



## **IMPACT OF ICT SKILL ACQUISITION TOWARDS IMPROVED PEDAGOGY IN THE COVID-19 PANDEMIC ERA**

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### **ABSTRACT**

*This paper brings to the fore the effect of the acquisition of ICT skill for improved teaching and learning for the development and presentation of information, preparing ICT-based learning environment, designing effective learning experiences and creating rich learning in the pandemic era. ICT skills refers to technology used for regular everyday tasks, sending an email, making a video call, search the internet, using a tablet or mobile phone and more. ICT skills could also include the ability to use older communication technologies such as telephones, radios and televisions. Some of these ICT skills include but not limited to the following: Email management and set up, Online Research, Online Research, Social Media Management, Online Collaboration, Data Management Queries, Desktop Publishing, Word Processing, Excel application, Internet. The impact of these ICT skills on improved pedagogy are enhancing computer networking globally known today as internet and intranet, it accelerates economic development nationally as it is a virile source of national income for all nations that have fully embraced it usefulness, it improves engagement and knowledge retention, when ICT is integrated into lessons, students become more engaged in their work, ICT helps in student centered teaching and learning approach. Problems that hinder the acquisition of these ICT skills are as follows: Lack of government interest in providing ICT skills to Nigerians, high Cost of Acquiring, Maintaining and Installing of ICT, lack of Basic ICT Knowledge, lack of Basic ICT Knowledge, unavailability of Relevant Software, recruitment of Unqualified Personnel. The following suggestion have been rendered to encourage the acquisition of these ICT skills for improved pedagogy in COVID-19 Pandemic era: Government should support the train by carefully providing computer and its internet services to*

*all her citizens at a very subsidized rate if not free of charge, government at all levels should invest in ICT by introducing waiver in the importation of ICT facilities, enlightenment programme should be organized by government, private sector and individual in order to create awareness on why people should study ICT related courses, The provision of steady power supply is very important for the continuous practice of ICT, the government can enter into partnership with ICT material manufacturing companies to enable them establish their manufacturing or assembling companies in Nigeria and this will make the computers, its relevant ICT software and the accessories cheap for the people to purchase.*

**Keywords:** *ICT Skills, pedagogy, improved pedagogy, COVID-19 pandemic era*

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## **Introduction**

Pandemics impact virtually every corner of society almost simultaneously, in contrast with the comparatively contained damage of other events. This leaves little room for the resiliency and flexible reapplication of resources which aids recovery from more localized types of disasters. Furthermore, unlike other types of disasters, pandemics target not physical infrastructure, but the very human infrastructure which is most necessary to combat them. The longer a disease rages on, and the more it kills and incapacitates vital personnel on the front lines of the response, the weaker the defenses societies can mount against an inferno which burns hotter the more fuel it consumes. This is evident in the recent COVID-19 pandemic that ravaged the world. The COVID 19 Pandemic indeed had a huge impact on the educational system in Nigeria. It brought about the cessation of all learning activities in Nigeria except for private universities and secondary schools that swiftly switched to virtual learning platforms. It illuminated the digital divide between Nigerian students and his counterparts in other climes. COVID 19 pandemic outbreak also offered an opportunity for the nation to realize the poor status of its educational system in Information and Communication Technology (ICT). This means that as good as ICT in education is, its availability and utilization is key.

Burnett (2020) asserts that Information and Communication Technology (ICT) refers to the art and applied sciences that deal with data and information. It

encompasses all (equipment including computational machinery - computers, hardware, software, firmware etc., tools, methods, practices, processes, procedures, concepts, principles and the sciences) that come into play in the conduct of the information activities: acquisition, representation, processing, presentation, security, interchange, transfer, management, organization, storage and retrieval of data and information. Information communication technologies (ICTs) are information handling tools that are used to produce, store, and process, distribute and exchange information. These different tools are now able to work together, and combine to form networked world which reaches into every corner of the globe. It is an increasingly powerful tool for participating in global markets, promoting political accountability; improving the delivery of basic services; and enhancing local development opportunities United Nations development Programme (UNDP, 2011).

Salau (2005) observes that ICT has increased how schools can be more productive, but many schools do not run as fast. That is why most schools need teachers that understand the full potential of how information and communication technology can enhance teaching and learning. The best communicators really understand what efficient communication is and how new technologies should be used to make communication even more efficient. But it is not necessary for you to be knowledgeable about all productivity software. What is most important is that you know how to properly collaborate with others and that you feel comfortable learning new things that make teaching and learning better.

