strongly agree, believe that the new skills they have learnt as a result of training will improve their teaching and learning skills.

The 8<sup>th</sup> question shows the usefulness of ICT tools in classroom environment and a total of 85% accept that ICT tools are useful in classroom, while on question (9), 12% do not have strong opinion and 11% do not agree that they think the use of advanced tools is associated with the use of new teaching

methods, 77% respondents agree to that. On question (10), a total of 82% agree and strongly agree that the use of ICT should be part of the school curriculum.

With regard to question (10) which states that ICT tools devices are really difficult to use, a total of 48% representing 31% and 17% disagree and strongly disagree that they do not find them difficult to use, 23% respondents do not have strong opinion; while 29% agree that they find ICT devices difficult to use. The 48% respondents that do not accept that ICT devices are difficult to use simply shows that a good number of them are not so conversant using ICT devices. This simply implies there is need for training of both the teachers and students on the use of ICT devices.

In a nutshell, the results from the respondents on Table (1) show that both the teachers and students find the use of ICT in classroom environment very useful for teaching and learning and it can impact immensely on their teaching and learning skills. However, there is still need for training in order to improve their teaching and learning skills.

With regard to the experiences in using the ICT facilities, Table (2) below shows the percentages of the responses as follows:

Table 2: Experiences in using the ICT

S/N	QUESTIONS	SA (%)	A (%)	NSO (%)	DA (%)	SD (%)
12	I have taken a course related to ICT	21	54	5	16	4
13	Majority of my data are collected and analyzed using technology tools	6	31	32	17	14

14	I use the internet for teaching or learning activities	40	43	6	8	3
15	ICT influences my teaching or study habit?	29	52	8	7	4
16	I often use ICT tools such as google classroom, google drive, google group in the teaching and learning	6	23	15	40	16
17	My institution provides internet access to both student and teachers	12	25	7	25	31
18	I have free and adequate access to internet in my office/classroom.	7	12	12	27	42
19	There are available ICT facilities in each classroom such as projector, Flat Screen TV set, Recorder, laptop, etc for teaching and learning	6	12	7	22	53
20	My homework often requires a computer/internet	36	51	9	3	1
21	Most times I surf the internet using my laptop or mobile phone to source for teaching and learning materials	51	38	6	4	1
22	I feel that I have not enough experience and knowledge to efficiently use and adapt to changes in technology	26	39	14	16	5
23	I always visit digital library at least once a week	5	24	11	24	36
24	The digital library provides all the teaching and learning materials I need.	7	21	23	20	29

25	ICT enhances my teaching or learning.	34	51	10	1	4
26	Workshops or other learning activities about technological skills are organized for students and teachers	9	16	5	23	47

The results of Table 2 show the respondents' experiences in the use of ICT. For instance, on question (12), 54% and 21% respondents with a total of 75% accept that they have had some ICT related training, whereas a total of 20% do not agree and 5% have no strong opinion in this regard. Interestingly, the use of technological tools in the collection and analysis of data reveal a low percentage of 31% respondents who disagree that they do. 37% agree that their researches involve the use of technological tools and 32% do not have strong opinion. This implies that when it comes to the practical use of technological tools in research, a good number of respondents have no such experience. This is also obvious in the responses on question (16). Only a total of 29% of the respondents agree that they often use some of the technological tools in learning, whereas a total of 56% do not agree they do. This shows that the experience of the use of ICT in the classroom is not adequately represented from our results. However, a significant total percentage (83%) respondents on question (14) agree that they use the internet for teaching and/or learning activities and only a total of 11% do not agree to this. What this also means, on the other hand, is that the internet is very useful in teaching and learning activities. With regard to whether ICT influences their teaching or study habit on question (15), 7% disagree and 4% strongly disagree, while 8% have no strong opinion, while 52% agree and 29% strongly agree (81%) to this fact.

To ascertain the availability and access to ICT resources for teaching and learning, the findings of the study show that there is no provision of free and adequate internet access (as at the time of this study) to both teachers and students to enhance teaching and learning. This can be seen from the responses got from question (17). The respondents show that a total of 37%; i.e. 25% agree and 12% strongly agree that there is internet access provided to both teachers and students, 7% have no strong opinion, while a total of 56%; i.e. 25% disagree and 12% strongly disagree respectively. Whereas, regarding question (18), the total percentage of respondents who do not agree that they have free and adequate access to internet in the classroom and/or office is 69% i.e. 27% disagree and 42% strongly disagree; while 12% have no strong opinion, only 19% agree and strong agree i.e., 12% and 7% respectively. Likewise, on question (19), a total of 75% respondents i.e. 22% disagree and 53% strongly disagree that there are available ICT facilities in each classroom such as projector, Flat Screen TV set, Recorder, laptop, e.t.c. for teaching and learning; while 7% have no strong opinion, only 18% agree they do. It therefore implies that since the students' homework often require the use of computer/internet following from the total of 87% representing those that agree to this, the non-availability of ICT facilities impede on their academic performance as portrayed on question (20). This is also corroborated by the responses on question (25) that ICT enhances their teaching and learning skills.

