

Mozambiqu.Ink **E-Learning in the 21st Century Open and Distance Education in South East Nigeria: Teacher Educators' Competencies.**

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Abstract

The universal basic education programme which encouraged the education of every Nigerian child irrespective of gender, religious affiliation, social background or ethnicity, will increase the number of enrolments in schools; however, the paucity of teachers constitutes the major challenge to meet the manpower needs of 1:25 teacher-pupil ratio. Open and Distance Education have become an important innovation for the training of teachers. The present programmes encouraged the use of tutorial support system and the use of ICT to improve the tutorial support system. This study determined the teacher educator competencies in the use of E-Learning which has a great support for distance education. Three research questions ascertained the availability or otherwise of the resource materials for the E-Learning, the functionality of the resource materials and the competencies of the teacher educator in the use of the resource materials. The study utilised a survey design to determine the teacher educator competencies in E-Learning. The alternate sample technique was used to sample 25 out of 50 study centres in the South East Nigeria where 750 teachers in the programmes were used. The instrument for data collection was a twenty five item structured questionnaire rated on a Likert four point scale. The questionnaire was validated using content and face validity. The data were analysed using the simple mean. Teacher educator competencies from teachers in the Distance Education were compared with their counterparts in the Open Education using a Chi square. The result of the findings showed that prerequisite resource materials (hardware, software, the internet) essential for the E-Learning were unavailable. In some centres a mean score of less than 2.0 showed that the available computers were not functional and unconnected to the internet. A mean score of less than 1.8 equally indicated that the teacher educators lacked competencies in E-Learning literacy skills and its usage in teaching. This paper noted that the vision and mission of teacher education can be accomplished through an urgent need in the training of teacher educators in the use of E-Learning, because the pupils who are the inherent the graduates of Open and Distance education will teach are gradually becoming ICT compliant. The implications of the results were discussed and advocated that the changing Africa cannot change without the 21st century technology. A rapid E-Learning training to reposition Nigeria for the 21st century technology is needed.

INTRODUCTION

Education is and will remain the basic catalyst that will bring about the development of the individual in particular and the society in general, thus Federal Government of Nigeria through the National Policy on Education reiterate **“that education is an instrument for excellence through which sustainable national development can be achieved”** (FRN 2004:4). To attain sustainability for national development, measures have been put in place both at the national level and the world at large on ways to encourage access to education. They include among others:

- The Jomtien World Conference on Education for All (EFA) held in Thailand 5th-9th March (1990).
- The EFA 2000 declaration, the Dakar frame work for Action and Millennium Development Goals (MDGs).
- Article 26 of universal declaration of Human rights by the United nations, 1948 are some of the global measures taken to ensure accessibility to education.

Back home in Nigeria, Government has demonstrated its acceptance and commitment to the International convention of Education for all (EFA) by becoming a signatory to the Jomtien (1990) EFA conference. Ajayi & Obanye in Nwabuani (2010) noted that Nigeria is equally a signatory to the OAU declaration of Education in Africa, (1997-2000) and the New Delhi declaration on E.9 countries of the world. The government’s signatory to the declarations has been contextualized in to the Universal Basic Education (UBE). The Universal Basic Education programme encouraged every Nigerian child irrespective of gender, religious affiliation, social background or ethnicity access to education. This programme, if properly implemented, will bring an increase in the enrolment of children in school. EFA global monitoring report (2006) already noted that by 2002 the enrolment of primary school children in Sub-Saharan Africa rose from 7.4% to 11.2% and it is expected that by between 2000 and 2015, it will rise to 32%. In Nigeria, for instance by 2002, the gross enrolment was 12% while the net enrolment was 80%. According to the global monitoring report, countries with GER of 100% and above shows that they have the capacity to accommodate all children of school age while if there is a discrepancy between the DER and NER, it indicates that children do not progress regularly through grade and the systems internal efficiency could be improved.

