

The Teaching Profession (TP) and Information and Communication Technologies (ICTs) Competencies of teachers in a Digital Era (DE)

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Abstract: The empirical and descriptive survey was a reflection on teacher education vis-à-vis the ICTs competencies of serving teachers. The research questions are a null hypothesis guided the survey. A four-point Likert-like instrument was the questionnaire. The four-point scale had a criterion mean value of 2.50, hence the questionnaire met both conditions of validity and reliability through peer reviews and test-retest measure with an index of 0.77 respectively. A major finding was that there was obvious presence of ICTs competencies among teachers as the mean (\bar{x}) value of 2.44 is close to 2.50 the criterion mean. Also, the study showed no sex advantage of ICTs competencies among male and female teachers. On this premise, a major recommendation was that there was the need for teachers to increase their ICTs knowledge and skill by integrating them in their daily lessons, and also that there is the need for collaboration among teachers irrespective of gender.

Key words: Pedagogical, networking and collaboration, social and health, technical competencies.

Background

The TP has come a long way and thus hard undergone several structural and morphological changes since inception to date. Records has it that at its inauguration as a union in 1931 under the auspices of Nigerian Union of Teachers (NUT), that it had about 508 membership, comprising of 476 men and 41 women (Fatunwa, 1974; Elechi, 2010). It is obvious that this association which started as a trade union has today become the umbrella body of teachers in Nigeria. To consolidate the powers and strengths of this body, the Teacher's Registration council of Nigeria has come to be. One must therefore be a certified teacher to become a member of the NUT. That is by the way.

As it concerns this study, a cursory look at the 7-point document of the (TRCN), the No. 2 item focuses on professional knowledge with emphasis on 2.5 (ICT knowledge). That is, ICT knowledge is a basic requirement or professional standard for Nigeria Teachers (TRCN, 2012). The teaching profession of today should be able to boost of members who are professional qualified with focus on ICT to be able to meet with the ICT challenges of the new age-digital natives (Prensky, 2001) digital residents (White & Cornu, 2011), the net generation (Jones

& Shao, 2011), the learner-centred learning environment of today (Newby, Stepich, Lehman & Russel, 2000). Thus we are dealing with a situation whereby the conventional approach to teaching and learning does not hold away, teaching and learning it is obvious have told a new dimension, hence new definitions, influencing the emergent roles of the teachers and learner equally, courtesy, the increasing presence and access to ICTs. A scenario of this sort therefore behaves on members of the TP to be abreast of, conversant and up-to-date in related ICTs knowledge and skills to be able to live to its professional mandate. This is what Williams (2014) referred to as acclimatization is a naturalization measure in a digital world. It is only when professional members have acclimatized that they can speak the digital language of the digital natives or residents. The referred ICTs knowledge and skills are summarized as basic ICTs competencies. And as reformed to this study, they include; pedagogical; collaboration and networking; social and health; and technical competencies. (UNESCO, 2002).

ICTs pedagogical competencies would include basic knowledge and skills of teachers in using such to support learning, going by the current focus of the field of educational teaching. Competencies in this regard require of members of the TP to be up-to-date in knowledge and skills related to Microsoft word (create, edit word document, cut, copy & paste texts/graphics and other related functions); Microsoft excel identify rows and columns, create cell, vary width of all, use material functions, amongst others); Microsoft PowerPoint (design slides; use of animations, copy and paste presentation word, and others). Collaboration and networking competencies behave on the teacher to be able to use the web. 210 tools; facebook, email, wikis, podcast, youtube and the rest to facilitate learning. The teacher is also proficient in the use of the internet to support learning in the precise use of the words. Social and health competencies would include knowledge and skills on copyright and respect for intellectual property and perhaps consequences of intellectual theft, sealing position, light, sound and related energy sources and sound in ICTs usage. Technical competencies on the other hand involve basic computer operations. These include; to identify and connect various components of the computer, turn on, boot, or shut down a system; identify and use icons and menus, minimizing (-), maximizing (+) and restore or close an amount, create and manage files, create folder, delete, use of saving devices (flash drive, CD), print document and others.

