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**JOURNAL OF THE
COLLABORATION OF EDUCATION FACULTIES
IN WEST AFRICA**
Vol.2, No.2, 2013



An official Journal of the
Collaboration of Education Faculties in West Africa
(CEFWA)

ISSN 2504 - 8791

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ASSESSMENT OF TRAINEE TEACHERS' LITERACY LEVEL IN INFORMATION AND COMMUNICATION TECHNOLOGY IN KWARA STATE COLLEGES OF EDUCATION, NIGERIA

By

DARAMOLA, F. O. & OLUMORIN, C. O

Department of Educational Technology,

Faculty of Education,

University of Ilorin, Nigeria

florencedaramola@yahoo.com *bodeolumorin@gmail.com*

Abstract

This paper reports an investigation on the literacy level of trainee teachers in information and Communication Technology. The population for the study comprised every student three Colleges of Education located Ilorin, Lafiaji or Oro towns. The random sampling technique was used to select a of sample 360 students across the Schools of Art, School of Natural Sciences in the three colleges. The sampled students were further stratified on the basis of fields of study and gender. A researcher designed instrument (test) tagged Test of ICT Knowledge (TIK) was used for data collection. The test has 100 items. The data collected were analysed using percentages and chi-square statistics. Findings revealed that level of ICT literacy was lowest among trainee teachers offering arts oriented courses than among students of other fields. Considering gender as a variable, the hypotheses tested revealed that the differences in the levels of ICT literacy found among male and female trainee teachers were significant. However, such differences were not found to be significant on the basis of the trainee teachers' course/field of study. Based on these findings, recommendations were made, particularly for the area of improving provision and utilization of ICT facilities in Nigerian teacher education programmes.

Keywords: Literacy, Level, Trainee Teachers, ICT,

Introduction

Information and Communication Technology (ICT) is becoming an all-relevant concept almost in all sectors of life. The University of Queensland (2008) referred to ICT as a term that covers all forms of computer and communication.

equipment and software used to create, store transmit, interpret and manipulate information in its various forms. Webopedia (2010) also defined ICT as the study or business of developing and using technology to process information and aid communication. Around the world, there is tremendous improvement in the awareness of provision and utilization of Information and Communication Technology (ICT) facilities for business and security purposes (Tomei, 1999). Security agents in particular now advance their usage of ICT materials in checking high incidence of insecurity that now pervade the entire world (Brown, 2011). Aside security sector, there are efforts to improve usage of ICT in teaching and learning. But the increasing complexity of content of pedagogical programs in education is making use of ICT in education inevitable.

No doubt, there are tremendous changes in the way we live and in the social and educational demands of the society. In line with the impact of new technology, teachers and educational institutions try to improve stress and to expand academic coverage in terms of quantity of students taught and size of curriculum content covered. With ICT applications, teaching and learning are now conducted in an improved ways that can ensure flexibility in access to knowledge.

The improvements, however, require effective integration of technologies into existing teacher education. The reason for this is not farfetched. Teaching is no longer a manual-based exercise, it is now an exercise that is complex and requires resource-updating that only ICT facilities can provide. ICT teaching materials are now needed to provide learners with specialised knowledge in their chosen subject area. Giving them this learning opportunity will promote meaningful learning and also enhance professional productivity. (Daramola 2011).

ICT education has become a veritable tool for rapid socio-political and economic transformation not only in Nigeria but globally. Thus the emergence of Information and Communication Technology as a facilitator of teaching and learning, at all levels is one ways of ensuring globalization of content of knowledge (Giddens, 2011). Adopting ICT as aids to teaching and learning is in conformity with the Nigerian National Policy on Education. The policy recognises the prominence and role of Information and Communication Technology in advancing knowledge and in acquiring skills necessary for effective functioning in the modern world. Thus, there is urgent need to integrate Information and Communication Technology into education in Nigeria (Federal Republic of Nigeria, FRN 2004). It is therefore, imperative for trainee teachers to have a firm grip of Information and Communication Technology and its impact on the society at large.

