

## Assessment of Teachers' Perception on Digitalization of Education in Secondary School in Rivers State

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### Abstract

*Digitalization could be seen as one of the innovations in education as it highlights the various activities that lead to the modernization of the education sector. This study aimed at investigating the perception of teachers on digitalization of education in secondary school in Rivers State. In line with aim, two research questions and two hypotheses guided the study. Descriptive research design was adopted and the population consisted of 8824 teachers in secondary schools in Rivers State. A researcher-made questionnaire titled: Assessment of teachers' perception on digitalization of education in Rivers State (ATPDERS) was used for data collection. Percentage distribution, mean and standard deviation were conducted to answer the research questions while z-test was used to test the hypotheses at 0.05 level of significance. This study revealed that the prevalence of technology has affected many areas of society in a positive manner, including education but secondary school teachers level of digital awareness, competence and skills are generally low. This study recommended that teachers in Rivers State should be motivated and encouraged to develop the desire to use digital technologies relevant to teaching and learning and educational policies and strategies should be put right as well as well thought of and prerequisite conditions for using these technologies should be met concurrently, to enable teachers' and students' development of 21st century digital skills.*

**Key words:** Digitalization, Digital Education, Teachers' perception, 21st Century Skills, Secondary School Education

## **Introduction**

Digitalization of education is a ground-breaking pattern as far as renewal and modernization of worldwide instruction condition is concerned. Digitalization implies change of all data types (writings, sounds, visuals, video and other information from different sources) into the advanced language. In any dialog on the marvel of digitalization it ought to be noticed that different investigators and figure specialists consider progress of instruction process into advanced stage as the defining moment throughout the entire existence of Education. The United Kingdom is thought to be the first on the planet to present obligatory programming designing and IT instruction in the program for younger students aged 5 - 16 years in 2015. The expressed methodology was embraced by the European Union. EU 2020 instruction advancement system, received in 2014, it centres around computerized innovations. From that point forward, the advanced world is progressively entering the training and aptitudes area, with innovation bit by bit being utilized to convey instruction, information and skills in new and imaginative manners. This infiltration is combined with future changes to the mode and example of work, which are themselves influenced by the present atmosphere of financial vulnerability, just as by political movements. Given the expanded utilization of quick changing computerized advancements in the work environment, new aptitudes needs have developed. The utilization of these innovations has added to changing learning and abilities improvement into a deep rooted procedure. Undoubtedly, individuals presently need to proceed to create and invigorate their abilities and information so as to stay up to date with the consistent advancements and new improvements in the computerized world. It is evaluated that innovation abilities must be refreshed at regular intervals so as to have proceeded with significance. This applies to the workforce as a rule, where accentuation is set less on knowing the data, be that as it may, rather, on the most proficient method to discover it, and the capacity to

survey its quality and unwavering quality. Computerized advances have saturated something other than the working environment, in any case, and having computerized abilities is regularly essential for everyday exercises. For certain individuals from society, for example, 'advanced locals', utilizing innovation is normal, yet this isn't really the situation for the more seasoned age.

The advanced age, youth conceived somewhere in the range of 1990 and 2000, are so named in light of the fact that they were conceived during the computerized transformation. Consequently, they grasp the concentrated utilization of the Internet, PDAs, informal communication devices, and computer games (Sheets, 2001). Little and Vorgan (2008), for instance, recognized youngsters today as computerized locals, exclusively living in a world built around innovation. This reality guarantees current understudies are more acquainted with advanced innovation than past ages of students, and they are acclimated with the fast mechanical changes (Levine, 2010; Lusk, 2010; Yakel, Conway, Hedstrom, and Wallace, 2011). In like manner, new developing innovations encompassing computerized students are changing the substance guidelines for their strategies for mingling, imparting, gathering, sharing, revealing, looking, and learning (Prensky, 2005). Accordingly, teachers are committed to help this digitalized age's innovative needs to advance positive development and boost their learning so as to make the pioneers of the 21st century.

Coordination of Information, Communication, and Technology (ICT) in training alludes to the utilization of PC based correspondence that joins into day by day homeroom instructional procedure. Related to getting ready understudies for the current computerized period, educators are viewed as the key players in utilizing ICT in their everyday study halls. This is because of the ability of ICT in giving dynamic and proactive educating learning condition (Arnseth & Hatlevik, 2012). While, the point of ICT coordination is to improve and expand the quality, openness and cost-proficiency of the conveyance of guidance to understudies, it additionally alludes to profits by systems administration the learning networks to confront the difficulties of current globalization (Albirini, 2006). Procedure of appropriation of ICT is definitely not a solitary advance, yet it is

progressing and constant advances that completely bolster instructing and learning and data assets (Young, 2003).

