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Reflection on Teacher Education and Information and Communication Technologies (ICTs) Competencies of Inductee Teachers

Dr. Williams, Cheta
Lecturer, Faculty of Education, University of Port Harcourt, Nigeria
Dr. Kpee, G. G.
Lecturer, Faculty of Education, University of Port Harcourt, Nigeria

Abstract:
The empirical survey investigated the ICTs competencies of one hundred and fifty (150) inductee teacher during their induction ceremonies. A validated and reliable questionnaire instrument with a four point scale was used. Two hypotheses guided the study. The analysis of variance (ANOVA and t-test were used to trait the hypothesis. A major finding uses that inductee teachers displayed needed ICTs competencies required of a digital age. Hence it was recommended that teacher education should continue to serve is role models in utilizing and exposing trainee teachers to relevant and required ICTs knowledge and skill. The reasoning is that trainee teachers' mastery of needed knowledge and skill to a great extent is also a function of their exposure to ICTs usage during their teacher education training.

Keywords: Pre-service teachers, professional practice, ICTs integration

1. Background

Teacher education covers education meant to produce teachers that any society needs just as it is a very known fact that no nation rises above the crop of teachers it parades. To this end, teacher education should be given deserved attention by nation that is conscious of its relevance. In Nigeria for instance, there are designated institutions and faculties of education with such statutory mandate; universities of education, faculties of education, colleges of education, Nigeria teachers institute, amongst others are typical examples. To strengthen these institutions are policies as contained in Nigeria policy on education, a Federal Republic of Nigeria (2008) document, the National Teachers Education Policy of the Federal Republic of Nigeria (2009) and even a substantial section of the Teacher's Registration Council of Nigeria (2012) document. The first document indicates a road map for education in Nigeria in general and teacher education in particular. The referred document asserted that no nation can rise above the quality of its teachers, a position that confirms the unwavering attention given to teacher education. The second document contains an eight point agenda that teacher education should be able to address-in tenth the domain of objectives reveal an emphasis in equipping the teacher with relevant knowledge and skill emphasizing information and communication technologies. The national and framework for ICTs and teacher education, Society for Information Technology and Teacher Education has identified basic principles for development of effective ICTs teacher education (SITTE, 2002). These fundamental principles have it that:

→ Technology should be infused into the entire teacher education programme
→ Technology should be introduced in contest
→ Students should experience innovative technology-supported learning environment in their teacher education programme

Teacher education in ICTs and through ICTs are key measures in equipping the clienteles for the challenges of ICTs knowledge and skill (UNESCO, 2002). The former requires exposing trainee teachers to course in basic ICTs knowledge and skill by model educators in ICTs, an approach that will guarantee competencies in ICTs. The latter measure which has to do with teacher education through ICTs advocates on the employment of ICTs as a vehicle for a teacher education programmes, which is to serve as a living proof of the new innovation in teacher education. With these measures in place and as it is shared teacher education is supposed to provide our teachers with the needed ICTs competencies; (pedagogical, collaboration and networking, social and health, technical) (UNESCO, 2002). These competencies, the teacher should possess to be able to function in an age that witnesses high influx of digital devices and tools into our classroom. Pedagogical competencies here focus on skills in the use of words, excel, coral draw, database, PowerPoint presentation, digital audio/video editing, graphic organizers or what are referred to as productivity software (Morrison & Lowther, 2010). Collaborating and networking competencies focus on research software knowledge, basically covering skills in browsing, search engines, plug-ins, communication software (asynchronous and synchronous digital) devices and tool, web 2.0 tools and other social networking skills. Social and health competencies would include skills in copyright laws, respect for intellectual properly, wise choice in the application of ICTs, control of light and sound while handling a system, amongst others. Technical competencies includes ability to identify, handle, and assemble ICTs hardware, store and retrieve information using flash

drives and effecting minor maintenance of ICTs where necessary. These competencies and others are what new graduate teachers should be able to exhibit as evidence that they were readily equipped for their professional calling.

2. Statement of Problem

Teacher education should be able to provide inductee teachers with requisite ICTs knowledge and skills that would guarantee effective ICTs integration on engagement or professional practice. The thinking is informed by the obvious truth that teacher education is the preparatory ground for professional practice and the literacy or fluency of inductee teachers in ICTs competencies are sure evacuation indicators of the worth and relevance of teacher educator programmes. After all, no one that is ill-equipped for the demand of a profession can function well while on the field. It therefore behaves on teacher education to provide would-be-teachers with needed ICTs competencies (pedagogical, collaboration and networking, social and health, and technical, as a mark of fulfillment of societal mandate. To what extent this is achieved is the crux of this survey.

2.1. Purpose of Study
1. To ascertain the level of ICTs competencies among inductee teachers
2. To determine the level of ICTs competencies of male and female inductee teachers

2.2. Research Hypotheses
1. There is no significance difference in the mean (x) values of inductee teachers of three tertiary institutions in their ICTs competencies
2. There is significance difference in the mean (x) values of male and female inductee teachers in their ICTs competencies

2.3. Significance of Study
The study is of immeasurable relevance in the sense that:
1. Inductee teachers will confirm their ICTs competency level which invariably will influence their productivity on engagement
2. The outcome will reinforce, or amend the training of pre-service teachers in ICTs knowledge and skills
3. The outcome will also contribute to the institutionalization of ICTs in teacher education
4. Finally, the study would enable all stakeholders; administrators, educators and learners as will to key into the shared vision of ICTs integration in teacher education.