The purpose of the study is to highlight the importance of acquisition of ICT skills for improved pedagogy in the pandemic era and to identify the problems that hinder the smooth acquisition of these skills.

## **Conceptual Review**

The following are the concepts on which the study will be based:

### **ICT Skills**

According to Kaku (2005) Information and communication technology skills refer to one's ability to converse with people through various technologies. ICT skills refers to technology used for regular everyday tasks, sending an email, making a video call, search the internet, using a tablet or mobile phone and more. ICT skills could also include the ability to use older communication technologies such as telephones, radios and televisions. Almost every job

requires some ICT skills, and many require hybrid skills, a skill set that is a mix of technical and non-technical skills. This new method of teaching with computer exposes students to explore the internet and gather all information needed to move forward. The role of the teacher in this situation, changes from information dispenser to that of information manager, from authoritative source of information to a guide of self – propelled exploration Smith, (1989).

### **Pedagogy**

Pedagogy is the study of teaching methods including the aims of education and the ways in which such goals may be achieved. It is the practice of teaching, especially as an academic subject or theoretical concept. It is the art or science of teaching and educational methods. It refers more broadly to the theory and practice of education and how this process influences and is influenced by the social, political and psychological development of learners. Pedagogy taken as an academic discipline is the study of how knowledge and skills are imparted in an educational context, and it considers the interactions that take place during learning. Both the theory and practice of pedagogy vary greatly as they reflect different social, political and cultural contexts. Pedagogy is often described as the act of teaching.

### **Improved Pedagogy**

The pedagogy adopted by teachers shape their actions, judgments and other teaching strategies by taking into consideration theories of learning, understandings of students and their needs, and the backgrounds and interests of individual students. Its aims may range from furthering liberal education (the general development of human potentials) to be narrower specifics of vocational education (the imparting and acquisition of specific skills). Conventional western pedagogies view the teacher as knowledge holder and students as the recipient of knowledge but theories of pedagogy increasingly identify the student as an agent and the teacher as a facilitator. Ifejiofor and Nwankwo (2015) opines that improved pedagogy means teaching and learning with the use of ICT skills in developing and presenting information, prepare ICT-based learning environment, designing effective learning experiences and creating rich learning.

## **Pandemic Era**

Pandemic is an outbreak of a disease that occurs over wide geographic area (such as multiple countries or continents) and typically affects a significant proportion of the population. Pandemic era therefore means an era when a disease breaks out. Corona Virus is the disease that has broken out since the year 2019. Anyika et al (2021) opines that pandemics present challenges of an entirely different type than other disease outbreaks or the vast majority of other natural disasters. Because these diseases strike global populations which have no immunological experience with them, their spread is far more rapid, and frequently, more deadly than any comparable disease outbreaks.

## **Literature Review**

The use of information and communication technologies in the Education process has been divided into two broad categories: ICTs for Education and ICTs in Education. ICTs for education refers to the development of information and communications Technology specifically for teaching/learning purposes, while the ICTs in education involves the adoption of general components of information and communication technologies in the teaching Learning process. A research review by Emmanuel and Barau (2013) suggested three significant concerns of consideration regarding ICTs impact on education. Firstly, student outcomes such as higher scores in school subjects or the learning of entirely new skills needed for a developing economy. And secondly, teacher and classroom outcomes such as development of teachers' technology skills and knowledge of new pedagogic approaches as well as improved attitudes toward teaching Information and communication technology aims to improve students' performance by the intelligent application of technology that will increase the effectiveness and efficiency of teaching and learning process.

According to Clarke (2006), ICT in education is the application of digital equipment to all aspects of teaching and learning; the use of ICT in education falls into four (4) major categories, which are: knowledge construction and problem solving (through the internet, email, CD-ROM, databases, video conferencing); process skills; aiding explanation of concepts; and communication of ideas through power points, desktop publishing etc. Fitzgerald and Werner (2006) also categorized ICT use in education into three groups which are: data processing using computer hardware and software;

information storage using storage media such as memory cards, flash drives, CD-ROM, cassette (audio and video and the like) as ancillary media in addition to computer central processing unit; and telecommunication using electronic based equipment, tools, and services which facilitate the transfer or communication of information i.e. internet services such as e-mail, web browsing, scanning, file protocol transfer for downloading or uploading of information (Osakwe, 2012).

