

**INFORMATION AND COMMUNICATION TECHNOLOGY (ICT):**

**DRIVER AND ENABLER OF 21<sup>ST</sup> CENTURY LITERACY**

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***Abstract***

In times past, Literacy was viewed simply as ‘the ability to read, write and understand simple sentences. As good as this sounds, it is no longer acceptable as a result of the wide dimensions that literacy has assumed in recent times with the emergence of Information and Communication Technology (ICT) which has imparted the ‘knowledge industry’ in diverse ways. There is, as it is now, little or no demarcation between the two words ‘Literacy and Education’ in the 21<sup>st</sup> century, the reason for this is not farfetched, ICT is the major factor if not the only one responsible for expanding the frontiers of Literacy from just providing information for people to swallow to mind opening enlightenment beyond what the teacher can give to enabling recipients contribute meaningfully, analyze, criticize and equipped with contemporary skills which makes an individual not just a complete personality but a global citizen.

This paper also juxtaposed the literacy rate in Nigeria with those of some countries in Europe and other African countries to assess the country’s weak points as well as proffer solutions that will move Nigeria’s literacy rate upwards.

**Keywords:** Literacy, Education, ICT, Integration, 21<sup>st</sup> Century Skills.

**Introduction**

Literacy, ranked second only to health is the engine of growth and development of any nation, it is in fact one of the major factors which makes nations developed or otherwise. Pariona (2017) described Literacy as an extremely important piece of individual progress, socioeconomic development and wellbeing of an economy. Literacy as an offshoot of Education has the power to neutralize wars, insurgency and terrorism as well as liberate a people from the shackles of poverty and ignorance. The National Commission for Mass Literacy, Adult and Non-formal Education (NMEC) expressed concern about the fact that 35% of Nigerian adult

population which represents over 60 million people were illiterates! This is particularly worrisome considering the huge funds that has been sunk into the various mass literacy programmes in the past, the much celebrated Universal Primary Education (UPE) and Universal Basic Education (UBE) programmes launched years ago we re no exceptions (Thisday, 2019). More worrisome is the huge population of ‘Out of School Children’ (OOSC) in Nigeria and the fact that this population has continued to grow from 10.5 million in 2015 to 13.2 million in 2019 (Adedigba, 2018; UNICEF, 2019).

It must be said that this does not call for cheers when placed side by side statistics from other countries of the world especially in the 21<sup>st</sup> century where ICT has turned things around for good in the classroom worldwide. The emergence of technology has changed the literacy process to learner centered from teacher centered system which used to be the order of the day in the industry, teachers have been upgraded to coaches, facilitators and partners in the knowledge process. Rather than being the sole authority in the classroom, learners can now learn anywhere, anyhow, any path and at any pace and as such take responsibility for their own learning. Loads of technological devices which goes a long way to enhance and facilitate literacy in particular and education in general have come into play, quality instructional materials can be sourced from any part of the world within split seconds. The world is indeed a ‘global village’!

Literacy has continue to evolve from the period when literacy simply imply being able to read, write and understand simple sentences to a level where one is able to reason, analyze, apply knowledge and display 21<sup>st</sup> century competencies to flow in all spheres of life (Thakur, 2017). The emergence of ICT has brought a paradigm shift in literacy issues as ICT has proved to be a veritable tool and driver of educational systems globally. UNESCO (2019) succinctly views technology as being capable of facilitating, complimenting and promoting literacy and education everywhere thus putting learners in the drivers seats of their own learning. Hence, in line with the popular saying that ‘your life or future is in your own hands’ can be rightly applied in this case.

