

## COMPETENCY, CHALLENGES AND AVAILABILITY OF ICT IN ENSURING QUALITY CURRICULUM CONTENT IN TERTIARY INSTITUTIONS IN DELTA STATE: THE WAY FORWARD.

**Christiana N. Nwadiokwu**

Department of Arts and Social Science Education, Faculty of Education, University of Delta, Agbor, Delta State. [christiana.nwadiokwu@unidel.edu.ng](mailto:christiana.nwadiokwu@unidel.edu.ng)

### Abstract

*This paper investigated competency, challenges and availability of Information, Communication Technology (ICT) in ensuring quality curriculum content in tertiary institutions in Delta State: The way forward". System theory was applied to help develop a unified conceptual framework for quality education. To guide the study, three research questions were formulated. The population consisted of seven hundred and eighty-three (783) lecturers in tertiary institutions in Delta State. The descriptive survey design was employed in the study. The instrument used for data collection was a 4-point Likert rating scale of Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD). A questionnaire titled "Quality Education Curriculum through the use of ICT in Tertiary*

*Institutions" (QECTICTTI) containing fifteen (15) items was used for the study. The instruments were face-validated. The instrument's reliability was ascertained using Cronbach Alpha analytical techniques and yielded a 0.83 reliability coefficient. The data collected were analysed using frequency distribution, mean rating score and standard deviation. Based on the findings of the study, recommendations were made, among others: that curriculum innovation should address skills acquisition based on student's abilities and interests; that irrelevant subjects, topics and curriculum contents should be replaced; that government should empower teachers through investment on regular retraining on ICT programmes; that paper qualifications should be de-emphasized in the assessment of students and jobs replacement of school graduates.*

**Keywords:** Quality Content, Curriculum, ICT, Tertiary Institutions.

### Introduction

The main purpose of education is to improve the quality of life of the people in society. This means education prepares people for how to live and earn a living to obtain quality life. The society is very dynamic and not static. Therefore, the education being provided must be dynamic to respond positively to the needs of the people. The education we offer in and outside the school system must provide answers and solutions to the dynamic societal needs and problems (Ogwuazor, 2012). As the need changes, educational trends and approaches must change to maintain the link between education, societal needs and national development (Obanya, 2014). Changes occur continuously in the society and the educational process. Educators must be innovative through the use of ICT. Innovation through ICT means improvement and doing things differently to get better results. These innovations must be in areas of learning and curriculum at all levels of education because of the learner's needs in changing world data mobility and learning environment (Umeoduagu, 2015).

The provision of qualitative education for the citizens is an indispensable but expensive project that must be taken seriously by the stakeholders and undertaken within the limited available resources. When the resources are lean and unavailable, the teachers must achieve this quality



through innovative and cost-saving strategies. This paper aims to evolve ICT strategies in teaching and learning in tertiary institutions to make our education more qualitative. The education we offer now must translate into a better life for the learner and development that matches the rest of the modern technology-driven society. This paper focused on the concept of Curriculum, the Concept of Qualitative Education, the concept of ICT, and ICT in tertiary Educational systems.

### **Concept of Curriculum**

Obih (2014) viewed curriculum as an agglomerate of all the school experiences (planned and unplanned) that are provided to help the youth develop the finest character and live as disciplined and useful citizens. Obih also sees curriculum as a medley of various school programmes (programme of studies, activities and guidance) which help to promote society's ideas. The school is expected to teach these desirable qualities. The complexity of human nature and behavioural patterns inherent in humans make it difficult to achieve the expected desired results. To surmount these problems, curriculum experts and planners consult psychologists. Psychologists mediate in unraveling the complexity of human behavior and use psychological lenses to interpret, analyse and explain behavioural patterns that occur in humans. Psychology is the scientific study of behavior of humans and animals as well as underlying mental or cognitive processes such as thoughts, emotions and motivation and applying the investigation results to solve behavioural problems. Bolarin, Sadiku and Odojin (2014) opines that psychology is a science subject that seeks to comprehend, predict and control the behavior of human and lower animals. To this end, the relevance of psychology, especially in learning theories, to curriculum planning and development cannot be doubted. More importantly, a well-trained curriculum expert will always need to understand the behavior of their students concerning the learning process and phases.