These various applications of ICT have a revolutionary impact on how people see the world and how people live. It also allows people to share experiences across geographical areas and organizations, so that people learn collectively and build on each other's advances. ICT as far as the education sector of the economy is concerned is more critical today than ever before since its growing power and capabilities are triggering changes in the learning environments available for education. At present, ICT is considered as an important means to promote new methods of instruction (teaching and learning). ICT can be a catalyst by providing tools which teachers use to improve teaching and by giving learners access to electronic media that make concepts clearer and more accessible. It can enhance educational opportunities and outcomes for all categories of students, including students with intellectual disabilities (Kaku, 2005).

### **Types of ICT Skills**

Osakwe (2012) says that effective teaching and learning here implies utilization of ICT instructional materials on application areas such as word processing, excel spreadsheet, desktop publishing, e-mail, power point presentation software, videoconferencing, teleconferencing, multimedia message services among others. Each of these application programme has a particular skill, knowledge and experiences that a teacher is required to impart to the learner at the course of teaching and learning. Lecturers exposes the learner on how to load or open a word processor, use of input devices to enter edit text accurately, open, copy, save, paste, cut, delete, create and print a document, application of borders and shading, bullet and numbering, paragraphing, font size, font colour, undo, redo, table work among others. The following are some of the ICT skills required for improved pedagogy.

#### **i. Email management and set up**

Being able to effectively and successfully communicate via email is critical to any job. You will need to send emails to colleagues, employers, clients, vendors and so on, companies expect their employer to write professional and well-written emails as well as respond promptly to messages received in their in boxes. It may be necessary to be able to manage settings or set up email accounts on various work devices. MS Outlook, gmail and G-suite, sendinblue Email, Groove, Front, Zoho Mail, Digital signature, Spam settings among others.

### **ii. Online Research**

Almost every job requires at least some online research, whether you are looking up new lesson plan in a subject or checking out the latest news on your company's competitor, you need to be able to sift through all the information online to find what you need. This involves basic online information management skills like search engine research, checking sources, FAQs online forums among others.

### **iii. Social Media Management**

The more one knows about the benefits of and limits to social media, the more one can begin to use that media in valuable ways at work.

These include facebook, linkedin, Pinterest, Instagram, Youtube, Twitter, Reddit and social media groups.

### **iv. Online Collaboration**

Online collaboration is a broad category that refers to any means of sharing information with your co-workers (or supervisors, or clients) online. This includes adding a meeting to a shared online calendar, providing feedback on a document through a web-based document application, and holding an online video conference with colleagues. This include video conferencing, Skype, GoToMeeting, Instant messaging Google Docs, file sharing, DropBox Pro, Slack Google hangouts, Zoom among others (Asogwa, 2008).

### **v. Data Management Queries**

Fitzgerald and Werner (2006) opines that everyone needs to be able to develop and manage data using spreadsheets, furthermore, they should be able to analyse the data and recognize trends and patterns. Fluency in programs like Microsoft Excel is critical in today's job market. Example include MS Excel, Filters, SOL, NoSQL, MySQL, Quantitative Analysis among others. Database is another ICT application required to expose the learner on how to create file,

store, process and manage a database. Here the lecturers are expected to equip the learner with in-depth knowledge of how to use data management for data management like student database management, lecturers database managements. Lecturers are to teach the learner how to create a new database using database wizard, open previously save data, illustrate how table structure could be changed or improved among others. Meanwhile, in basic presentation application (PowerPoint) teachers are required to expose the learner on the application of visual presentation using interactive board, overhead projector, slide, video to create overhead projector slides, set up slides layout, enter text and learn how to add clip art, select font and background among others.

#### **vi. Desktop Publishing**

Desktop publishing involves the creation of materials that need to be printed and distributed. These might include fliers, brochures, newsletters and more. Because one can create so much using desktop publishing software, many job require one to have some basic skills in this field.

#### **vii. Word Processing**

Clarke (2006) sees word processing as the ability to use work processing technology. People should be able to produce written documents (including business letters, meeting minutes and more) using a computer processor such as Microsoft Word. This include MS Word, Libre Office Writer, Transcription Typing, Note Taking.

#### **viii. Excel application**

Excel application according to Asogwa (2008) features calculation, graphic tools, pivot tables. In teaching of excel application, teachers exposes the learners to practical skills on how to open excel application, create chart and graphic, navigate on the cells, edit save, delete and manipulate data, create formulae, calculations and recalculation.