The use of Information and Communication Technology in the classrooms is becoming increasingly prominent because of the need for children to develop skills that will empower them for the modern society and because of the potential value of such technologies as tools for learning. In teaching, Information and Communication Technology creates unique electronic communication system. The system enables teachers and students alike to enlarge their share of cognitive set by which they will know what each other is thinking (Cred, 1996). But the

question is; do trainee teacher have adequate knowledge of ICT? No doubt, there is need for stakeholders in education to ensure that graduate teachers have the necessary skills and pedagogical knowledge that will enable them to effectively use today's technologies in the classroom and be able to adapt to more new ICT techniques that may emerge in the future.

Scholars have pointed out that computer application in teaching assists teachers to manage teaching inform of keeping records, creating data and other management functions. According to Herold (1981), computer could be used to diagnose, prescribe and monitor several educational activities. Moyo (1996) on his own part states that advances in Information and Communication Technology have made it necessary for institutions involved in teacher training program to be actively engaged in the use of ICT. This view is further buttressed by Adam (1999), who observed that with the proliferation of computer software in the market, consumers continue to rely on the software vendor for knowledge of not only how to operate the new software but also how to profitably optimise its use.

Mannel (1996) contended that developing countries such as Nigeria cannot afford the business of training ineffective teachers. Nigeria needs teachers who are Information and Communication Technology competent and who restructure and package information for teaching and learning in the classroom. The training of student-Teachers in the use of ICT has become inevitable because of the change in the outlook of teaching and learning. In order to provide the enabling environment for ICT in the training of teachers, it has become a necessity for management of the colleges of education to train and educate their academic and support staff in line with the latest technological advances in the information technology field.

However, Olulobe (2006) observed that there are many trainee teachers in Nigerian colleges of education who are not literate in ICT. The problem is-can this assertion be applied to every trainee teacher in the country. Finding out this is the concern of this study which is designed to find out the ICT literacy level of students of Kwara State colleges of education.

Statement of the Problem

A trainee teacher is simply a teacher in training in an institution that is accredited by relevant authorities to train teachers. In late 1970 and early 80s. Nigeria, we had the teachers' training colleges for the award of grade II teaching certificates. But currently, only colleges of Education and some universities are accredited to train teachers. After undergoing some educational courses theoretically, trainee-teachers are posted to schools to observe school teachers while teaching for a period of time. They are subsequently posted out again for teaching practice during which they actually engage in practical teaching and they are assessed by their lecturers. During this period, they serve as normal teachers engage in all schools activities, while putting into practice all that they have learnt in theory (Bello, 2006). For these reason, there is need to find out their ICT literacy level in order to know to identify areas of necessary intervention for training and re-

etrain.

Ololube (2006) observed that there are many trainee teachers in Nigerian Colleges of Education who are not literate in ICT. The problem arises from whether his assertion be applied to every trainee teacher in the country. This is the concern of this study which is designed to find out the ICT literacy level of students of Kwara State Colleges of Education

Research Questions

1. What are the literacy levels of trainee teachers in ICT
2. What are the ICT literacy levels of trainee teachers in Kwara State Colleges of Education on the basis of gender?
3. What are the ICT literacy levels of trainee teachers in Kwara State Colleges of Education on the basis of course of study?

Research Hypotheses

From the above questions, two hypotheses were generated.

- H01: There is no significant difference in the ICT literacy levels of male and female trainee teachers in Kwara State Colleges of Education.
- H02: There is no significant difference in the ICT literacy levels of trainee teachers in Kwara State Colleges of Education on the basis of their courses of study.

Methodology

This study was a descriptive type of the survey method. The population for the study comprised all students of the Kwara State Colleges of Education located in Ilorin, Lafiagi and Oro towns of the state. Samples were drawn from the population using cluster sampling technique. The students were categorized into Social Science, Arts and Science students based on the relevance of their respective courses of study to the three aforementioned fields of study. To select a sample of 360 respondents for the study, the researchers approached the departmental authorities of the school and sought approval to have access to the students while taking departmental lectures and to administer a test of ICT literacy (IL) on them. 120 students were selected for each category of fields of study as they cluster for lectures related to each field.