ICT reconciliation in instruction for the most part implies innovation based educating and learning process that intently identifies with the usage of learning advancements in schools. Because of the way that understudies know about innovation and they will adapt better inside innovation based condition, the issue of ICT joining in schools, explicitly in the study hall is imperative. This is on the grounds that, the utilization of innovation in instruction contributes a ton in the educational viewpoints where the use of ICT will prompt viable learning with the assistance and supports from ICT components and segments. It is on the right track to state that practically all scopes of subjects' beginning from arithmetic, science, dialects, expressions and humanistic and other significant fields can be adapted all the more viably through innovation based apparatuses and hardware. Furthermore, ICT gives the assistance and integral backings for the two instructors and understudies where it includes successful learning with the assistance of the PCs to effectively learn helps. PCs and innovation don't go about as a trading devices for quality educators however rather they are considered as an extra enhancements required for the better instructing and learning. The requirement for ICT combination in training is essential, on the grounds that with the assistance of innovation, educating and learning isn't just occurring in the school condition, yet additionally can happen regardless of whether educators and understudies are physically in separation. Notwithstanding, ICT incorporation is definitely not a one-advance learning process, yet it is a nonstop procedure of discovering that gives proactive educating learning condition (Young, 2003).

ICT can be utilized in different manners where it helps the two instructors and understudies to find out about their separate branches of knowledge. An innovation based instructing and learning offers different fascinating ways which incorporates instructive recordings, incitement, stockpiling of information, the utilization of databases, mind-mapping, guided disclosure, conceptualizing, music, World Wide Web (www) that will make the learning procedure all the more satisfying and important (Finger and Trinidad, 2002). Then again, understudies will profit by ICT incorporation where they are

not limited to the constrained educational plan and assets, rather hands-on exercises in an innovation based course is intended to assist them with stimulating their comprehension about the subject. It likewise causes instructors to structure their exercise designs in a powerful, inventive and fascinating methodology that would bring about understudies' dynamic learning. Past explores demonstrated that utilization of ICT in instructing will upgrade the learning procedure and boosts the understudies' capacities in dynamic learning (Young, 2003; Jamieson-Procter et al., 2013).

Hermans, Tondeur, Van-Braak, and Valcke (2008) have distinguished three fundamental stages for ICT to be exceptionally esteemed and respected by the instructors; joining, upgrade and reciprocal. Incorporation approach is tied in with actualizing right utilization of ICT specifically branch of knowledge that included complex ideas and aptitudes to improve understudy's accomplishment and achievement. In addition, the survey of educational program is additionally required with the goal that solitary related ICT assets and suitable programming will be introduced for the primary points and destinations of educational plan to be accomplished. Improvement approach is tied in with utilizing ICT to give extraordinary accentuation on the subject presented. For example, Microsoft PowerPoint can be utilized to exhibit the theme in an imaginative and innovative manner that will lead into dialog and trading thoughts and considerations. At long last, corresponding methodology is the point at which the ICT is utilized to help and bolster the understudy's learning. This methodology enables understudies to be progressively composed and proficient in which they can take acquire the notes from PC, present their works by email from home as long as they fulfill the time constraint and searching for data from different sources gave online to satisfy the assignment given to them (Hermans et al., 2008). Innovation based instructing and learning can roll out numerous improvements in school that requires for appropriate arranging and strategy making. Scientists and policymakers must both have a similar knowledge about the likely arrangement. Dudeney (2010) noticed that national ICT arrangements can serve a few urgent capacities. They give a reason, a lot of objectives, and a dream of how instruction frameworks run if ICT is incorporated into educating and learning procedure, and they are valuable to understudies,

instructors, guardians and the overall public of a given nation. Service of Education Malaysia has detailed three primary strategies for ICT in training. The principal approach demands all understudies are offered chance to utilize ICT. This is expected to diminish the computerized hole among the schools. The subsequent approach centers around the job and capacity played by ICT in instruction. Other than that, another approach worried on the utilization of ICT for getting to data, correspondence and as profitability apparatus.