#### **ix. Internet**

This is another area of ICT application that is required to expose the learner on how to use e-mail, create an account using e-mail with user name and password, compose, reply, read, send mails, attach and download attached files, import pictures from other application, search the web for information (Oguzor, 2011).

### **The impact of ICT Skills Acquisition for improved Pedagogy in the Pandemic Era**



The following are the importance of the acquisition of ICT Skills:

1. It enhances computer networking globally known today and internet and intranet. This phenomenon has given birth to the contemporary e-commerce, e-medicine, e-banking and eeducation resources among others. The technological change process has accelerated in tandem to create a new world power based on ICT. Advanced forms of ICT assisted instruction including computers and Internet require proper infrastructure including substantial computers and Internet resources. According to Sarik (2020), UNESCO approximated that one billion youths and students have been affected by COVID-19 pandemic in at least 165 countries that closed down their schools. The education sector was the worst-hit, creating many challenges for both teachers and students. Unplanned closures of educational institutions undoubtedly caused severe issues for learners, educators, parents and the society at large. Notably, there was an effect on interest and improved pedagogy. This means that as good as ICT is, the acquisition of the skills to operate them is key.
2. It accelerates economic development nationally as it is a virile source of national income for all nations that have fully embraced it usefulness. Sridha (2020) observes that from bringing semi-urban and rural area into the ambit of mobile broadband and mainstreaming of Artificial Intelligence (AI) and Machine Learning (ML)-based automation, to using tech in healthcare and working from home becoming the new normal, the next decade will see increased use of ICTs. Sridha went on to say that 5G and Internet of Things (IoT) will bring in more connectivity opportunities, and Work From Home (WFH) will accelerate. COVID 19 has shone the spotlight on health tech, and spurred even more gig workers. There is great expectation for large scale adoption of video communication services, remote workforce and project management tools, digital assistants, and home office security product to promote secure and flexible WFH models.
3. Sukanta (2012) suggests that it improves engagement and knowledge retention, when ICT is integrated into lessons, students become more engaged in their work. This is because technology provides different opportunities to make it more fun and enjoyable in terms of teaching the

same things in different ways. Due to closure of schools and suspension of face to face learning, a remote system of learning through appropriating of the existing technology (ICT) was implanted worldwide. Learning resources such as video conferencing, Zoom, email, Whatsapp and the entire social media was put in place and used by teachers and students to continue their teaching and learning activities in most countries. Furthermore, through online resources, educators and learners can access information, create supportive environments for education and had the opportunity for professional development. Online platforms offer, mobile reading applications that allow for self-directed learning content that enhance education.

4. The live video communication and other tools can be utilized to offer distance education facilities and digital education content to students. The COVID-19 experience has provided a reminder that ICT is a principal component of pedagogy in the 21<sup>st</sup> century.
5. ICT helps in student centered teaching and learning approach. Educators are reflective in the theory, practice and policy implementation in teaching/learning resulting in positive impacts in the learners. Duggal, (2021) asserts that ICT today is evolving at such a rapid pace, enabling faster change and progress, causing an acceleration of the rate of change, until eventually, it will become exponential. However, it is not only technology trends and top technologies that are evolving, a lot more has changed this year due to the outbreak of COVID 19 making IT professionals realize that their role will stay the same in the contactless world tomorrow. And an IT professional in 2020-21 will constantly be learning, unlearning and relearning (out of necessity if not desire). Team (2021) also maintained that new trends arise within this industry every year and it becomes important for professionals to be familiar with these different trends and all that they entail. No matter what profession one is working in being familiar with these can improve one's potential upgrades and for the industry that one is already working in.

### **Problems that hinder the acquisition of ICT Skills**

Several factors have hindered the successful use of ICT in Nigeria. These factors amongst others are:

