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The Integration of ICT-Education in Teacher-Trainee Programmes in Tertiary Institutions in Nigeria

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Abstract

The study sought to determine the relationship between teacher-trainee's rating of perceived challenges from ICT teacher educators, governments' policy makers and their preparedness towards integration of ICT in teacher trainee programmes. The study was carried out in six tertiary institutions in the south-south geo-political zone of Nigeria offering teacher education programmes at the first degree, post graduate Diploma in education and National certificate in education levels. The sample comprised 430 trainee-teachers selected through stratified sampling-technique from the different institutions involved in the study. The instrument used for data collection was the researcher-made questionnaire. The data collected was analysed using chi-square at 0.05 alpha level of significance. Reliability of the instrument was determined using the Cronbach Alpha and the reliability coefficient was 0.86. The results among others, indicated that there is a significant relationship between the teacher trainees' perceived challenges from the government, teacher-trainee educators and individuals' ability and

their preparedness for integration of ICT in teacher-trainee programmes. The implication is that the policy and decision makers in government must review and implement curriculum guidelines and policies to harness teacher-trainees preparedness for effective integration of ICTs in teacher-trainee programmes.

Introduction

Teacher education is simply the molding and updating of the teacher to teach his students effectively and efficiently to enable the student gain control of and be of relevance to his environment and society. The importance and worth of the teacher in our educational system cannot be minimized, whether in the traditional sense or in the modern technological approach. Teachers “serve as change agents and much of the responsibility for a successful integration of technology into daily teaching anchors on their prowess (Achuonye, 2001). Achuonye’s submission certainly argues for a committed implementation of the educational policy achievable through effective teacher education. Teacher education is that sector of education that concerns skills acquisition whether applied or theoretical which the teacher gains so that he can in turn influence his students and the society by extension for the social, economic and political upliftment of the society.

Subsequently therefore, teacher education according to National Policy on Education (2004) amongst others aims at:-

- Enhancing teachers’ commitment and productivity in the profession through adequate intellectual and professional advancements and maximized self confidence.

ICT as a new innovation within the Nigerian school setting has the potentials for such professional advancements. The National Policy on Education (1998) anticipated such development and so recognized the need for teachers to be abreast with emerging developments that may impact both on the teacher and the school system.

In Nigeria teacher education is provided in Colleges of Education, faculties and institutes of education and universities, National Teachers Institutes and Schools of Education of Polytechnics. The minimum qualification for teaching is the Nigeria Certificate in Education (NCE), (FRN, 2004). Nigerian teacher education institutions recognize the usefulness of the ICT in this contemporary knowledge age hence the inclusion of ICT components in Teacher Education programmes of universities, COEs and Polytechnics. The

course contents include, meaning and types of the computer, historical development of computer, classification of computer, basic computer operation, introduction to word processing and so on (NUC, 2004).

Fortunately, the Federal government of Nigeria has put in place plans to ensure such advancements. For instance according to Eweremadu (2001), the government aims to:

- Integrate internet into the education process
- Produce and employ 500,000 ICTs professional, set up satellite communication networks to provide access to internet.

Governments already recognize that the rise or fall of any educational system depends largely on the teachers.

Statement of the Problem

The unfortunate state of the arts is that most lecturers of tertiary institutions do not have competencies in the use of integration of ICTs in instruction. Being earlier taught themselves without ICTs in instruction. “They cannot model good use of technology” (Idowu, Adagunode & Popoola, 2003). Apart from limited funds and lack of standard laboratories for training teachers, the national policy has not given clear directions on integrating ICTs in schools. The content and strategy of ICT is based on a single course model (Anderson & Baslan, 2002; Krishner & Selinger, 2003). The lopsided and lip service commitments of Nigerian government in funding and promoting ICTs programmes can easily be identified as one horrifying challenges in the part of ICT integration in teacher education (Asogwa & Igbokwe, 2010).

Programmes designed for trainee teachers should prepare them for developments in the application of ICTs in education to advance their profession. Generally speaking teacher training institutions in Nigeria should, but do not, adequately provide for future teachers of ICT. This is evident from the kind of learning experiences currently obtainable in classrooms. Teachers require requisite knowledge and skills to be able to use ICT effectively in classrooms. The teacher needs to be comfortable and adequately prepared for effective use of ICT equipment in the classroom. It is obvious that the teachers would have to cope with some challenges regarding the integration of ICT in education. This warrants the need for this study to examine the teachers rating of perceived challenges from relative arms responsible for the implementation of the integration plan.

Objective of the Study

1. To investigate the relationship between teacher-trainees' rating of perceived challenges from governments ability to provide an ICT learning environment and their preparedness towards integration of ICT in teacher-trainee programmes.
2. To determine the relationship between teacher-trainees' rating of perceived challenges from ICT teacher educators and their preparedness towards integration of ICT in teacher-trainee programmes.
3. To examine the relationship between teacher-trainees' rating of perceived challenges from their individual abilities at becoming ICT literate teachers and their preparedness towards the integration of ICT in teacher-trainee programmes.