Statement of problem:

It is no gainsaying the fact that the Teaching Profession is the oldest profession in Nigeria history. This is sequel to Phelp Stocke's commission when teaching was recognized as a profession in 1925 and the subsequent birth and inauguration of the Nigerian Union of Teachers (NUT) in 1930 and 1931 respectively. Thus with the advent of ICTs and emerging technologies, one would have thought that the TP should take the lead among other professions in embracing these ICTs devices and tools that are meant to enhance productivity. Unfortunately, the talk-and-chalk approach which encourages rote learning, memorization and regurgitation of facts still dominate the pedagogical scene, even in the presence of these digital aids. Could lack of required ICTs pedagogical competencies among teachers be responsible or lack of collaborative and networking competencies or lack of social and health competencies or lack of technical competencies, amongst others be the reasons for this still conventional approach to teaching even in a digital era? This is the scenario that triggered the enthusiasm of the researchers.

Purpose of study:

1. to determine the level of ICTs competencies of serving teachers
2. to determine the level of ICTs competencies of male and female serving teachers

Research questions:

1. What is the level of ICTs competencies of serving teachers?
2. What is the level of ICTs competencies of male and female serving teachers?

Significance of study

The beneficiaries and benefits of the study includes:

- Teachers:** The study will be of immeasurable benefit to teachers because it will awaken their consciousness for ICTs integration in professional practices.
- Students:** They are going to be more proficient in ICTs competencies, being exposed to model teachers versed in ICTs knowledge and skill.
- The profession:** The TP is going to be at advantage in the sense that it will be saturated with members who are ICTs competent to be able to meet to the challenges of the age.

Research design: the description survey design was used for the study. The reason was that it investigated ICTs competencies that members of the profession already possess.

Population: This consisted of teachers serving in Port Harcourt Local Government (LGAs) of the Rivers State in Nigeria.

Simple and sample size: A randomly selected teachers numbering one hundred were used for the study. The sample consisted of equal size in terms of sex, that is fifty male and fifty female teachers.

Instrument and administration

An instrument labeled Teaching Profession ICTs Competencies Questionnaire (TP – ICTs CQ) designated by the researchers and validated via peers’ constructive observations was used for the study. It was an instrument made up of four sections (A, B, C & D), each section containing items that relate given competency. The four-point instrument was structured in the likert-like scale fashion with such scales and rating as: Very High (VH/4); High (H/3); Low (L/2) and Very Low (VL/1). Thus, the adopted or criterion mean (\bar{x}) value of 2.50 was used. The instrument had a reliability coefficient of 0.67 obtained through a test-retest measure of instrument reliability. The administration and retrieval of the instrument was done by the researchers subsequently.

Data analysis: The statistical tools used for data connection included mean (\bar{x}), standard deviation and t-test.

RQ 1. What is the ICTs competencies of serving teachers?

Table 1. Teachers’ ICTs competencies (\bar{x} , & SD values).

A	Pedagogical (competencies)	X	\bar{X}	SD
1.	Skilled in Microsoft word	228	2.28	1.50
2.	Knowledge in Powerpoints	217	2.34	1.52
3.	Skilled in Coral Draw	240	2.40	1.51
4.	Knowledge in spreadsheet	225	2.50	1.57
5.	Skill in Database	223	2.46	1.55
B.	Collaboration and Networking (“)		$\bar{X} = 2.40$	$\bar{X} SD = 1.52$
6.	Competency in referring to sites	229	2.58	1.50
7.	Skilled in use of whatsapp	224	2.48	1.56
8.	Knowledgeable in the use of facebook	218	2.36	1.52
9.	Skilled in the use of email	227	2.54	1.58
10.	Knowledgeable in communication synchronous tools	219	2.38	1.53