### **Concept of ICT**

ICT can be regarded as the collection of various technological gadgets and resources to communicate, generate, distribute, collect and administer information. This is the totality of methods and tools that could be used to gather, store, process, communicate and share information in diverse ways. Hence, the totality of methods, tools, infrastructure, and internet accessibility should be implemented to share information and transfer ideas, skills, and knowledge among people concerned with common interests and aspirations (Olutola & Olatoye, 2015). ICT is often interchangeably and synonymously used with Information and Communication Technologies (ICTs) and is electronic technology used for information storage and retrieval. This is seen in developing partly the ability to determine and establish a synergy of interaction between technological innovation and adaptation and human traits in the learning environment (Matthew, Joro & Manasseh, 2015).

In 2012, the Federal Republic of Nigeria (FRN) documented a National ICT Policy and, in her vision of becoming a top 20 economy by the year 2020, had a mission to fully integrate ICT into the socioeconomic development of the nation, to transform her to a knowledge-based economy; and be able to compete favourably globally. Her goal is to provide a framework for streamlining the ICT sector and enhancing its ability to become a catalyst to sustain socio-economic development critical to Nigeria. The policy thrusts facilitate the transformation of



Nigeria into a knowledge-based economy, which will be used to develop action plans, sub-sectoral policies and specific implementation guidelines as appropriate (FRN, 2012).

### ICT in Tertiary Institutions

For tertiary education, the Federal Ministry of Education, an agent of the Nigerian government at the Federal level, controls all education with other designated bodies saddled with different responsibilities and roles. Here, every institution strives hard to meet global challenges so as not to be left out in the digital sphere. The leadership of each institution, depending upon her understanding and as favourably disposed to ICT regarding what it entails, will launch into procuring facilities, maintaining same and encouraging its full utilization. In some institutions, giant strides and great efforts are geared towards competitiveness in the use of ICT in all ramifications of academics, administration and otherwise.

In the area of academics, which involves instructional activities by both lecturers (teachers) and students (learners), including the conduct of examinations in Computer Based Test (CBT) and for administration, it is for the day-to-day running of the business of the tertiary institutions. The government should empower teachers through investment in regular retraining, workshops & seminars on the ICT Programme (Nwosu, 2016).

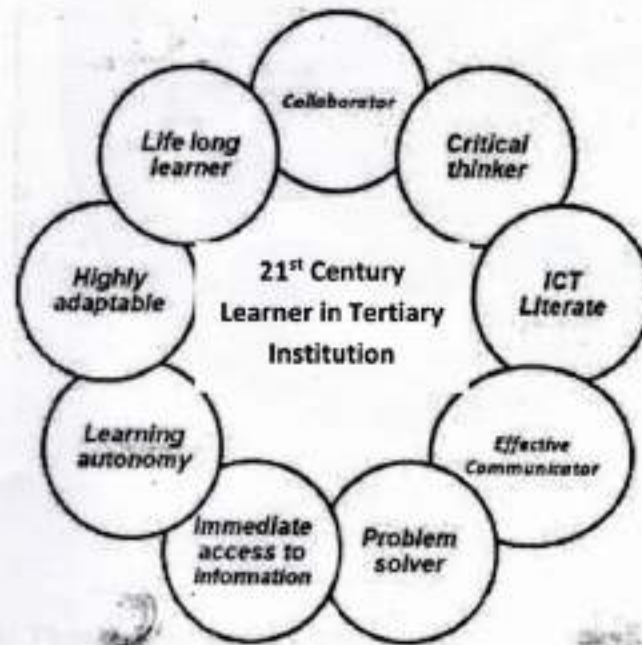
Today, most tertiary institutions are still struggling to integrate ICT into their day-to-day affairs fully. Moreover, most of the staff (academic and non-academic) in many of these institutions are still hooked by the conventional mode of instructional delivery and administrative practices, respectively (Olutola, 2015). It is disappointing that this laudable objective of full ICT integration by the tertiary institutions in Nigeria and Delta State, in particular, has not been fully realised due to factors on funding, infrastructures, internet failure, power inconsistencies, leadership, interest, and expertise. Conversely, if not all, almost everyone in tertiary institutions (staff and students) owns a smartphone, iPad/tablet or desk/laptop, which they use every day. Then, why is it difficult for them to integrate ICT into their daily engagements? (Umeoduagu, 2015).