Hypotheses

1. There is no significant relationship between teacher-trainees' rating of perceived challenges from governments' ability to provide an ICT learning environment and their preparedness towards integration of ICT in teacher-trainee programmes.
2. There is no significant relationship between teacher-trainees' rating of perceived challenges from ICT teacher educators and their preparedness towards integration of ICT in teacher-trainee programmes.
3. There is no significant relationship between teacher-trainees' rating of perceived challenges from their individual abilities at becoming ICT literate teachers and the integration of ICT in teacher-trainee programmes.

Methodology

The study adopted a survey research design in order to investigate the teacher-trainees' rating of perceived challenges from the integration of ICT in teacher-trainee programmes in tertiary institutions.

Area of Study

The study was carried out in universities and colleges of Education in the south south geo-political zone of Nigeria. The zone comprises Akwa Ibom, Cross River, Delta, Bayelsa, Rivers and Edo States. It lies between latitudes 4° 3 and 7° North of Equator and Longitudes 7° 30 and 0° 30 by Kogi,

Anambra, Imo, Abia, Enugu and Benue States; to the East by the Republic of Cameroon, to the South by the Atlantic Ocean, and to the West by Ondo State. There are four Federal Universities and five Colleges of Education in the zone – the zone is located in the tropical rain forest of Nigeria and is blessed with abundant, human and natural resources. It hosts the oil producing states of the country.

Population and Sample of the Study

The population of the study comprised all trainee teachers of tertiary institutions in the south-south of Nigeria.

Sample: The sample comprised 450 trainee-teachers selected through stratified sampling technique from the different institutions involved in the study. The institutions were purposively selected on the basis of highest in population of trainee teachers registered for the 2008/2009 school year. These include:

- University of Uyo, Uyo, Akwa Ibom State
- University of Port Harcourt, Rivers State
- University of Calabar, Cross River State
- College of Education, Afaha Nsit, Akwa Ibom State
- Federal College of Education, Imo State
- Federal College of Education, Akamkpa, Cross River State

Instrumentation

The instrument used for data collection was the researcher-made questionnaire. A total of 450 questionnaires were administered. In the process of retrieval and collation, 435 copies were returned and duly filled. The instrument elicited responses from trainees on their ratings of challenges expected from integration of ICT in teacher-trainee programmes. The challenges were arranged under the main variables including: (i) government's ability to provide an ICT learning environment; and (ii) ICT educators' ability to provide ICT literate teachers and the trainee's individual ability to become computer literate teachers.

Scoring

The questionnaire was designed on a rating scale of Highly Challenging (HC), Challenging (C) Fairly Challenging (FC) and Non-Challenging (NC) with nominal values assigned to the response categories as 4, 3, 2, and 1 respectively.

The response items were collated based on the total score of each respondent per variable. As such the total score was then divided by the number of items for each variable. The answer was then placed on an interval scale as presented below with a minimum and maximum score:

HC: 4.0 and above

C: 3.0 – 3.99

FC: 2.0 – 2.99

NC: 1.0 – 1.99

Consequently the total number of respondents that fell under each category of teacher trainees' responses provided required data for the analysis considering the different levels or teacher education programmes.

Validation and Reliability

In order to ensure the validity of the instrument, the draft copies were given to two expert committees of the teacher education programmes from two universities of the south-south region of Nigeria. Reliability of the Instrument was determined using the Cronbach Alpha reliability co-efficient and a value of 0.86 was obtained from data collected through test re-test method.

Data Collection

The instruments were administered by the researchers in addition to five other research assistants from various universities selected for the study. These assistants were lecturers (teacher trainees) of final year faculty courses in various institutions.

Method of Data Analysis

The data obtained were analyzed using chi-square at 0.05 significant level.

Results

The result in Table 1 shows that the calculated χ^2 value of 15.258 is greater than the critical χ^2 value of 12.592 at 0.05 level of significance with 6 degrees of freedom. Thus the null hypothesis is rejected. In other words, teachers' preparedness depends on their rating of perceived challenges from governments' ability to provide computer literate environment.

The result in table 2 shows that the cal χ^2 - value of 19.768 is greater than the cri χ^2 value of 12.592 at 0.05 level of significance with 6 degrees of freedom.

Thus the null hypothesis is rejected. In other words, teacher trainees' preparedness for integration of ICT depends largely on their rating of perceived challenges from educators.

The result in table 3 shows that the calculated χ^2 value of 33.331 is greater than the critical χ^2 value of 12.592 at 0.05 level of significance with 6 degrees of freedom. Thus the hypothesis is rejected. In other words, teachers' preparedness depends on their rating of perceived challenges from their individual ability to become computer literate teachers.

Discussion

The result reveals that there is a significant relationship between teacher-trainees' perceived challenges from the government and their preparedness for integration of ICT in teacher trainee programmes. This situation forms a suitable basis for the implementation of the lofty goals of the Federal government to improve on ICT literate environment. For instance Eweremadu (2001) points out that the Federal government has as one of its major goals to train 500,000 professionals as information and communication network experts. Idowo, Adagunode & Popoola (2003) also shared the same view that the Federal government has intention to connect the nation to the information technology highway and even to the extent of setting up a body named National Information Technology Development Agency (NITDA).

