

## **AN APPRAISAL OF ICT LITERACY AND USAGE AMONG SECONDARY SCHOOL TEACHERS IN UDI LOCAL GOVERNMENT AREA, ENUGU STATE**

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### **ABSTRACT**

This study was carried out to appraise the ICT literacy and usage among secondary school teachers in Udi Local Government Area of Enugu State. The study was guided by three research questions. The population was made up of 705 teachers while the sample was 200 teachers. The instrument for data collection was a structured questionnaire titled “Appraisal of ICT Literacy and Usage among Teachers (AICTLUT).” The instrument was validated by three experts and data collected were analysed using Weighted Mean. The result showed that secondary school teachers in Udi Local Government Area are still ICT illiterate, the teachers’ use of ICT is below the standard set by International Society for Technology in Education (ISTE). Factors against teachers ICT literacy and usage include lack of in-service training, training of teachers as student teacher without proper ICT infusion, non-availability of ICT facilities in schools and insecurity that leads to vandalism and stealing of installed ICT devices in schools. It was recommended that government should make in-service training of teachers a priority; ICT knowledge and skills should be made compulsory in recruitment of teachers while faculties of Education and colleges of Education should properly integrate ICT skill acquisition in the training of student teachers.

### **Introduction**

The relevance of information and communication Technology (ICT) in teaching and learning has permeated the education system among the global world. Teachers ought to be ICT literate and should be able to utilize ICT for effective teaching and learning. ICT literacy according to Kubiato (2007) is the ability to access and apply information using ICT. It simply involves the ability to find and use information. The concept of information and communication technology has been described as a general term referring to technologies such as computers, video, recorder, and video recorder flash and modern, MP3 and MP4 etc. which are being used for collection, storing, editing and passing of information in various forms. It is an umbrella that covers all technological means for processing and communicating information (Joe-Kinana and Ekeleme, 2012).

Obviously, according to c the world is now a global village and technology for literacy development has become imperative for teachers at all grade levels, state standard requires it and research supports its positive impact on students learning. ICTs are used as education tools to support learning goals. The use of ICT allows teachers to be better focused on real life problems and authentic data. It is also imperative for education as it offers the ample opportunity to save the amount of physical contact between teachers and students. The incident of COVID’19 outbreak opened up the pretensions that all is well with teachers’ ICT literacy level in Nigeria as many teachers could not use ICT devices and platforms for teaching and learning such as Google form, Google Meet, Zoom Link, etc. to facilitate learning with their students. Osunwusi and Abifarin (2013) posit that an individual is today considered to be truly literate if he or she combines the ability to read and write with the capability to use a computer. As Poole (1996) cited by Aduwa-Ogiegbean and Iyamu (2005) had rightly indicated “computer illiteracy is imperative for teachers if they must be relevant, efficient and effective in the

modern education system. They need ICT knowledge to use technological equipment such as computers, list serves, satellite, worldwide webs, file transfers protocols, mobile telephones, MP3, MP4 etc. to facilitate and teaching and learning and make it more productive.”

On many occasions, information Technology (IT) and Information and Communication Technology are used interchangeably to mean the same thing by some people. This should not be the case since both concepts are not the same but only closely related. The National Policy on Education on Information Technology (IT) (2001) defined IT as computer ancillary equipment, software and firmware (hardware) and similar procedures, services and related resources. The same document further explained that the term Information and Communication Technology (ICT) includes equipment or interconnected system or subsystem that is used in their automatic acquisition, storage, manipulation, a management, movement, control, display, interchange transmission or reception of data or information. Therefore, it can be deduced that whereas Information Technology (IT) constitutes the computers, equipment and other related electronic devices that can be used in sending and receiving information, including storing and retrieving same, ICT on the other hand is the use of IT in sending information, retrieving information, storing and receiving and manipulating these information for specific purpose of human benefit.

The National Policy for Information Technology (IT) (2001) provided that by 2004, all the government personnel including teachers will become IT literates. Thus, the policy states: “through global IT skills acquisition and through training in the public and private sectors at least 500,00 IT skilled personnel (including teachers) will be raised by 2004...it will continue to be promoted through training the trainers’ scheme using existing establishments such as the NYSC.” The document also provided that relevant IT curriculum for the primary, secondary and tertiary institutions based on the appropriate national syllable will be developed to tie into key elements of Government’s Universal Basic Education (UBE). The National Policy on Education (2004) also joined the campaign for ICT driven education system in Nigeria and Teachers ICT literacy. It provided that Government shall provide facilities and necessary infrastructure for the promotion of Information and Communication Technology (ICT) at all levels of education. It was based on the foregoing that National Education Research and Development Council (NERDC) in 2008 introduced a new curriculum for secondary school which made ICT compulsory for secondary school students (Okunade, Osunade & Dada, 2018).