### Characteristics of the 21<sup>st</sup> Century ICT Active Learner

IMSUBEB (2018) identifies the following qualities of the 21<sup>st</sup> Century learner:

- i. **Collaborator:** The 21<sup>st</sup>-century learner collaborates or shares learning with other learners to accomplish a common task or goal
- ii. **Effective Communicator:** The 21<sup>st</sup> learner requires communication skills. The learner should always listen attentively and clearly to inform, instruct, motivate, persuade and educate
- iii. **The Learner should be ICT literate:** The Modern learner is expected to perform more functions with computers, mobile phones, and other computer-mediated technologies for effective teaching and learning.
- iv. **Problem Solves:** Modern learners should solve real learning challenges by addressing their academic problems, even without a facilitator.
- v. **Immediate Access to Information:** The learner should have access to the use of modern technology and the Internet to search for information
- vi. **Learning Autonomy:** Modern learners should be independent. They prefer to use technology to study at any time and in their own ways.

- vii. **Critical Thinkers:** The modern learner is very creative and resourceful and solves his problems by himself/ Below is a diagram representing the characteristics of a 21<sup>st</sup> Century learner:



*Fig 1: Characteristics of the 21<sup>st</sup> Century Active Learner*

*Source: IMSUBEB (2018) Participant Manual for Cluster Teacher Training Programme, p.*

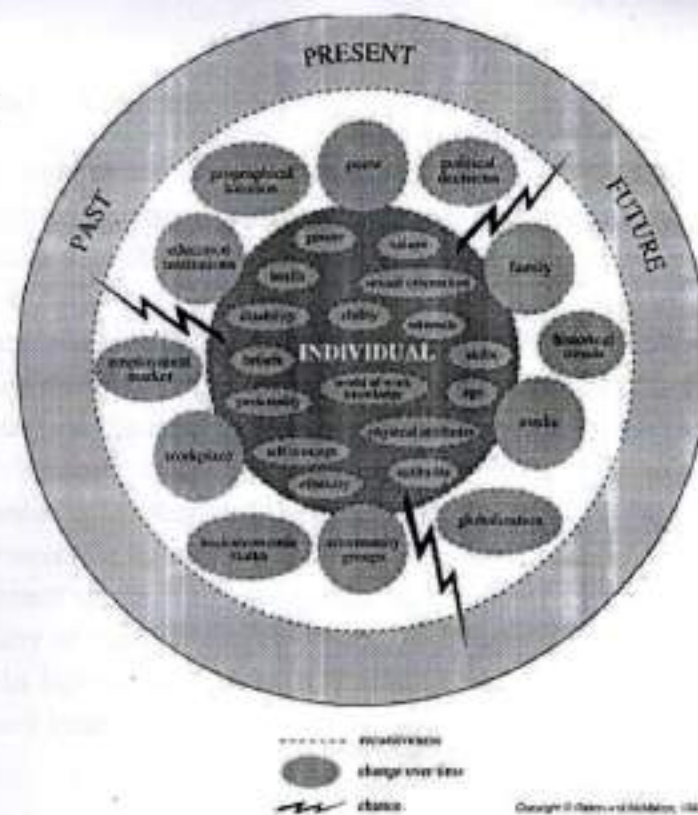
**(f) Theoretical Framework (System theory)**

The systems theory framework is an example of a tool that can be used in qualitative assessment, and the framework authors have developed a reflection process. It is a unifying theoretical framework for science and technology education for all". The system theory is fundamentally an approach to intellectually engaging change and complexity. Such ability is essential to functioning effectively in today's world as regards information and communication technology (ICT). It is an important framework for supporting current efforts at science education reform.