**Statement of the Problem**

Researches have affirmed that Literacy level in countries like Cuba, Poland, Estonia are as high as 99.8%, while Barbados, Latvia and Slovenia are in the region of 99.7% (Thisday, 2019). Coming back home to Africa, it's a different story altogether, the fact that Nigeria the 'Big Brother' is not found on the list of the 10 most literate countries in Africa is most appalling and unsettling. Below is the list as provided by (Pariona, 2017):

<b>Ranking</b>	<b>Country</b>	<b>Adult Literacy Rate (both sexes, 15+years)</b>
1	Seychelles	95
1	Equatorial Guinea	95
1	South Africa	95
2	Sao Tome And Principe	92
3	Libya	91
3	Namibia	91
3	Mauritius	91
4	Cape Verde	88
4	Botswana	88
5	Swaziland, Zimbabwe	87

**Table 1: The 10 Most Literate Countries of Africa. Culled from World Atlas, (Pariona, 2017).**

The question is how are these countries able to achieve this feat? Take for instance, Seychelles which is first on the list formulated an ICT in education and training policy of 2014 to 2019. The policy emphasized the need to train teacher, trainers, school administrators with requisite capacities to use ICT for teaching and also the

implementation of methodologies which give room for ICT mediated individualized learning, the policy also stipulates that training institutes operate with global best practices in examinations and certification of ICT training programmes. The UNESCO ICT Competency frameworks for teachers was used for the assessment of Pre-service teacher training and Continuing Professional Development (Communication and Information, 2016). The Seychelles Institute for Teacher Education was also used to train teachers and teacher trainers the art of using ICT to teach in schools all over the country, these steps outlined above played big roles in putting Seychelles on the list of top literate countries of Africa.

Estonia is another shining example when it comes to leveraging ICT for Literacy, as far back as the 1990s, ‘Tiger Leap’ a Government backed technology investment body launched the country into the digital age by ensuring all Estonian schools were online, teachers were not just digitally literate but also trained to teach with the aid of technology (Mansel, 2013). ICT was utilized for every aspect of education, students were exposed to the use of ICT for learning every school subject first in the secondary school, then later this was stepped down to as early as four years of age. It is also on record that the country has one of the lowest number of hours in the classroom yet historically high performance in secondary education! Among developed nations in reading, Estonia ranked 5<sup>th</sup> in Europe, 13<sup>th</sup> in the world alongside Norway, Switzerland and Iceland, the affordances of ICT in education is clearly the driver and enabler of this feat (Mansel, 2013).

ICTs have changed the way we live, work, play and learn in the world today, the dynamics behind the construction and delivery of the knowledge process is transformed in its entirety. Attempting literacy without technology is putting oneself at a disadvantage both at home and abroad, in other words Literacy has to be digitized for it to be compatible with 21<sup>st</sup> century demands which recipients need to be placed on the pedestal with their counterparts in other climes.

## **Literature Review**

### **Defining Literacy in the 21<sup>st</sup> Century?**

National Literacy Survey described literacy as the ability to read and write English and one other language with understanding (NBS, 2010). Yet another definition of literacy rate was given by NMEC as the percentage of people from age 15 years upwards who can read and write simple statements (Thisday, 2019). Former United Nations (UN) chief scribe took a different dimension to the subject of Literacy, he saw Literacy as more than the ability to read and write but as a means by which one can transit from misery to hope, the former number one civil servant also considered Literacy an indispensable tool for survival in the contemporary world which we have found ourselves. In line with Anan's thoughts, Literacy is a sure escape route out of the dungeon of poverty and a building block of development for a nation and its citizen. Literacy also represents an essential ingredient and complement without which investments in national infrastructures would amount to nothing. Finally, the former scribe opined that Literacy and Education for everyone, everywhere is no luxury but a basic human right and road to progress and attainment of full potentials (Goodreads Inc., 2019). Scholars have seen Literacy as a subset of Education, it is believed that while Literacy merely supply information for people's consumption, Education does more than that as it enlightens the mind and impacts knowledge. Thakur (2017) was of the view that Education can help people live worthy lives, literacy merely aims at teaching the basics just for survival of the individual. The quality of being able to reason and analyze, argue rationally and responsibly, as well as distinguish between right and wrong, good and bad adding that literacy does not empower its recipients with such powers (Thakur, 2017). Education is more focused on the holistic development of the individual in other words Education teaches the right set of values, attitudes as well as soft and life skills.