Be that as it may, foundation and office of ICT is then expected to supply to the schools all through the country. A key factor being used of ICT is adequate PC labs and ICT gear. This is to guarantee that subject educators are effectively access to ICT instruments at whatever point required. Absence of satisfactory ICT gear and web get to is one of the key issues that schools explicitly in country regions are confronting now. For instance, consequences of an examination show that in Kenya, a few schools have PC however this could be restricted to one PC in the workplace as it were. Indeed, even in schools with PCs, the understudy PC proportion is high. Also, the report proceeds uncovered that the schools with ICT foundation are bolstered by guardians' drive or network control (Chapelle, 2011). In most schools, technical difficulties sought to become a major problem and a source of frustration for students and teachers and cause interruptions in teaching and learning process. If there is lack of technical assistance and no repair on it, teachers are not able to use the computer for temporarily (Jamieson-Proctor et al., 2013). The effect is that teachers will be discouraged from using computers because of fear of equipment failure since they are not given any assistance on the issue. Türel and Johnson's study (2012) revealed that technical problems become a major barrier for teachers. These problems include low connectivity, virus attack and printer not functioning. However, there are a few exceptions. Schools in the countries like Netherland, United Kingdom and Malta have recognized the importance of technical support to assist teachers to use ICT in the classroom (Yang & Wang, 2012).

### **Statement of Problem**

In the modern global learning environment teacher's role shifts from "dispenser of information" to "facilitator of learning" as he has only to

guide the active students who are involved in using the digital learning material. Classrooms are equipped with digital technologies and computers and the facilitator needs to access the e-learning system through the Intranet. Teachers should not control the learning process as well as they should allow students to perform collaborative work and make some decisions on their own. Most schools and teachers did not directly influence the pace at which computers were introduced into education; nor did they decide that personal communications should happen over the Internet, rather than in face-to-face meetings or using the telephone. Yet the skills that are typically learned at school play a crucial role in determining whether a student adopts digital technology and can benefit from it. Cope and Ward (2002) state that more experienced teachers find technology less helpful and they are not eager to use it in their classroom. This is maybe due to the lack of enough preparation on how to properly use it. There are teachers who use technology because they are obliged to, mostly because of administrative reasons. These teachers have not gone under necessary professional trainings and this makes them be in doubt about their role in the classroom when technology is used. The problem statement of this study posed in a question form is; What is the perception of teachers on digitalization of education in Rivers State?

### **Aim and Objectives**

The aim of this study is to investigate the perception of teachers in digitalization of education in secondary school in Rivers State. Specifically, the study sought to;

1. determine the level of teachers' awareness in the use of digital technologies in secondary school in Rivers State.
2. ascertain teachers' level of competence in the use of digital technologies in secondary school in Rivers State.

### **Research Questions**

The following research questions were asked to serve as guide for the study;

1. What is the level of teachers' awareness in the use of digital technologies in secondary school in Rivers State?

2. What is the level of teachers' competence in the use of digital technologies in secondary school in Rivers State?

### **Hypotheses**

In line with the objectives of this study, the following null hypotheses were postulated;

1. There is no significant difference between the mean rating of male and female teachers on the level of awareness in the use of digital technologies in secondary school in Rivers State
2. There is no significant difference between the mean rating of male and female teachers' level of competence in the use of digital technologies in secondary school in Rivers State

### **Methodology**

The research design adopted in this study is descriptive design of the survey type. The population comprised 8824 teachers from two hundred and forty-seven (247) public secondary schools in Rivers State. The sample size for this study consisted of three hundred and eighty-six (386) teachers selected by using the stratified random sampling, simple random sampling, and the purposive sampling techniques. A researcher structured questionnaire titled; Assessment of teachers' perception on digitalization of education in Rivers State (ATPDERS) was used to collect data. The respondents were asked to articulate their judgments using a four points likert scale of Strongly Agreed (SA) =4; Agreed (A) 3; Disagreed (D) 2; Strongly Disagreed (SD). Expert opinion was sought to ensure content validity of the instrument. The test-retest method was carried out on the instrument and the results obtained were compared using Cronbach Alpha and it yielded a reliability coefficient of 0.76 which was considered significant. The instrument for this study was disseminated by the researcher among the respondents for the study. One questionnaire was given to each of the respondents according to the extent and nature of data and information required for this study. The data collected were analyzed using percentage distribution, mean and standard deviation to answer research questions. The null hypotheses formulated for this research were subjected to z-test for the purpose of either accepting or rejecting them. Hypotheses were tested at significant difference of 0.05 alpha significant level. An item with a



calculated mean value of equal to or greater than 2.50 was accepted while item with mean value of less than 2.50 was rejected