The system’s internal efficiency needs improvement in the area of training enough quantity quality and of teachers that can meet with the challenges of manpower need of 1:25 Teacher- Pupil

ratio as prescribed in the National Policy on Education. It is not an understatement to note that in some schools especially in the urban areas since the introduction of UPE, 6334 and UBE, Teacher-pupil ratio has risen between 1:40 to 1:60. Statistical data from the National Teachers' Institute (NTI)(2005) shows that 40million Nigerian children are of school going age and the Colleges of Education in the country cannot cope with the teacher demand for the UBE programme. The rapid education expansion did not put into consideration corresponding increase required in quantity and quality of teachers. This, to a great extent, determined the method of instruction used in the Nigerian school system. Schaffer, 1993) thus observed that education in the developing world has a leap in quantity and deterioration in quality.

The Federal Government in order to ensure quality and quantity in the education of her citizenry, and also yield to the yearnings of the masses who desired to be educated, but had no access to conventional institutions of higher learning, granted authority to bodies other than the Colleges of Education and the Faculties of Education in the Nigerian University, to run open and distance education thus the NCE by DLS run by the National Teachers' Institute Kaduna(NTI) and a Bachelors' degree up to masters level by National Open University of Nigeria(NOUN) Abuja.

Open and Distance Education

The open and distance education is an important innovation in the Nigerian Educational System. It is a mode of teaching in which the learners are removed in time and space from the teacher. It uses varieties of media and technology to provide and /or improve access to quality education for a large number of learners wherever they may be. Delling in Yaya(2005) sees distance education as a process, in which the distance between the learner and the helping organisation is bridged by an artificial signal carrier. The signal carrier according to Keegan(1990) facilitates communication between the learner and the teacher using devices such as the print, electronic and mechanical.

The goals of the distance education according to the National Policy on Education FRN (2004) include among others:

- To provide access to excellence in education and equity in educational opportunities for those who otherwise would have been denied.
- Meet special needs of employers by mounting special certificate courses for their employee's at their work place.
- Encourage internalization especially of tertiary education curricula.

- ameliorate the effect of internal and external brain drain in tertiary institutions by utilizing Nigerian experts as teachers regardless of their locations or places of work (pg. 45)

Although the goals of open and distant education are the same, but the modus operandi of the operating bodies, the National Teachers' Institute and Noun seem to differ and have been considered not synonymous. The differences in distance education by NTI and the open and distance education by NOUN were identified in. Yaya (2005) the differences are characterized by

National Teachers' Institutes distance education is restricted thus:

- User-friendly self-study materials
- Admission is restricted to those that possess the minimum standards.
- Choice of courses is restricted in spite of the course credit system.
- Attendance at face to face contacts at studying centres is compulsory.
- There is only one entry date
- Opportunity to leave and re-enter the programme when convenient is restricted
- Courses materials are mass reproduced, highly structured and uniform.
- Time table, programme of activities and curriculum are uniform

The curriculum is virtually the same as the conventional Colleges of Education

The open and distance education on the other hand is characterized by

Open entry

Individualized learning

Self assessment

Self pacing

Many start dates

From the characteristics outlined above, the distance education has restriction more than the open and distance education. In this study, the National Teachers' Institute(NTI)is synonymous with distance education and National open University of Nigeria(NOUN) is synonymous with the open and distance education. The NTI runs the NCE and Post Graduate Diploma in Education while NOUN runs the degree and Post Graduate Diploma in Education. The areas of differences is not a major area of emphasis for this study rather areas where they have similarities.

Major similarities in the two programmes are that they make use of part time teachers. These teachers according to the NTI and Noun handbooks are expected to serve as academic guide and mentors to the students by holding regular meetings and individual interviews with the students and be familiar with their students' background and individual problems as effective tutorial support can readily make up for the draw backs in print medium. Mugride (1991) observed that correspondence instruction is not an easy method of learning as such there must be an instructor who is in a continuous tutorial relationship with the correspondence student. The teacher is the daily monitor and motivator of the distant student and should maintain communicative competence with the learner. The use of staff and other experts who have different competencies in distant education was recommended.