1. **Lack of government interest in providing ICT skills to Nigerians:** The government of Nigeria has not played significant role in the development and provision of ICT in the country. According to Adomi (2005), ICT development and application are not well established in Nigeria as a result of poor infrastructure and government support in terms of finance. Therefore, the attitude of government to financially motivate the teaching staff through provision of computer even on loan basis or in a subsidized rate is not encouraging and as such, makes it difficult for many people to acquire computers and its services with their meager salaries.
2. **High Cost of Acquiring, Maintaining and Installing of ICT:** The prices of purchasing computers in Nigeria are very expensive more than in developed countries. Most homes in Nigeria cannot afford a personal computer and therefore not acquainted with ICT due to high cost of it. Most public schools cannot afford to equip their schools with computers nor have ICT Centers built for teaching and learning of ICT in their various schools. The high cost of ICT facilities has hindered the acquisition and installation of ICT for use by Nigerians.
3. **Lack of Basic ICT Knowledge:** Many Nigerians are not aware of ICT facilities especially people from the rural areas and one cannot do magic over what one has no knowledge of. The ICT programmes are not thought in schools and such make it difficult for people to be aware of it. Most people also have little or no knowledge of ICT and as such not exposed and familiar to the use of ICT, and this has posed a serious problem for Nigerians not to get acquainted to acquisition of ICT skills.
4. **Epileptic Power Supply:** There has been unsteady power supply in Nigeria and this had made people unable to use the ICT facilities regularly, nor at their own 3pace. Inadequate power supply has brought about digression and failure to achieve the expected goal as at when desire.
5. **Unavailability of Relevant Software:** According to Aduwa-Ogiegbaen & Iyamu (2005), there are clear indications from many countries that the supply of relevant and appropriate software is a major bottleneck obstructing wider application of the computer. There is need for people to be trained for the production of relevant software that should be suitable for Nigeria educational system and curriculum bearing in minds the cost and availability of software designers.
6. **Recruitment of Unqualified Personnel:** The absence of qualified personnel to train other people and repair broken down computers for

continuity and institutions have been a major problem in the acquisition of ICT in Nigeria. For ICT to properly function in the society there must be massive recruitment of qualified personnel and experts to take up the teaching of ICT. To get these personnel to teach in the ICT centers involve costs which most schools and organizations cannot afford. Adomi & Kpangban, (2010) reported that 75 percent of schools are inadequately funded

### **Suggestions**

Most people are not exposed and familiar to the use of ICT, they do not have the proper knowledge of ICT and this has posed a serious problem for Nigerians not to get acquainted to acquisition of ICT skills. ICT Prospects With the numerous problems facing the acquisition of ICT skills in Nigeria, the following prospects have been put forward to proffer solution to the aforementioned problems:

1. Government being the controller and driver of economic system should support the train by carefully providing computer and its internet services to all her citizens at a very subsidized rate if not free of charge. These will in the long run encourage the adoption and application of ICT in one's daily dealings and acquisition of skills.
2. Due to the high costs of acquisition, maintenance and installation of these devices, many schools have found it very difficult to acquire, maintain and install these device. Therefore, proprietors of schools should seek grants from international bodies as well as government at all level to enable them build a formidable ICT centers that will promote the acquisition of ICT skills.
3. Government at all levels should invest in ICT by introducing waiver in the importation of ICT facilities. Government can also enter into partnership with ICT manufacturing firms as this will reduce the high costs of acquisition of ICT devices.
4. Enlightenment programme should be organized by government, private sector and individual in order to create awareness on why people should study ICT related courses. Government should organize a curriculum where ICT related subjects should be thought in schools from primary to tertiary level as a compulsory course as this will enhance creating awareness on ICT skill acquisition.
5. The provision of steady power supply is very important for the continuous practice of ICT. In fact there is no effective teaching and learning of ICT without steady power supply. Therefore, government should provide steady power supply to schools or provide alternatives to help in ICT skill acquisition.

6. The government can enter into partnership with ICT material manufacturing companies to enable them establish their manufacturing or assembling companies in Nigeria and this will make the computers, its relevant ICT software and the accessories cheap for the people to purchase
7. There is need for qualified personnel to be trained for the production of relevant software that should be suitable for Nigeria educational system and curriculum bearing in mind the cost and availability of software designers.
8. There should be skill acquisition centers set up in different parts of the country and qualified personnel should be recruited for the training of people in the ICT skill acquisition. This will enhance the teaching and learning of ICT programs such that students after the days lecture can come back to practice at their own pace in other to get to perfection where the computer play the role of the tutor and present the learner with a variety of contents and symbolic modes Aduwa-Ogiegbaen & Iyamu (2005).

## **CONCLUSION**

It is believed that the strength of any nation of the world depend solely on its educational and technological know-how. Nigeria is a nation where technology is needed most to develop both her economy and human resources. The adoption of ICT in education especially in COVID 19 Pandemic Era is very necessary to be in tune with the world through zoom, webinars, video conferencing among others despite the numerous challenges facing the adoption and application of this laudable programme.

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