Regardless the fact that 75% of the respondents agree that they have taken related course in ICT as shown on question (1) on table 1. However, a total of 61% respondents accept that they still feel they have not enough experience and knowledge to efficiently use and adapt to changes in technology as observed on

question (22), 14% are not sure while 21% disagree to this. This implies the need for training.

Also, the respondents demonstrate their lack of knowledge and awareness of the ICT facilities in the digital library; as such, they feel the digital library does not adequately provide for their technological needs. This is probably the reason why most of the respondents (60%) disagree that they visit the digital library at least once a week. The total of 28% of the respondents that agree shows that they are aware of some ICT facilities in the digital library as shown in question (23).

With regard to whether workshops or other learning activities about technological skills are organized for students and teachers as shown in question (26), a significant total percentage of 70% respondents do not accept they undergo training; while 25% agree they do, only 5% do not have strong opinion. The implication is that there is need for occasional workshop/training to keep both the teachers and the students updated on the emerging trends in technology.

### **Summary of findings and conclusion**

This study has explored the use of technological resources in teaching and learning. The findings of the study have shown that there is high interest in ICT tools by both teachers and students, however, there is lack of the wherewithal such as the internet and other technological tools needed to enhance and sustain this interest. Such ICT facilities required in the classroom include; projector, flat Screen TV set, recorder, laptop, and other technological tools such as the internet towards enhancing teaching and learning skills. Other technological tools outside the classroom can also be employed. This is evident in the high percentage of respondent that disagreed that these facilities are

available as shown on question (17), (18), (19) & (20) respectively; while also noting that there is no adequate access to internet facilities to engage the use of these technological tools, in and out of the classroom. Following from the foregoing, this paper concluded that, it is imperative that teachers and students are acquainted with the development and trends in the use of technological tools in teaching and learning. This study also noted the need for ICT facilities and infrastructure in higher institution of learning.

This study, therefore, reiterate the urgent need for funding by both government and stakeholders by ensuring that ICT is accorded number one priority in institutions of higher learning in Nigeria. Also, providing adequate funding of ICT facilities for the sake of viable and effective teaching and learning experience is advocated. An additional point is that concrete platforms and structures should be set in place for constant training so as to frequently improve the technological skills of both teachers and students. This is only feasible if they are engaged in practical ICT workshop trainings on some relevant and right technological tools available for teaching and learning. This, no doubt, will not only make the learning environment more exciting and innovative for teachers and students, improve their practical teaching and learning skills, but also keep them abreast with the emerging technological trends.

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## Questionnaire

Dear Sir/ Madam

Please we wish that you help us fill this form to enable us carry a research on the use of ICT in teaching and learning. With this survey, we hope to collect data on the use of ICT in teaching or learning. The questionnaire consists of three parts. In the first, you are required to fill in your personal details, while in the second and third parts, you are requested to read the statements and rank the items by ticking any of the options that apply to you as shown below:

- |                            |                  |
|----------------------------|------------------|
| 1. Strongly Agree (SA)     | 2. Agree (A)     |
| 3. No Strong opinion (NSO) | 4. Disagree (DA) |
| 5. Strongly Disagree (SD)  |                  |

**Section A: Bio Data**

- i. Age bracket: 15-20 [ ], 21-30 [ ], 31-40 [ ], 41-50 [ ], 51-60 [ ], 61-above [ ]
- ii. Gender: Male [ ] Female [ ]
- iii. Status: Student [ ] Lecturer [ ]
- iv. Level of Education: \_\_\_\_\_

Table 1: Attitudes to ICT

S/N	QUESTIONS	SA	A	NSO	DA	SD
1	I enjoy using ICT					
2	I find the use of ICT in teaching and learning very easy and exciting					
3	I know that ICT can help me to learn many new things					
4	I think using ICT saves time in class					
5	I feel very confident when it comes to working with technology in class					
6	I want to learn more about ICT in class					
7	I really believe that ICT can improve my teaching and/or learning skills					
8	I find ICT tools useful in the classroom environment?					
9	I think the use of advanced tools is associated with the use of new teaching methods?					
10	I suggest the use of ICT should be included in the school curriculum.					

11	ICT devices are really difficult to use					
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Table 2: Experiences in using the ICT

S/N	QUESTIONS	SA	A	NSO	DA	SD
12	I have taken a course related to ICT					
13	Majority of my data are collected and analyzed using technology tools					
14	I use the internet for teaching or learning activities					
15	ICT influences my teaching or study habit?					
16	I often use ICT tools such as google classroom, google drive, google group in the teaching and learning					
17	My institution provides internet access to both student and teachers					
18	I have free and adequate access to internet in my office/classroom.					
19	There are available ICT facilities in each classroom such as projector, Flat Screen TV set, Recorder, laptop, etc for teaching and learning					
20	My homework often requires a computer/internet					
21	Most times I surf the internet using my laptop or mobile					

	phone to source for teaching and learning materials					
22	I feel that I have not enough experience and knowledge to efficiently use and adapt to changes in technology					
23	I always visit digital library at least once a week					
24	The digital library provides all the teaching and learning materials I need.					
25	ICT enhances my teaching or learning.					
26	Workshops or other learning activities about technological skills are organized for students and teachers					

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