## Results

**Research Question One:** What is the level of teachers' awareness in the use of digital technologies in secondary school in Rivers State

**Table 1: Teachers' level of awareness in the use digital technologies**

S/N	ITEMS	DECISION				TOTAL
		SA	A	D	SD	
1	There are great opportunities that digital technology offers for effective teaching	45 (11.66%)	67 (17.36%)	98 (25.39%)	176 (45.62%)	386
2	Digital technology supported teaching makes learning more effective	-	56 (14.51%)	111 (28.76%)	219 (56.74)	386
3	ICT supported teaching makes learning more effective	63 (16.31%)	-	110 (19.54%)	213 (64.24%)	386
4	The use of E-presentation (power point) can enhance my teaching	25 (6.48%)	70 (18.13%)	121 (31.35%)	170 (44.04%)	386
5	The use of Internet and web browsing helps to broaden students' knowledge paradigm.	45 (11.66%)	67 (17.36%)	98 (25.39%)	176 (45.60%)	386
6	The use of Personal computer and laptop promotes active and engaging lesson for students' best learning experience	38 (9.84%)	62 (16.06%)	115 (29.79%)	171 (44.30%)	386
7	The use of learning management such as Google Classroom, Edmodo etc enables students' to express their ideas and thoughts better	-	61 (15.80%)	108 (27.98%)	217 (56.22%)	386
8	The use of social networking sites for learning encourages students to communicate more with their classmates	50 (12.95%)	-	128 (33.16%)	208 (53.89%)	386
9	E-laboratories can substitute for real laboratories and help the teacher in his lessons	-	39 (10.10%)	141 (36.53%)	206 (53.36%)	386
10	The use of digital pedagogies increases students' confidence to participate actively in the class.	21 (11.66%)	51 (17.36%)	107 (25.39%)	207 (45.60%)	386
	Average	<b>35(9.07%)</b>	<b>52(13.47%)</b>	<b>108(27.98%)</b>	<b>191(56.48)</b>	<b>386</b>

From the above table, 35 (9.07%) teachers strongly agreed, 52 (13.47%) of them agreed, 108 (27.98%) of them disagreed, 191 (56.48) of them strongly disagreed. This shows a lack of awareness in the use of digital technology.

**Research Question Two:** What is the level of teachers' competence in the use of digital technologies in secondary school in Rivers State?

**Table 2: Teachers' level of competence in the use digital technologies**

S/N	ITEMS	N	MEAN	SD
1	I utilize digital technology to support my teaching methods.	386	2.83	0.88
2	I have enough knowledge to integrate digital technologies in my teaching activities	386	2.22	0.81
3	I am familiar with the ways of integrating technology into curriculum.	386	2.43	0.89
4	I have enough knowledge to develop a personal learning environment through ICT.	386	2.28	0.86
5	I store information and contents for easier retrieval, to organize information and data	386	2.22	0.80
6	I am able to manage my time well in a technology-enriched classroom	386	2.28	0.86
7	I am fairly organized and tend to plan ahead in my technology based teaching	386	2.51	1.06
8	I have enough knowledge to integrate ICT in my teaching activities.	386	2.48	0.94
9	I have enough knowledge to integrate the ICT in my learning process.	386	2.83	1.00
10	I must use ICT during my classes	386	2.30	0.86
11	I manage and control students learning in a technology-enriched classroom.	386	2.70	1.00
12	I am able to download files from the Internet and upload files to the e-mail	386	2.02	0.75
13	I am competent in using PDF processing software.	386	1.98	0.76
14	I am competent in using e-book.	386	2.04	0.87
15	I use E book software to communicate with my students	386	2.39	1.04
16	I am competent in using E book software such as flip book , MOBI, or EPUB	386	2.37	0.95
	Grand Mean	386	2.37	0.79

From table 2 above, the grand mean of teachers' level of competence is 2.37 with a standard deviation of 0.79 which falls below the criterion mean of 2.50. This shows teacher are not very well competent and skilled in the use of digital technology.