			$\bar{X} = 2.47$	$\bar{XSD} = 1.56$
C.	Social and Health (H)		$\bar{X} = 2.47$	$\bar{XSD} = 1.56$
11.	Uses online materials on permission	219	2.38	1.53
12.	Skills on copyright laws	218	2.36	1.52
13.	Respects for intellectual property	219	2.38	1.53
14.	Adjusts screen light where necessary	209	2.18	1.46
15.	Regulates speakers sound where necessary	217	2.34	1.52
			$\bar{X} = 2.43$	$\bar{XSD} = 1.51$
D.	Technical (“)			
16.	Identification of computer parts	238	2.76	1.65
17.	Connection of computer parts	232	2.64	1.61
18.	Creation of files	226	2.52	1.57
19.	Usage of storage devices	223	2.46	1.55
20.	Skill in printing of documents	220	2.40	1.53
			$\bar{X} = 2.55$	$\bar{XSD} = 1.58$
		Grand	$\bar{X} 2.46$	SD = 1.54

The Table (1): Above reveals the status of ICTs competencies of the teachers under investigation. In pedagogical competencies, the \bar{x} mean (\bar{x}) and standard deviation (SD) mean (\bar{x}) stand at 2.40 and 1.52 respectively. This shows of mean 0.01 less than the criterion mean of 2.50. The collaboration and networking ICTs competencies show a mean of value of 2.47, 0.03 less then the acceptable mean and a standard deviation mean of 1.56. On social and health competencies, the mean of is 2.43, which is 0.07 less than the acceptable mean and a standard deviation mean of 1.51, are the results. However, mean (\bar{x}) value the technical competencies of the teachers stand at 2.55 a value above the criterion mean, and a standard deviation (SD) mean of 1.58. On the overall, the grand mean (\bar{x}) of the respondents stand at 2.46 with a standard deviation grand mean of 1.54.

RQ 2: What is the level of ICTs competencies of male and female serving teachers?

Table 2. Teachers’ ICTs competencies by sex

S/ No.	Sex	Male			Female		
		X	\bar{X}	SD	X	\bar{X}	SD
	Pedagogical competencies						
1.	Skilled in Microsoft word	107	2.14	1.45	129	2.58	1.59
2.	Knowledge in PowerPoint	119	2.38	1.53	124	2.48	1.56

3.	Skilled in Coral Draw	119	2.38	1.53	132	2.64	1.61
4.	Knowledge in spreadsheet	124	2.48	1.55	120	2.40	1.53
5.	Skill in Database	138	2.76	1.65	127	2.54	1.58
			$\bar{X}=(2.43)$	$\bar{XSD}=1.54$	$\bar{X} = 2.53$	$\bar{X} = 2.53$	$\bar{XSD}=1.57$
	Collaboration and Networking (,,)						
6.	Competency in reforming to sites	123	2.46	1.55	134	2.68	1.62
7.	Skilled in use of whatsapp	117	2.34	1.52	124	2.48	1.55
8.	Knowledgeable in the use of facebook	109	2.18	1.46	107	2.14	1.45
9.	Skilled in the use of email	118	2.36	1.52	127	2.54	1.58
10.	Knowledgeable in communication synchronous tools	125	2.50	1.57	118	2.36	1.52
			$\bar{X} 2.37$	$\bar{XSD} = 1.52$		$\bar{X}=2.44$	$\bar{XSD} = 1.54$
	Social and Health (“)						
11.	Uses online materials on permission	124	2.48	1.55	122	2.44	1.55
12.	Skills on copyright laws	127	2.54	1.58	116	2.32	1.51
13.	Respects for intellectual property	116	2.32	1.51	120	2.40	1.53
14.	Adjusts screen light where necessary	122	2.44	1.55	138	2.76	1.65
15.	Regulates speakers sound where necessary	134	2.68	1.62	126	2.52	1.57
			$\bar{X}2.49$	$\bar{X} SD 1.56$		$\bar{X}=2.49$	$\bar{XSD} = 1.56$
	Technical (,,)						
16.	Identification of computer parts	125	2.50	1.56	138	2.76	1.65
17.	Connection of computer parts	116	2.32	1.51	114	2.34	1.50
18.	Creation of files	124	2.48	1.55	120	2.40	1.51
19.	Usage of storage devices	122	2.44	1.55	125	2.50	1.57
20.	Skill in printing of documents	134	2.68	1.62	127	2.54	1.58
			$\bar{X} =2.48$	$\bar{X} SD=1.56$		$\bar{X} = 2.51$	$\bar{X} SD =1.56$
		Grand	$\bar{X} = 2.44$	$\bar{XSD}= 1.55$		$\bar{X} 2.50$	$\bar{XSD} = 1.56$