The International Society for Technology in Education (ISTE) (2000) has provided the following as the minimum standard for teachers for the utilization of ICT to teaching and learning.

- Teachers should be able to demonstrate a sound understanding of technology operations and concept.
- Teachers should be able to plan and design effective learning environment and experiences supported by technology. Under this, they should among other things apply current research and learning with technology when planning learning environment and experiences and also plan strategies to manage technology resources within the context of learning activities.
- Teachers should be able to implement curriculum plans that include methods and strategies for applying technology to maximize students learning. In this regard, they are expected to use technology to support learner centered strategies that address the diverse needs of students and equally apply technology to develop students’ higher order skills and creativity. Teachers should be able to apply technology to facilitate a variety of effective assessment and evaluation strategies.

- Teachers are equally expected to use technology to use technology to enhance their productivity and professional practice such as applying technology to communicate and collaborate with peers, parents, and the community in order to nurture students.
- Finally, teachers should understand the social, ethical, legal and human issues surrounding the use of technology in schools and apply that understanding in practice.

Thomas and Range in UNESCO (2004) in their classification divided technologies in education into three broad categories. The pedagogy, training and continuing education (open and distance learning). The pedagogical applicability of the ICT concerns essentially various components of ICTs. This is in line with the assertion of Olakulehin (2007), who emphasized that pedagogical application of ICT involves effective learning with the aid of computers and other information technologies serving the purpose of learning aid which plays complementary roles in teaching/learning situation rather than substitute to the teacher. The training aspect involves teacher acquisition of ICT skill during training. The third aspect is the application of ICT for distance learning.

Udi Local Government Area is a semi-urban area in Enugu State of Nigeria and the students in this area by the virtue of ICT age they belong to can reasonably manipulate ICT gadgets such as computer and telephones, but their teachers are still mainly people of older age who didn't grow up with ICT and therefore have to learn it through training to enhance their teaching effectiveness. A situation whereby the students are more equipped technologically than their teachers is not a welcome development. It is not clear to the researcher the extent the teachers have acquired ICT literacy to enhance their teaching job; this justifies the reason for this paper.

### **Statement of the Problem**

No teacher can be effective, relevant and productive in this digital, computer and Artificial Intelligence (AI) driven society without being ICT literate. The Nigerian government being aware of this has been making different effort to enhance ICT literacy level of secondary school teachers. In 2008, the Nigerian Educational Research and Development Council (NERDC) introduced a new curriculum which made ICT compulsory for students, but the major challenge faced by this policy was unavailability of ICT literate teachers. In Enugu State, the government of the day is making serious move to digitalise every sector of the people's lifestyle. The SMART school educational initiative of the government that it is meant to compare with other nations of the world requires not just ICT literate teachers but those that can transfer the same knowledge to their student. The taxpayers' money is being spent to sponsor the project. Workshops and seminars have been organised at different occasions for teachers to learn ICT but the effectiveness of these governmental efforts have not been sufficiently assessed. If all these efforts have been made to make teachers in Enugu State and Udi Local Government precisely to become ICT literate, the question to ask is "how many teachers in Udi Local Government Area are ICT literate and make use of ICT facilities in teaching and learning.

### **Research Questions**

The following research question guided the study.

1. To what extent are secondary school teachers in Udi LGA of Enugu State ICT literate?
2. To what extent do secondary school teachers in Udi LGA of Enugu State use ICT in their teaching and learning?
3. What are the challenges of ICT literacy and sage in teaching and learning among the secondary school teachers in Udi L.G.A?

## Method

The paper carried out an appraisal of ICT literacy and usage among secondary school teachers in Udi LGA of Enugu State. The study adopted descriptive survey design. Three research questions guided the study. The population was made up of 705 teachers while the sample was 200 teachers. The instrument for data collection was a researcher structured questionnaire titled “Appraisal of ICT Literacy and Usage among Teachers (AICTLUT).” The instrument was validated by three experts. The test-retest method was adopted to determine the reliability of the instrument. Analysis of the result yielded a correlation coefficient value of 0.96. Data was collected and analysed using Weighted Mean(X). Decisions were taken based on the 4-point scale rating of responses: Very High Extent (VHE) 4 points, High Extent (HE) 3 points, Low Extent (LE) 2 points, and Very Low Extent (VLE) 1 point. 2.5 was taken as High Extent and below 2.5 was taken as Low Extent.