Another important factor in the NCE/DLS and NOUN that make the two programmes synonymous is in the area of instructional delivery thus:

- The media utilized is cost –effective and flexible enough to take advantage of the huge amount of global knowledge, which to a large extent currently resides on the internet world wide web(www).
- Printed material by correspondence is the most basic method of delivery,
- Use of audio tapes, videotapes and CD-ROMS will complimentary media based on user preference.
- Special and properly scheduled radio and television educational programme will play a major role in the delivery of distance learning.
- Use of information and communication technology (ICT) to provide learners with access to the internet. Wireless communication system such as microwave radio and VSAT will be used in each study centre. These materials are supposedly in use for teaching and learning in the study centres.

Other modes of deliveries according to Terhemba(2007) online / traditional face to face tutoring.

E-Learning and E-learning Resource Materials. The concept E-learning has been described as learning that is supported and facilitated through the use of Information and Communication Technology. E-Learning according to LTSN Generic Centre(2002) involves the use of web based networked technologies, a virtual learning environment (VLE) that provide online environment that

supports teaching and a managed learning environment that links corporate systems such as students records system, library management system, finance management system so that data is integrated and shared across systems. This is peculiar to administrative staff that may wish to monitor or keep record of students' profile. E-learning as seen by Tinio(2009) encompasses learning at all levels both formal and informal that uses an information network- the internet, an intranet(LAN)or extranet(WAN) for course delivery, interaction and or facilitation. It can also be described as online learning. .

E-learning enhances students learning and encourages access to widening participation of the learners. It also improves flexibility and communication between teacher and learner and learner and learner(Ololube, 2006 101-118)

The development and emergence of e-learning according to wikipedia provides challenges for the providers of on-line courses in the development of effective pedagogy. A key facet to the emergent pedagogy is the role of the on-line tutor include e-moderation, E-tutoring ,E-mentoring, E-coaching and E- publishing. These are ways of helping students with exercises, organizing on-line group work, coaching students in more project-oriented designs. All these are part of a modern view of tutoring. Barriers to teacher competency range from lack of motivation for staff development programme to technological phobia and absence of resource materials and equipment. Ololube, ubogu& Ossai (2010) observed in a survey conducted in 2004& 2006 respectively, that Nigeria ranked 90th out of 115 countries that use ICT. . Hennesy, Harrison &Wamakote (2010) attributed the barrier to Nigeria's ICT acquisition to shortage in power supply.

In E-learning, the facilitator can combine two or more methods of teaching. A typical example is the blended learning methodology which is a combination of technology-based materials and face-to-face contact to present content. An instructor can begin a course with a well-structured introductory lesson in the classroom, and then proceed with follow-up materials online. Blended learning can also be applied to the integration of e-learning with a Learning Management System using computers in a physical classroom, along with face-to-face. Guidance is suggested early in the process, to be used more sparingly as learners gain expertise

Computer assisted instruction and computer merged instruction such as the electronic mail, fax, video conferencing, world wide web application, Multimedia are some of the learner support E-learning resource materials in distance learning. Above all the resource materials outlined are 21st century pedagogical resource materials that will not only enhance teaching and learning but will to a great extent minimize adverse effect on the limitations face to face contact may have on the distance learner.

The primary and secondary school learners whom the products of Open and Distance Education are expected to teach are described as digital natives as such products of Open and distance education should be literate in the use of information and communication technology, especially as most school curriculum support the design of instructional resources using ICT. Liverpool, Marut, Nelam and Oti (2009) observed that today, technology enhanced learning, including distance and online instruction, are recognized as a viable tool necessary for preparing citizens to participate in the technologically driven global environment.

This paper examines the extent the distant learners are being prepared to meet the challenges of the 21st century E learning which is dependent on a lot of factors such as availability of resource materials, adequacy and functionality of the resource materials and the competency of teacher educators in information and communication technology.

Purpose of the Study

The growing increase in school enrolment through the universal basic education (UBE) has necessitated alternative training strategies especially for individuals who did not have opportunity to attend the conventional higher institution thus the open and distance education. The open and distance education operate three educational programmes namely the NCE/DLS, Degree/DLS and Post Diploma/DLS in education courses. The products of these programmes are expected to teach learners in the UBE programme..