**History of System Theory**

Aristotle expressed the basic tenet of system technology. The whole is more than the summary of the parts. This emphasis on synthesis was eventually displaced by the air analytic approach. Galileo's mathematical conception of the world replaced Aristotle's descriptive metaphysical approach and paved the way for modern scientific analysis. The system theory and curriculum innovation coordinated by researchers from the educational testing service was an early effort to use a computer-based modeling environment with high school studies. Thus, the system theory is the theoretical framework in which this work is hinge.





**Figure II: The Systems Theory Framework (from Patton & McMahan, 1999)**

### The way forward

The goal of education is not to increase the amount of knowledge but to create the possibilities for a learner to invent and discover, to create men and women capable of doing new things and adapting to the changing world. We must, therefore, change our hierarchical positions to become more aware and adapt to the changing times. Good enough, we now live in a world where information is always around the corner. Lecturers should now stop, think, and ask themselves - why do we do what we are doing? What is the purpose of teaching what we teach? What use is the subject we introduce to the learner and the nation? What is the relevance of the curriculum contents to individual and national development? If we cannot establish the bearing, we teach the wrong thing or use the inappropriate curriculum and approach. No matter how far one has gone when they have missed the way, the best option is to turn back and follow the correct route.

Everything and every subject or course taught in schools must have practical application to provide a good quality of life for the people through the use of ICT. Teachers should, therefore, approach their curriculum interpretation and teaching strategies with the sustainable development mentality of teaching for relevance through training and retraining on technological applications (Ogwazor 2017).

This means several aspects of the curriculum must be changed or expunged if we teach with a relevant mentality. Many subjects' theories and theoretical aspects are relevant and should be replaced with new areas of ICT-related concerns (Umeoduagwu 2015).

### Statement of Problem

Education is anything that gives social desirability that belongs to human societies. With the above notion about education, we have produced nonfunctional educated graduates with

certificates devoid of the right skills, values, and attitudes over the decades. These have severed the link between education and sustainable national development because the quality of products from our educational system cannot contribute meaningfully to national development (Oganuwu, 2019).

One of the causes of the high level of unemployment in Nigeria is that our education is not focused on our societal and manpower needs. Our educational system is not in tune with the labour market. Hernes (2015) stressed the need for schools to function as a bridge between the students and the labour market because, according to him, what is learned in schools should be synchronized with the needs of society and the labour market. With the knowledge of ICT, he observed a mismatch between the knowledge and skills acquired at schools and those required by employers. Worse still, many of the skills needed for employment are not taught in the schools, constituting wastage. Many of our graduates now engage in jobs different from their courses of study (Ogwazor 2017). In light of the above, ICT should be an innovative structure to ensure quality education in tertiary institutions.

### **Purpose of the Study**

The purpose of the study is to:

- (i) Find out the level of competency in ICT training skills acquired by lecturers in tertiary institutions
- (ii) Identify the challenges in the use of ICT in teaching and learning
- (iii) Determine the availability of ICT resources in teaching and learning by lecturers in tertiary institutions

### **Research Questions**

The following research questions guided the study:

- (i) What are the competency levels in computer literacy skills acquired by lecturers in tertiary institutions for quality education in Delta State?
- (ii) What are the challenges in using ICT in teaching/learning in tertiary institutions for quality education in Delta State?
- (iii) What are the availability of ICT resources as strategies for improving quality education in tertiary institutions in Delta State?