Table 2. Above show that the pedagogical ICTs competencies of the teachers stand at mean (\bar{x}) and standard deviation mean (\bar{x}) values of 2.43 and 1.54 for male teachers as against 2.53 and 1.57 for female teachers. For collaboration and networking competencies, the values, are mean (\bar{x}) 2.37 and SD mean of 1.52 for male as against mean (\bar{x}) and standard deviation of 2.44 and 1.54 for females. In the same vein social and health competencies for male have mean (\bar{x}) and standard deviation mean (\bar{x}) are 2.49 and 1.56 for male as against 2.49 and 1.56 for female. The values for technical competencies by the same measures are (2.48/1.56) for male and (2.51/1.56) for female. On the overall, the grand mean (\bar{x}) and standard deviation for male and female teachers stand at (2.44/1.55) and (2.50/1.56), respectively.

Research hypothesis

There is no significant difference in the mean (x) values of male and female teachers on their ICTs competencies. Though, this is an improvement of an earlier study on the exploration of ICT by teachers in modern classroom (Williams & Adesope, 2015).

Table 3. Mean, SD and t-values

Sex	No	X	SD	df	-level	t-call	t-crit.
Male	50	2.44	1.55	98	0.05	-0.193	0.661
Female	50	2.50	1.56				

Decision: Accept null hypothesis on the ground that $t\text{-cal} < t\text{-crit}$.

Discussion of findings

The first finding shows improve presence ICTs competencies (pedagogical, collaborating & networking, social & health, technical) among serving teachers. The tables (1 & 2) are ample proofs on the status of teachers' competencies even on era that ICTs-driven. However, lies a major hiccup of ICTs integration in our schools. The focus of teacher education is to produce and retrain teachers that are capable of using technological process and resources in flexible and effective ways, connecting peers and experts in other countries (Saddiqui, 2008). For learners to survive in an agrarian or industrially-based driven economy, the teachers of today own it as a point of dully to be abreast of modern innovations and digital knowledge and skills (Bansel, 2007). The reasoning is that no one gives out what he/she does not possess. The richer our teachers are in needed ICTs competencies the better they are equipped for the demands of the ICTs age.

On how the competencies can be achieved, a-four point measure was identifical (Roblyer & Erlanger, 1998). These measure which date our three decade ago include: hand-on integration emphasis; training over time; modeling mentoring and coaching; and post training access. These measure to a reasonable extent are supported by the positions of Kainth and Kaur (2010) on approaches to ICTs integration in teacher education as reported by Olele and Williams (2012). Kainth and Kaur approaches include: ICTs skills development; ICTs pedagogy; subject specific areas and finally practice-driven approach. There is therefore the need for continuous professional development on the part of our teachers to master the needed competencies to be able to function is an information revolutionized society of today.

The second finding shows that there is no gender advantage on ICTs competencies between male and female teachers this is the basis for acceptance of the null hypothesis, (table 3). This finding is in tandem with findings of similar or related studies (Ofoegbu & Asogwa, 2013; Anieffoik & Ogar, 2013). The former researchers worked in ICTs competencies of lower and middle science and technology teachers, while the latter researchers focused that of senior secondary school teachers. Both studies showed no ICTs preference between the male and female teachers, supporting the position of this study.

Conclusively, The worthiness and potentials of ICTs in education can only be appreciated where teachers are knowledgeable and skilled in ICTs, that is, can boast of the needed competencies in a communication revolutionized education sectors. The adoption of various measures uncovered in this study will go a long way in producing the needed ICTs, friendly teachers that this digital needs respective of sex or gender.

Recommendations

1. There is the need for teachers to increase their ICTs competencies (pedagogical, collaboration, social and health) especially. Any measures that could be opted for that would guarantee needed skills and knowledge in ICTs remain a viable option.
2. Male and female teachers should enforce cooperative and collaborative learning to in ICTs of boost their mutual competencies in the new devices as both sex depend on their usage for meaningful integration.

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