The instrument used for data collection was a validated test of ICT knowledge. The test was titled Test of ICT Knowledge (TIK). TIK has 100 items structured as objective questions on various aspects of ICT, the reliability coefficient of 0.73 was found for the instrument using test re-test approach. Each of the item has 3 response option lettered A, B and C.

In assessing the ICT literacy levels of the trainee teachers, this study adopted the ICT Literacy Grading System (ILGS) presented by the Australia Ministerial Council (AMC) for the Education, Early Childhood Development and Youth Affairs (MCEECDYA, 2008). In adopting this, the response of each of the student to each of the items in the test (TIK) was graded, summed up and taking as percentage. However, the grading system presented in Table 1 was further

summarized as High, Moderate and Low level of ICT literacy. The overall percentage score obtained by any respondent was matched with any of the five ICT grade (1-5) adapted from (MCEECDYA 2008). The respondent was placed in accordance with the scheme as follows:

Table 1: ICT Literacy Level Grading Scheme

Overall % score	ICT literacy level	Grading
86-100	5	Very High (VH)
71-85	4	High (H)
51-70	3	Average (A)
50-30	2	Low (L)
0-30	1	Very Low (VL)

Source: Australia Ministerial Council (AMC) for the Education, Early Childhood Development and Youth Affairs (MCEECDYA, 2008).

Thus, to manage to scoring and grading for the main purpose of this study, scores ranging from 71-100 were reclassified as High Score which was applicably used to mean High Level of ICT Literacy (HLIL), scores within the range of 51-70 were classified and used to mean Moderate Level of ICT Literacy (MLIL) and those within the range of 21-30 were re-classified and used to mean Low Level of ICT Literacy (LLIL). The data collected were analyzed using percentages and chi-square statistics.

Results

Research Questions 1:

What are the ICT literacy levels of trainee teachers in Kwara State College of Education?

Table 2: ICT literacy levels of trainee teachers

ICT Literacy Levels		
	N	%
1. High level of ICT literacy	126	35
2. Moderate level of ICT literacy	120	33.33
3. Low level of ICT literacy	114	31.66

Table 2 provided answer to research question 1. Out of the total of 360 sampled trainee teachers, indications from the results on Table 2 gave a total of 126 representing 36% as having high level of ICT literacy, 120 with 33.33% rated moderate while 114 with 31.66% were rated as having low literacy level

Research Question 2: What are the ICT literacy levels of trainee teachers in Kwara State Colleges of Education on the basis of gender?

Table 3: ICT literacy levels of trainee teachers on the basis of gender

ICT Literacy Levels	Male		Female	
	N	%	N	%
1. High level of ICT literacy team	79	45.40	47	25.26
2. Moderate level of ICT literacy	61	35.05	59	31.72
3. Low level of ICT literacy	34	19.54	80	43.01

As shown in Table 3, 45.40% of the sampled male trainee teachers have high level of ICT literacy against 25.26% of female having low level of ICT literacy. On the other hand, while 35.05% of male respondents have moderate level of ICT literacy 31.27% of female were found to have moderate level of ICT literacy. In the same vein, 43.01% of female were found to have low level of ICT literacy while 19.54% of male respondents were found to be low in ICT literacy.

Research Question 3: What are the ICT literacy levels of trainee teachers in Kwara State Colleges of Education on the basis of course of study?

Table 4: ICT literacy of trainee teachers on the basis of course of study

ICT Literacy Levels	Sciences		Arts		Social Sciences	
	N	%	N	%	N	%
1. High level of ICT literacy team	49	40.83	31	25.83	55	45.83
2. Moderate level of ICT literacy	38	31.66	33	27.05	41	43.61
3. Low level of ICT literacy	33	27.5	56	46.66	24	20

The data on Table 4 indicate that 46.66% of trainee teacher offering arts related course have low level of ICT literacy and 25.83% of students in the field have low level of ICT literacy. On the other hand, 27.5% of those in Sciences and 20% of those in Social Sciences have low level of ICT literacy.

Hypotheses Testing

To further find out the statistical significance of results of research questions 1 and 2, the results were subjected to t-test analysis as follow:

H01: There are no significant difference in the ICT literacy levels of male and female trainee teachers in Kwara State Colleges of Education.