2.4. Instrumentation
A Likert-like scale instrument tagged Inductee Teachers ICTs Competencies Questionnaire (IT-ICTs CQ) designed by the researchers was used for the study. The four points scale had four reactions (A, B, C, & D), with each section containing only relevant items that matched referred competency. The scale values and their options were (4,3,2 & 1) and Very High, (VH), High(H), Low(L), & Very Low (VL) respectively. The study adopted a criterion mean (x) of 2.50 while a reliability coefficient value of 0.67 was obtained after a test-retest pilot application of the instrument. The validated instrument by colleagues and reliable instrument was administered and retrieved during induction programme for qualified graduate would-be-teachers organized by the Teachers' Registration Council of Nigeria (TRCN).

2.5. Data Analysis
Mean ($\overline{x}$), standard deviation (SD), anova and t-test were used.

3. Presentation of Data

3.1. Methodology

3.1.1. Research Design
The designed was a descriptive survey as it described and presented data in terms of summarized data (Cohen, Manion & Morrison, 2008). From these frequencies, the measures of variability (mean) and dispersion (SD), variance were obtained.

3.1.2. Population of Study
The population consisted of 2015 academic year inductee teachers of three tertiary institutions in Rivers State, Nigeria. These inductee teachers were education graduates who look professional oath as qualified members of the teaching profession during their induction programmes, and have completed their teacher education programmes.

3.1.3. Sample Size
A total of one hundred and fifty (150) inductee teachers were the respondents used in the study. They consisted of fifty (50) from each of the schools with a total of eighty (80) and seventy (70) female and male inductees. This is represented as shown below

Institutions	No	Sex	
A. University of Port Harcourt (Fac. Of Edu.)	50	Male	70
B. Ignatus University of Edu	50		
C. University of Sci./Tech. (Fac. Of Sci. & Tech. Edu.)	50	Female	80

Table 1: Inductee teachers and sex composition

4. Presentation of Data

4.1. Research Hypothesis I
There is no significance difference in the mean (x) values of inductee teacher of three tertiary institutions in their ICTs competencies.

Institutions	A	B	C	Grand mean
Score	125.5	126	127.5	
Mean	2.51	2.52	2.55	
SD	1.57	1.57	1.58	2.53
Variance	122.99	123.48	124.45	

Table 2: Scores, mean, SD and variance

The table 2 above shows values from which F-value (document) calculated was

Variation	Sum of squares	df	Mean Squares	F.-cal	α	F – crit
Between	0.023	2	0.011	0.0002	0.05	3.06
Within	123.6	147				

Table 3: Summary of result showing values of F

➢ Decision: since F – cal < F – crit, null hypothesis is accepted.

4.2. Research Hypothesis 2
There is no significant difference in the mean $(\overline{x})$ values of male inductee and their female counterparts in their ICTs competencies

Gender	No	$\overline{X}$	$\overline{X}$	SD	df	α	t-cal	t-crit
M	70	177.8	2.58	1.58				
F	80	202.4	2.53	1.58	148	0.05	0.038	1.976

Table 4: Mean (x), standard deviation (SD) and F – values

➢ Decision: Since F – cal < t – crit, null hypothesis is accepted.

5. Discussion / Conclusion
Table 2/3 indicate that there is no difference in the men values of inductee teachers' ICTs competencies from the three tertiary institutions. This finding is an overt indication that the inductee teachers have gained the expected ICTs competencies as their mean $(\overline{x})$ values are above the criterion mean of 2.50. They stand at (2.51, 2.52 & 2.55) for institutions A, B and C respectively. Inductee teachers of the academic year were provided the needed knowledge and skills to function other words, they acknowledge the relevance of ICTs in their professional career, the disruptive or what Horn Annskaker, 2010) referred to as innovation to improve schools and Morrison and Lowther (2010) had emphasized with need to integrate computer technology into the classroom in the same way Evans, Martin and Poatsy (2010) acknowledged the action of technology in education. In the same vein there is no preference in ICTs competencies between male and female inductee teacher. Male sexes showed needed competencies – ICTs wise. Not only were their mean values above the criterion mean (2.50), the t – cal < t –crit. This finding has direct relationship with earlier finding as reported (Williams & Adesope, 2016; Charles – Ogan, 2016; Awolua – Efebo, Williams & Aderonmu, 2015).

In conclusion, teacher education can be said to have risen to the challenges occasioned by the digital age of today by providing members with the needed ICTs competencies that would guarantee productivity. Going by this trend, ICTs adoption, application and institutionalization in our schools can be guaranteed, especially now that current graduate teachers display evidence of mastery of needed ICTs knowledge and skill. ICTs integration in our schools has gone beyond more advocacy stage, which is a good indicator of our improved level of acclimatization to the digital world.

6. Recommendation
1. Teacher educators should continue to improve on their ICTs competencies as to increase in their role model of ICTs utilization during trainee teachers' education. The reasoning is that the more this is done, the more trainee teachers get exposed to such relevant and needful knowledge and skill.

2. Male and female graduate teachers should reinforce collaboration and cooperation in their academic relationship for such will guarantee gains in relevant knowledge and skill.

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