**Research Question 1:** To what extent are secondary school teachers in Udi LGA ICT literate?

**Table 1:** Mean analysis of the extent to which secondary school teachers in Udi LGA are ICT literate

S/N	ITEM STATEMENT	F	VHE	HE	LE	VLE	Weighted Mean	Remark
1	Teachers were trained as student teachers with ICT	200	25 100	45 135	46 92	54	1.9	Low Extent
2	Teachers have undergone computer training with ICT facilities before they were employed	200	60 240	75 225	30 60	45 45	2.1	Low Extent
3	Teachers have received in-service training on ICT after being employed	200	40 160	50 150	65 130	45 45	2.4	Low Extent
4	Teachers can comfortably operate ICT facilities such as computer and projector	200	20 80	40 120	50 100	90 90	2.0	Low Extent
5	Teachers trained themselves on ICT after they were employed	200	40 160	54 162	32 64	74 74	2.3	Low Extent
6	Teachers can utilize ICT facilities such as computer, camera, projector and television as instructional materials in teaching	200	92 368	78 234	11 22	9 19	3.2	High Extent
7	Teachers can type and print material with computer MS Word	200	40 160	56 168	50 100	54 54	2.4	Low Extent
8	Teachers can browse and send messages with ICT facilities such as computer and phones through e-mail, text messages, etc.	200	106 424	54 160	- -	4 4	3.1	High Extent
9	Teachers have phones with internet access, video and camera devices and can operate them very well	200	52 208	60 180	40 80	46 46	2.6	High Extent
10	Teachers can use spreadsheet packages to compute students results	200	20 80	31 94	60 120	106 106	2.0	Low Extent

The result from table one shows that most of the respondents imply that teachers were not trained as student teachers with ICT. The finding is in line with Jeokinane and Ekeleme (2012)

on their research on “the computer literacy among trainee teachers in Nigeria University of Education.” They found that student-teachers are not equipped with ICT skill while in the university. The result is also in support of Mba (2013) that found out that teachers in Orumba North L.G.A of Anambra state are not ICT literate due to the fact that they were not trained with ICT while in school.

Items no 2-4 shows that teachers have not received ICT training before they were employed nor trained after being employed by the government or individually. This finding is in disagreement with Mba (2013) which found that government trained their teachers after being employed in Orumba North L. G.A of Anambra State. The difference in result is based on the fact that the two research were carried out in two different States. This implies that Enugu State government has not done much to train her teachers on ICT. Also, many of the ICT teachers cannot use spreadsheet package to work on students result. The teachers cannot use ICT facilities such as projector and laptop to present lesson in the class. This finding concurs with studies like Mba (2013), Adeyinka et al. (2011) and Nwite (2007). This shows that the ICT literacy of teachers in Udi Local Government Area is still below the ISTE (200) minimum standard which prescribes that teachers should be able to manipulate technology for pedagogical advantage to make learning environment and experience more effective and interesting to the students.

However, the teachers can browse the internet to get materials and equally use phones to communicate with the students, fellow teachers and the principal. This is in line with ISTE (200) prescription that teachers should be able to utilize their professional performance with the latest innovation.

**Research Question 2:** To what extent do secondary school teachers in Udi LGA of Enugu State use ICT in their teaching and learning?

**Table 2:** Mean analysis of the extent to which secondary school teachers in Udi LGA of Enugu State use ICT in their teaching and learning

S/N	ITEMS	F	VHE	HE	LE	VLE	Weighted Mean	Remark
11	Teachers have their personal compute used for research and lesson planning	200	60 240	80 240	38 76	22 22	2.9	High Extent
12	There are functional ICT facilities such as computers, projectors and camera in the school and teachers are encouraged to use them	200	44 136	48 144	68 136	82 82	2.0	Low Extent
13	Teachers use ICT facilities for updating knowledge	200	63 252	65 195	38 76	34 34	2.4	Low Extent
14	Teachers use ICT facilities such as projector to teach the students	200	36 144	36 108	60 120	68 68	2.4	Low Extent
15	Teachers use ICT facilities such as computer and projectors as instructional materials	200	54 216	53 129	52 104	55 55	2.3	Low Extent

16	Teachers use ICT facilities such as spreadsheet software to mark the students results	200	40 160	48 144	54 108	58 58	2.4	Low Extent
17	Teachers use ICT facilities such as television and projector to enhance visual learning	200	34 136	46 138	70 140	50 50	2.3	Low Extent
18	Teachers store documents/records to keep their documents safe.	200	54 216	74 222	42 84	30 30	2.8	High Extent
19	Teachers use ICT facilities such as scanner and printer/photocopier to duplicate documents	200	62 248	55 165	52 104	31 31	2.7	High Extent
20	Teachers use search engine such a Google and Firefox to browse information while preparing lesson note	200	58 232	62 186	43 86	37 37	2.7	High Extent
21	Teachers use Microsoft excel package and coral draw to organize documents	200	48 192	43 129	62 124	45 45	2.4	Low Extent

Furthermore, the study found that teachers' use of ICT is relatively encouraging. Many of the teachers have personal computer at home. They use online materials to update knowledge and prepare their lesson not, they equally use damaged computer and other ICT facilities as instructional materials. These also comply with ISTE which states that teachers should be able to use technology to make learning more learners centered, communicate feedback to students on their performance and with peers, parents and principal. The findings are in line with Anene, Ikerionwu and Danladi (2013) on their study of the student-teacher knowledge and acquisition of computer in sandwich programme of University of Abuja. They found that teachers use most simple ICT facilities such as phones for communication and to browse information for writing, updating knowledge and information. Nevertheless, the teachers are yet to maximize ICT facilities in teaching. They are yet to integrate ICT facilities such as camera, projectors, and television and power point to enhance teaching and learning.