Table 5: χ^2 analysis of difference in ICT levels of illiteracy

Variables	High	Moderate	Low	Total	Df	χ^2 cal	χ^2 tab
Male	79 (77)	61 (63)	34 (34)	175	2	12.4	5.99
Female	47 (47)	59 (57)	80 (82)	186			

Table 5 shows that the chi-square calculated value, 12.4 is the higher than the chi-square tabulated value, 3.8. Therefore it was concluded that there were significant differences in the ICT literacy level of male and female trainee teachers in Kwara State Colleges of Education.

Ho2: There are no significant differences in the ICT literacy levels of trainee teachers in Kwara State Colleges of Education on the basis of their courses of study

Table 6: χ^2 analysis of difference in ICT levels of illiteracy

Variables	High	Moderate	Low	Total	Df	χ^2 cal	χ^2 tab
Science	49 (49)	38 (33)	33 (38)	120	4	27.3	9.48
Arts	31 (32)	33 (32)	56 (56)	120			
Social sciences	55 (55)	41 (42)	24 (23)	120			

Data on Table 6 indicated that the χ^2 calculated value, 27.3 is higher than the χ^2 tabulated value. Thus, hypothesis 2 was rejected and it was concluded that there was significant difference in ICT literacy levels of Kwara State Colleges of Education on the basis of their course of study.

Summary of Findings

1. The number of trainee teachers with high ICT literacy level is low compared with the moderate and low levels put together.
2. Higher percentage of male students were found to be highly ICT literate than their female counterparts.
3. Significant differences existed in the ICT literacy levels of trainee teachers based on their course of study.

Discussion of Results

The results derived from the study reveal that trainee teachers in Kwara State owned Colleges of Education have varied levels of ICT literacy. Substantial percentage of male students were found to be highly ICT literate than female students. This implies that, majority of the male students than female trainee-teachers would be able to manipulate or use ICTs for some purposes and they can be described as being very proficient in the use of ICT. However, in regards to the low level of ICT literacy found among female trainee teachers, there is an extent to which the female student teachers and particularly those in arts related courses will be able to display ICT in their professional teachers. This supports the assertion that teachers, their ability and willingness to integrate ICT into their teaching will largely be dependent on the professional training and development which they receive

(William 2003, Selonger & Austion, 2003, Abolade & Yusuf 2005).

Generally, findings indicate that trainee teachers in the colleges of education studied have largely moderate level of ICT knowledge. This result is in line with the findings of Olumorin (2008) which revealed that practicing teachers, particularly those in tertiary institutions have proficient ICT skill and knowledge. The difference in ICT proficiency between these two categories of educationists may be attributed to the fact that lecturer's are more likely able to afford ICT equipment than how students would be able to afford buying such ICT facilities. However, if lecturers are competent on the use of ICT equipment, it can also have some impact on students.

On the influence of gender on the trainee-teachers ICT literacy level, the study reveals that there was significant difference in the level of ICT literacy and use between male and female trainee-teachers. This revealed that sex or gender is a contending factor with regards to ICT literacy and use in Kwara State Colleges of Education. The find is not in line with Olumorin (2008) who reported that both male and female lecturers use computer frequently and that the attitudes of male and female lecturers to ICT equipment did not differ and that the competency level of male and female lecturers did not differ through self-assessment.

Conclusion

Conclusively, the ICT literacy level of trainee-teachers in Kwara State Colleges of Education was more of moderate than being high. Besides, the levels of ICT proficiency or literary among trainee teachers in Kwara State Colleges of Education are significantly influenced by gender and students' field or course of study.

Recommendations

In the light of the findings of this study, the following recommendations were proffer: since the ICT literacy level of trainee teachers were affirmed to be mere moderate, concerted effort should be made by the authorities of Kwara State Colleges of Education to provide adequate facilities. This will definitely make trainee-teachers imbibe the culture of integrating ICT into teaching in the learning and school administrators.

ICT literacy of the trainee teacher should be encouraged so that they will be able to produce instructional software's for their own lessons through self-development programs in the areas of ICT use and integration into educational system. Thus, government should as a matter of urgency established a well equipped e-library, e-learning program and even think of initiating the "one-to-one" student laptop project".

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