UNESCO's concept of the subject under review points to any individual who can derive meaning or interpretation, identify or bring up an idea as well as express their thoughts and compute making use of printed and written materials which can

be used in different contexts. It is also seen as a continuous activity which flows into each other until an individual becomes a complete man or woman and in position to reason logically, analytically as well as contribute positively to the development of their societies (Montoya, 2018). Literacy has gone beyond the casual idea of just being able to read, write understand and communicate, it encompasses total development of a man into a quality human being who is capable of running his own life, possessing contemporary competencies and achieving his aspirations (Meleisea, 2006; Thakur, 2017).

### **What is ICT?**

Information and Communication Technologies (ICT) are electronic gadgets used for storage, retrieval, manipulation of data and processing of information (Adomi & Kpangban, 2010). Osakwe 2012; Manitoba, n.d. further considers ICT as electronic devices such as telephones, video, multimedia applications, laptops, digital cameras, video cameras, mobile phones, global positioning systems, electronic whiteboards, computers and the internet which are being used for the information and communication demands of individuals as in literacy process, organizations and professional alike nations etc. The devices mentioned are used to capture sound, video and text for conversion to digital format before they are utilized to communicate meaning. ICT is further seen as a process and method which relies on computer tools to gather, organize, arrange, retrieve, store and uses information. It also comprises of the physical infrastructures (hardware), the programs that makes it possible to do all the operations it does (software) as well as network and other devices which can work with the computer (Olaore, 2014). Perhaps the most comprehensive of all the definitions of ICT is the one given by the FGN (2018) which referred to ICT as the art and science that deals with data and information, it includes equipments like computers which consists of hardware, software and firmware. Also inclusive on the list are processes, methods, practices, procedures, concepts, principles and all that is involved in the process of gathering information,

processing, presentation, security, interchange, organization, storage, and retrieval of information.

ICT also finds relevance in teacher professional development, so they would be able to make materials sourced from online sources relevant to local needs and consumption. Teachers that are ICT literate and also trained to use ICT for teaching are well suited to stimulate critical and higher order thinking skills, also enable creative and learner centered opportunity for students, this provides students with a better chance to flow with emerging technological changes in the workplace and society at large (UNESCO, 2019).

### **ICT, a Great Facilitator of 21<sup>st</sup> Century Literacy**

Without gainsaying, ICT has come to stay with literacy and education, it has become a force to be reckoned with in the classroom partly due to its role in injecting life into learning thereby making the knowledge process both engaging and interesting and also because it is a perfect tool for preparing students for what lies ahead of them in the contemporary world. Scholars have agreed that the use of various technological tools in the classroom is not optional neither is it a luxury, quite frankly, people use phones, radio, television etc for various purposes from day to day, why can't literacy be one of such purposes that these ICT devices and others will be used for. (Adomi & Kpangban, 2010; Blackburn-Dwyer, 2016).

Technology is the only reason why a student in Ganye Local Government in Adamawa State, Nigeria and yet attend lectures/meetings/seminar etc. in Brisbane in Australia and even make impute. The same ICT factor makes it possible to go through Universities websites, seek and gain admission or even engage in an online degree courses, graduate and earn a degree without leaving the comfort of your living room. Teaching and learning has become super enriched due to the wealth of educational resources available online on every topic under heaven, In fact, with technology you have all it takes to be whoever you aspire to be. In other words,

with the aid of ICT tools and resources, the knowledge process has suddenly become very easy, lively (no more boring), engaging, interactive, fascinating and more qualitative in every respect. The internet has made available huge amount of resources through websites, OERs, blogs, MOOCs etc as such it is now knowledge for the asking, educational researches are also less tasking and costs less in this digital dispensation compared with the period where a researcher has to travel the length and breath of the country seeking materials to enrich his/her research.