The teachers are still at the lowest level of ICT-pedagogy integration recommended by UNESCO which is emerging stage. It is after emerging stage they can move to application stage, to infusing stage then finally the transforming stage. While many countries especially in developed economies are advancing at the transforming stage, Nigerian teachers are still struggling with the emerging stage. This finding is in line with Mba (2013), in the study, it was found that teachers' use of ICT in Orumba North L.G.A is yet to meet up with the required standard.

**Research Question 3:** What are the problems against teachers ICT literacy and Usage?**Table 3:** Mean analysis of the teachers' responses on problems against teachers ICT literacy and Usage

S/N	ITEM STATEMENT	F	VHE	HE	LE	VLE	Weighted Mean	Remark
22	Teachers do not have enough money to buy their personal computer	200	40 160	36 108	66 132	58 58	2.3	Low Extent
23	Teacher have not received in-service training on ICT since they were employed	200	58 232	46 138	60 120	36 36	2.6	High Extent
24	Teachers are afraid of damaging the computers, so they don't use them as instructional material	200	30 120	42 126	54 104	76 76	2.1	Low Extent
25	Teachers think that the students find learning difficult when ICT devices are used	200	26 104	54 162	58 116	62 62	2.2	Low Extent
26	There are no sufficient computers and other ICT facilities in the schools	200	40 200	46 138	58 116.	46 46	2.5	High Extent
27	There is no ICT laboratory in the schools	200	52 208	48 144	52 104	48 48	2.5	High Extent
28	There is no internet connection in the schools	200	40 200	45 135	74 148	26 26	2.6	High Extent
29	There is no electricity connection in the schools	200	28 112	44 132	53 106	75 75	2.1	Low Extent
30	Educational policies in Nigeria do not promote/support the use of ICT in teaching in secondary schools	200	47 148	29 87	67 134	67 67	2.1	Low Extent
31	Government does not make ICT literacy compulsory when employing new teachers	200	40 200	48 144	55 110	47 47	2.5	High Extent
32	Teachers think they are too old to learn and use computer and other ICT devices	200	36 144	52 160	57 114	55 55	2.4	Low Extent
33	Installed ICT facilities are vandalized or stolen as a result of insecurity in the school	200	58 232	62 186	43 86	37 37	2.7	High Extent

From the above table, this study discovered factors such as non-training of the teachers with ICT, non-provision of in-service training for the teachers, lack of sufficient ICT facilities in the schools, lack of ICT laboratories in the schools, non-internet connection in the schools and non-consideration of teacher ICT knowledge during recruitment and vandalism cum stealing of installed ICT facilities as major challenges against ICT literacy and usage by the teachers. Meanwhile, most of the respondents do not agree that lack of enough money to buy personal computer is a problem against ICT literacy and usage among the teachers. They also disagree that students find learning difficult when taught with ICT. Electricity outage, being too old to learn, educational policy was also dismissed as a major constraint to teachers ICT literacy and usage. This is to imply that they are ready to embark on and learn ICT if the government provides the enabling support.

## Conclusion

Findings of this study have shown clearly indicated that teachers in Udi LGA of Enugu State are still ICT illiterate which has been known as modern illiteracy but their use of basic devices such as phones and browsers is relatively high. There are still challenges against the attainment of ICT literacy and usage of ICT devices by the teachers. The implications of this will have adverse effect to the achievement of the goals and objectives of secondary education in this area. The teachers' productivity in terms of lesson delivery and efficiency will be low this is because the knowledge and application of ICT in 21<sup>st</sup> century is non-negotiable.

The researchers recommend:

1. Government should supply sufficient computers and other ICT facilities to the schools with security to ensure that they are not stolen or vandalized.
2. Government should train and re-train the teachers on the term of ICT literacy and usage for better productivity and efficiency.
3. Government should erect safe and burglary-proofed computer laboratory and storerooms for the computers in the school.
4. ICT should be integrated properly in the teacher-education curriculum and properly taught with practical sessions at the colleges of education and faculties of education in universities.
5. Government should make ICT skill compulsory for teacher employment.
6. The parent teachers Association (PTA), School Based Management Commission (SBMC) and other stakeholders in education should be encouraged to donate ICT facilities to schools.

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