### **Methodology**

The descriptive survey design was adopted for the study. The population for the study consisted of seven hundred and eighty-three (783) lecturers in three tertiary institutions in Delta State. No Sample size was taken. The instrument for data collection was the questionnaire titled "Quality Education in Curriculum through the use of ICT in Tertiary Institutions in Nigeria (QECICTITI). The questionnaire containing fifteen (15) items was drawn on a 4-point Likert scale of Strongly Agreed (SA = 4), Agreed (A=3), Disagreed (D=2), and Strongly Disagreed (SD=1). The above formed the basis for the primary data used for the study. The questionnaire was valid by two experts, one from the Faculty of Education, University of Delta, Agbor and the other from the School of Education, College of Education, Warri. The instrument's reliability was tested using a statistical method known as Cronbach Alpha analytical techniques, and it yielded 0.83. The benchmark for decision is 2.50. Any mean value of 2.50 and above is considered, while below 2.50 is rejected.



The researcher observed, administered, and retrieved the instruments from the participants. The researcher administered seven hundred and eighty-three (783) instruments to the participants and was able to retrieve all of them. The data collected for the study was coded according to the response sets on the questionnaire schedule. The research questions were answered with a mean ( $\bar{X}$ ) Standard Deviation (SD) and rank order statistics.

#### Study Population

S/No	Institutions	Lecturers
1	University of Delta, Agbor	292
2	College of Education, Warri	279
3	College of Physical Education, Mosogar	212
	<b>Grand Total</b>	<b>783</b>

#### Presentation of Data

**Research Question 1:** What are the levels of competency in computer literacy training skills acquired by lecturers for quality education in tertiary Institutions in Delta State?

**Table 1: Mean & Standard Deviations on Competency in Computer Literacy Training Skills acquired by lecturers for Quality Education in Delta State.**

S/N	ITEMS	4	3	2	1	Total	$\bar{X}$	SD	Remark
		SA	A	D	SD				
1.	Lack of organizing workshops and seminars for training on ICT programmed affects lecturers' competencies	400	383	-	-	783	3.51	0.95	Agreed
2.	Lack of trained personnel for full implementation of ICT in teaching/ learning	520	263	-	-	783	3.66	1.02	Agreed
3.	Irrelevant subject contents should not be replaced with computer-based subjects	783	-	-	-	783	4.0	1.88	Disagreed
4.	There is a shortage of experienced lecturers to handle quality research	487	206	50	40	783	3.20	0.83	Agreed
5.	Skills acquisition should be based on student ability & interest	700	83	-	-	783	3.90	1.12	Agreed

In Table 1, the respondents affirmed that lecturers' incompetency in ICT skills is a result of the following: Lack of ICT training for lecturers (3.51); lack of trained personnel (3.66); shortage of experienced lecturers (3.46) and removal of irrelevant subjects for replacement of ICT skills (4.0). This is because the mean value for questions 1-5 exceeds the criterion mean of 2.50. It means that tertiary institution in Delta State needs to be upgraded with personnel and training of lecturers for quality Education.

**Research Question 2:** What are the challenges in using ICT in teaching/learning in tertiary institutions for quality education in Delta State?

**Table 2: Mean and Standard Deviation on challenges of ICT in Teaching/learning in tertiary institutions for quality education.**

S/N	ITEMS	4	3	2	1	Total	$\bar{X}$	SD	Remark
		SA	A	D	SD				
6	No Access to the Internet	560	223	-	-	783	3.72	1.09	Agreed
7	High cost of computer resources	605	178	-	-	783	3.77	1.04	Agreed
8	Weak infrastructure	600	183	-	-	783	3.77	1.04	Agreed
9	Poor ICT Policy/implementation strategy	700	83	-	-	783	3.89	1.13	Agreed
10	Paper Qualification should be encouraged	-	-	483	300	783	1.62	0.95	Disagreed

From Table 2, respondents indicated that there was no access to the internet (3.72), High cost of ICT resources (3.77), weak infrastructures (3.76), and poor implementation policy (3.89). As shown, the mean values are above the mean benchmark of 2.50, which shows that lecturers are experiencing challenges in using ICT for quality Education. Item 10, with a mean value of 1.61, indicates that respondents strongly disagreed that paper qualification should be encouraged in place of ICT skills acquisition.