### Levels of Technology Application in the Classroom

Technological tools generally reinforce learning but it is noteworthy that these tools have different potentials and as such should be used in accordance to the intended learning outcomes. Haddad and Draxler described five levels of technology use in the classroom, these includes: Presentation, Demonstration, Drill and Practice, Interaction, Collaboration (Wikibooks, 2019). There are specific ICT tools that are best suited for each levels mentioned earlier, these are indicated below:

S/N	Level of Uses	ICT Tools
1	Presentation	Audio, Video, Cassettes, Radio, Television, Computer and Internet, Overhead Projectors, Smart Boards and Tables, Audio Enhancement, Micro Skype (Blackburn-Dwyer, 2016; Wikibooks, 2019):
2	Demonstration	Audio, Video, Cassettes, Radio, Television, Computer and Internet, Digital textbooks/E reader, Audio Enhancement (Blackburn-Dwyer, 2016; Wikibooks, 2019)
3	Drill & Practice	Audio, Cassettes, Radio, Television, Computer and Internet Podcasts, Laptops, Tablets, Phones, Audio Enhancement (Blackburn-Dwyer, 2016; Wikibooks, 2019)
4	Interaction	Internet, Networked Computers, Laptops, Tablets, Phones, (Blackburn-Dwyer, 2016; Wikibooks, 2019)
5	Collaboration	Internet, Networked Computers, Laptops, Tablets, Phones, (Blackburn-Dwyer, 2016; Wikibooks, 2019).

**Table 2: Depicting some ICT tools and their respective levels of uses for Literacy**



### **Way Forward**

**One Laptop Per Child (OLPC):** This initiative which is also called 1:1 technology per child programme relates to every learner having access to one laptop/computer/tablet to work with at a particular point in time so as to encourage individualized learning which supports each student studying at his/her own rate, terms, level, path, way and style. This way comprehension is guaranteed since both fast and slow learners are accommodated.

### **BYOD**

In reality, 1:1 technology per child concept though ideal is always a tall order even in advanced countries of the world, talk less developing economy like ours. The economic realities on ground in Nigeria today does not call for any investment of that magnitude, yet ICT enabled education is the way to go. How do we get to where we want from where we are presently? This is where BYOD, an acronym for Bring Your Own Device has become necessary. (Shotayo, 2019) recommended the Bring Your Own Devices (BYOD) strategy in Nigerian schools, BYOD is a terminology commonly used in workplaces and schools, it refers to the idea of encouraging staff and students to bring personally owned devices such as laptops, tablets, and smart phones to their workplaces or schools respectively and connect to the organization or school's internet platform to work or learn. (Rouse, 2018; Stavert, 2013; Lawrence, 2018; Janssen & Phillipson, 2015; Jonathan & Misra, 2016; Shotayo, 2019). It is a way of increasing student's access to technology with a view to boosting the teaching and learning process without the Government having to bear the huge cost of purchasing a device for each student.

### **Teachers Professional Development**

Teachers need specific training to use ICT for teaching, learning and assessments, this has to be achieved for them to encourage their students to utilize collaborative skills as well as individualized learning, the new order in Literacy and Education. However, it need be said that the type of training being referred to here cannot be a

one-off thing, there must be training and re-training of all teachers so that the goal of digitizing education can be realizable.

### **Provision of Funds for integration of technology in school**

Infusing ICT into teaching and learning is not cheap, technological devices are quite expensive and would require a huge good chunk of money if application of ICTs in schools is to be achievable. UNESCO recommended a minimum of 15-20% of each country's budget is to be invested in the Education sector for the smooth running and take off of ICT integration in Literacy (Ameh & Aluko, 2019).

### **Commitment to ICT in Education Policy**

It is important the Federal Government of Nigeria demonstrates commitment to the execution of every segment of the National Policy on ICT in Education rather than paying lip service to it. Although, the Government has been doing a lot in this respect but much more needs to be done to insert Nigeria on the list of the first ten literate countries in Africa.

### **Conclusion**

The world that we live in is becoming more and more interconnected and interdependent by the day, little wonder it is often referred to as a 'Global Village'. The type of Literacy that can make a difference at a time such as this has to be technology-furthered, although infusion of ICT in Education is an expensive venture but it is worth it, UNESCO has recommended that 15-20% of each country's annual budget be devoted to education for maximum impact (Ameh & Aluko, 2019). If this is adhered to, Nigeria will be able to fully integrate ICT into Literacy since ICT enabled- Literacy is the way to go.

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