**Hypothesis One:** There is no significance difference between the mean rating of male and female teachers on the level of awareness in the use of digital technologies in secondary school in Rivers State

**Table 3. z-test difference between the mean ratings of male and female teachers on the level of awareness in the use of digital technologies in secondary school in Rivers State**

Variables	N	X	SD	df	z-cal	z-crit	Decision
Female Teachers	200	2.65	0.88	384	0.78	1.96	Accepted
Male Teachers	186	2.68	0.92				

Table 3 shows that male teachers have mean and standard deviation scores of 2.68 and 0.92 while female teachers have mean and standard deviation scores of 2.65 and 0.88. At an alpha level of 0.05 with a degree of freedom of 384, the z-calculated value of 0.78 is less than the z-critical value of 1.96 ( $P < 0.05$ ). Therefore, the null hypothesis of no significant difference is accepted and the alternative rejected. There is no significant difference in the mean ratings of male and female teachers on the level of awareness in the use of digital technologies in secondary school in Rivers State.

**Hypothesis Two:** There is no significance difference between male and female teachers' level of competence in the use of digital technologies in secondary school in Rivers State

**Table 4. z-test difference between the mean rating of male and female teachers' competence level in the use of digital technologies in secondary school in Rivers State**

Variables	N	X	SD	Df	z-cal	z-crit	Decision
Female Teachers	200	2.93	0.93	384	1.62	1.96	Accepted
Male Teachers	186	3.03	0.88				

Table 4 shows that the calculated z-value of 1.618 at degree of freedom of 384 at the 0.05 alpha level was not significant. The mean and standard deviation scores for female teachers were 2.93 and 0.93 respectively while that of male teachers were 3.03 and 0.88 at 384 degree of freedom. The calculated z-value of 1.618 is less than the critical value of 1.96. Therefore, there is no significant difference between mean rating of male and female teachers' competence level in the use of digital technologies in secondary school in Rivers State

### **Discussion of Findings**

The findings of this study revealed that secondary school teachers' level of aware on the use of digital technologies in the classroom is general moderate. They hold moderate level of awareness in items measured. This result is not in consonance with the results of the research conducted by Rosnaini and Mohd Arif (2010) where most teachers were knowledgeable on ICT. This study also revealed that the digital competence level of teachers was poor as well. This result is in agreement with Nwagbo and Ugwanyi as cited in Agboeze et al (2012) which stated that the pace of development and utilization of digital tools for educational purposes including teaching and learning in classroom is still very low in Nigeria. The utilization of digital technologies in teaching and learning of secondary school subjects has not been effectively utilized. This result supported the result of Konan (2010). This researcher also found that the computer literacy level of teachers' is medium as being identified by Sa'ari, Luan and Roslan (2005). They said that most of the teachers had moderate levels of digital competencies. But this result is in contrast with the result of Angeli, (2005) as he indicated that teachers reported a statistically significant higher technology competence in learning activities with technology.

### **Conclusion**

Based on the findings of this study, secondary school teachers displayed moderate level of awareness, competence and skills in the use of digital technologies in the classroom. Gender is not a factor on the effects of digital awareness and skills, computer skills were not dominated by either male or female teachers. There are also practical implications to this study. The 21st century environment is laden with a lot of demands on the processes of teaching and learning. Teacher classroom roles have therefore changed in order to adequately address the needs of the learner, in preparing them to become self-reliant and globally competitive individuals able to survive and fit into the 21st century workplace. The awareness level of secondary school teachers is not yet very encouraging in spite of the various affordances that technology has made available in the 21st century environment Therefore, teachers' digital development and training programs should be provided. The innovative nature of technology, as it

continues to change and expand, will require teachers to adapt and change the way they approach teaching and learning.

### **Recommendations**

Based on the findings and conclusion of this study, the following recommendations are made;

1. Teachers in Rivers State should be motivated and encouraged to develop the desire to use digital technologies relevant to teaching and learning
2. The cost of digital tools like laptops, desktops etc should be reduce to affordable prices so that teachers and students can acquire them
3. Educational policies and strategies should be put right as well as well thought of and prerequisite conditions for using these technologies should be met concurrently, to enable teachers' and students' development of 21st century digital skills
4. Ministry of education together with school management should make arrangement for ICT training for their teachers to provide digital enabled environment
5. The government and its agencies should ensure that adequate digital resources are put in place for the teaching and learning of secondary school subjects

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