**Research Question 3:** What are the availability of ICT resources as strategies for improving quality education in tertiary institutions?

**Table 3: Mean of Standard Deviation on Availability of ICT Resources for Improving Quality Education in Tertiary Institutions.**

S/N	ITEMS	4	3	2	1	Total	$\bar{X}$	SD	Remark
		SA	A	D	SD				
11	Available laptop per student, overhead projector, software, slides etc	-	-	567	216	783	1.71	0.87	Disagree
12	Regularised power supply	-	-	-	783	783	1.0	1.18	Disagree
13	Availability of ICT laboratory	-	-	387	396	783	1.49	0.95	Disagree
14	Stand by ICT Technician	-	-	206	377	783	1.26	1.00	Disagree
15	Standby ICT Instructor	-	-	103	680	783	1.13	1.12	Disagree

From Table 3, respondents disagreed that there is the availability of laptops, slides, software, projectors (1.71), regularized power supply (1.0), ICT laboratory (1.0), standby technician (1.26), and standby instructor (1.3). All the above mean values are below the benchmark of 2.50, demonstrating that the Non-availability of ICT resources hinders quality Education.

### Discussion of Findings

The study investigated ensuring quality education in the curriculum through ICT in tertiary institutions in Delta State. Quality Education is a veritable instrument of change that unlocks the doors to modernization and the teacher holding the key to the door. The finding of this study revealed that tertiary institution in Delta State needs to be upgraded with personnel and training of lecturers for quality Education. This aligns with Ogwazor (2017), who opined that teachers should approach their curriculum interpretation and teaching strategies with a sustainable development



mentality of teaching for relevance through training and retraining on applying technological applications.

The findings further reveal challenges in using ICT in teaching/learning in tertiary institutions due to lack of access to the internet and others. Also, Nwosu (2016), in support of the above, said the government should empower teachers through investment in regular ICT program training. This finding agrees with Faisal et al., 2018 that the totality of methods, tools, infrastructures, and accessibility to the Internet should be put in place for an easy transfer of ideas, skills, and knowledge among people concerned with common interests and aspirations.

Furthermore, the findings showed that non-availability of ICT Resources hinders quality education in tertiary institutions. This is in agreement with Palmen (2011), who opined that this laudable objective of ICT full integration by tertiary institutions in Nigeria and Delta State, in particular, had not been fully realized due to factors on funding, infrastructures, internet, power inconsistencies, leadership, internet expertise among others.

### Conclusion

Quality Education is an educational process that guarantees the acquisition of knowledge, competencies, and skills for living. It created an enabling environment regarding input, process, and products, ensuring the investment of abilities for lifelong learning and critical thinking. Indices of quality education include access to ICT skills acquisition, training, and retraining of ICT-qualified teachers, Standard ICT infrastructures, ICT laboratories, and so on. Funding of Education in Delta State cannot be judged as high quality. The teacher is undisputedly a relevant and vital instrument for transforming society and national development through his classroom practice, conduct, instructional strategies, and acquisition of ICT skills. Therefore, The teacher can make or mar any nation's growth according to (Oganwu, 2019). Teacher quality is vital in the achievement of the educational goals, which includes their ability to interpret and implement the inclusion of ICT skills in the school curriculum. It is pertinent to restate that "as long as education is in the doldrums for so long, the country's future will be there with it" (This day live.com, 2019).

### Recommendations

- The following recommendations were made based on the findings of the study:
- (i) Government should make provision for training and retraining of teachers on application of Technological applications;
  - (ii) There should be availability of ICT resources for skill acquisition by learners for self-empowerment, thereby deemphasizing paper qualification and
  - (iii) Most irrelevant theories and theoretical aspects of many unrelated subjects should be replaced with new areas of concern related to ICT.

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