However Asoqwa & Igbokwe (2010) confirm the governments' approach to the implementation process as being a lopsided and lip service commitment of the Nigerian government. The government needs to set the pace as teachers' preparedness and cooperation in the implementation process is anchored on government's ability to facilitate an ICT learning environment.

The study further reveals that, there is a significant relationship between teacher trainees' perceived challenges from the teacher-trainee educators and their preparedness for integration of ICT. This is in agreement with FRN (2004) Policy on Education; teacher education shall continue to take cognizance of changes in the methodology and in the curriculum. But instead of issuing clear directions on integration of ICTs in schools, the government only made some superficial reference to education at the level of stating mission goals and strategy. This situation cuts across the different levels of teacher education in Nigeria.

It is clear here that the educators are not properly guided and as such cannot function effectively in the integration process. To worsen the situation,

Idowu, Adagunode & Popoola, (2003) further argue that educators being earlier taught themselves without ICTs 'they cannot model good use of technology'. Anderson & Baskin (2002) and Obunadike (2010) sum these up as they declare that with lack of funds at the tertiary institutions and lack of terms of reference for integration of ICT at the classroom level, the educators do not have the knowhow for assessing, processing, gathering, manipulating and presenting or communicating information which involve the usage of software, hardware and even connectivity.

The study further revealed a significant relationship between trainees rating of perceived challenges from their individual ability at becoming computer literate teachers and their preparedness for integration of ICT in teacher education programmes. Achuonye (2001) supports this relationship with the fact that teachers serve as change agents and much of responsibility for a successful integration of technology into daily teaching anchors on their prowess. The trainees' position on the issue of integrating ICT in teacher education programmes is very important and should be addressed.

Recommendations

- (1) The policy and decision makers in Government must implement those policies and decisions that favour literacy in the ICTs particularly provision of infrastructure and ICT components in schools.
- (2) ICT has to be integrated into the teacher education programmes to ensure their preparedness to adopt its use at the classroom level.
- (3) A standard planned ICT course curriculum for teacher education programmes should be developed and maintained to ensure that graduates of teacher training programme are professionally competent on completion of the programme.

Conclusion

Teachers should be encouraged to develop more confidence in their individual ability at becoming computer literate teachers in order to buttress the efforts of the government and educators' ability to provide ICT learning environment. Thus the government as the pace setter needs to work hard at finding solutions to the problems that pose these challenges. Their commitment and overall involvement dictate the performance of the educators and subsequently an improvement in the learning environment.

This will further enhance trainees' preparedness for integration of ICT in teacher education programmes.

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Table 1: Chi-square Analysis of teacher trainees' rating of perceived challenges from governments' ability

N = 435

Teacher trainees different academic levels	Rating of perceived challenges from governments ability to provide computer literate environment as a determinant of trainees preparedness for integration of ICT in teacher education				
	Highly Challenging	Challenging	Fairly Challenging	Non Challenging	Total
NCE: Observed	58	54	31	11	
Expected	61.954	49.563	27.614	14.869	154
BA (ed): Observed	63	47	30	10	
Expected	60.345	48.276	26.897	14.483	150
PGDE: Observed	54	39	15	23	
Expected	52.701	42.161	23.490	12.648	131
Total	175	140	76	44	435

df = 6; 0.05 alpha level; cal $\chi^2 = 15.258$; cri $\chi^2 = 12.592$

Table 2: Chi-square Analysis of teacher trainees' rating of perceived challenges from teacher-trainee educators N = 435

Teacher trainees different academic levels	Rating of perceived challenges from teacher-trainee educators ability to produce computer literate teachers as a determinant of trainees preparedness for integration of ICT in teacher education				
	Highly Challenging	Challenging	Fairly Challenging	Non Challenging	Total
NCE: Observed	65	32	30	27	154
Expected	55.22.758621	47.79310345	26.19770115	24.7816092	
BA (ed): Observed	40	59	21	30	150
Expected	53.79310345	46.552	2.285	24.1379	
PGDE: Observed	51	44	23	13	131
Expected	46.979	40.655	2.285	21.081	
Total	156	135	74	70	435

df = 6; 0.05 alpha level; cal $\chi^2 = 19.768$; cri $\chi^2 = 12.592$

Table 3: Chi-square Analysis of teacher trainees' rating of perceive challenges from individuals' ability N = 435

Teacher trainees different academic levels	Rating of perceived challenges from teachers trainees' individual ability to become computer literate teachers as a determinant of trainees preparedness for integration of ICT in teacher education				
	Highly Challenging	Challenging	Fairly Challenging	Non Challenging	Total
NCE: Observed	22	40	68	21	154
Expected	22.65747126	35.75632184	55.5816092	40.00045977	
BA (ed): Observed	19	23	55	53	150
Expected	22.06896552	34.82758621	54.1379310	38.96551724	
PGDE: Observed	20	38	34	39	131
Expected	19.27356322	30.41609195	47.28045977	34.02988506	
Total	64	101	157	113	435

df = 6; 0.05 alpha level; cal $\chi^2 = 12.592$; cri $\chi^2 = 33.331$