The 21st century pedagogical strategies encourage the use of E learning especially as 21st century learner has been described as digital natives who are growing alongside the 21st century technology. The need arises to examine the availability, functionality of the technologies used in preparing the distant learners and the competencies of the course tutors in the use of the technological tools for teaching. Three research questions guided the study:

1. To what extent is E Learning resource materials available in the selected study centres used for distant learning?
2. To what extent are the E Learning resource materials adequate and functional?
3. To what extent are the course tutors competent in the use of the E learning resource materials?

HQ1: There will be no significant difference between NCE/DLS course tutors competencies in the use of E learning resource materials and that of their counterpart in NOUN.

RESEARCH METHODOLOGY

The study utilized a survey design to ascertain the availability, adequacy and functionality of E learning resource materials and competencies of the course tutors in the use of the E learning resource materials in the selected study centres. A 25 item structured questionnaire developed on likert four point scale was used for the study. The questionnaire was validated using content and face validity by experts in information and communication technology department and experts in distance education with appropriate modification in the content validity. Data were analysed using the mean and to answer the research questions, while chi square was used to test the null hypothesis ,The area of the study comprise of all open and distance education centres in the South East of Nigeria. NCE/DLS has 46 while NOUN has 4 making a total of fifty study centres. The 4 study centres used by NOUN were used for the study. Alternative sampling technique was used to sample 21 out of 46 NCE/DLS study centres. A total of 25 study centres were used for the study. 21 NCE/ DLS and 4 from NOUN.

Population of the study: Consists of all the course tutors in the open and distance education with a total number of one thousand two hundred and ten (1, 210) for the NCE/DLS. Using the alternate sampling technique already used to sample the study centres, all the five hundred and fifty course tutors in the centre were selected while all the 200 course tutors in the 4 NOUN were selected. 750 course tutors from the two programmes were used.

Table 1.1 Sample size of study centres and course tutors in NCE/DLS and Noun

State	Study Centre			Course tutors		TOTAL
	NOUN	/ NCE/DLS		Noun	/ NCE/DLS	
Abia	1	11	5	48	88	136
Anambra	1	11	5	52	123	175
Ebonyi	-	5	2	-	68	68
Enugu	1	12	6	68	140	208

lmo	1	7	3	32	131	163
Total	4	45	21	200	550	750

Research Question 1: To what extent are E- learning resource materials, equipment and facilities available in the study centres.

Table 2 shows the mean score responses on the e-learning resource materials available at the study centres

STATEMENTS		SA	A	D	SD	TOTAL	\bar{X}	D
1	Compact disc and computers	320	384	330	377	1411	1.88	R
2	Web based modules	164	300	256	480	1200	1.6	R
3	Interactive television and radio broadcast services are available	48	164	412	450	1074	1.43	R
4	Satellite and internet server	200	184	428	394	1206	1.16	R
5	Use of interactive electronic board	132	132	444	456	1164	1.55	R
6	Power supply	400	405	330	350	1485	1.96	R
7	Equipment room.	60	75	420	500	1055	1.41	R
8	Radio/,cassettes/CD RM	1400	972	108	22	2566	3.42	A
9	Use of print material(modules/reference books	1600	852	96	18	2568	3.42	A
Grand Mean							2.02	

A grand mean of 2.02 in Table 2 shows that the ICT based resource materials, equipment and facilities were not available at the study centres. However a mean score of 3.42 and 3.34 respectively indicates availability of radio cassettes and CD ROM and print materials such as the modules and reference materials.

Research Question 2. To what extent are the E-learning resource materials, facilities and equipment adequate and functional?

Table 3: shows the mean scores of respondents on the functionality and adequacy of resource materials, equipment and facilities.

S/no	STATEMENTS	SA	A	D	SD	T	\bar{x}	D
11	Compact disc and computer based resources	88	144	384	488	1104	1.47	R
12	Interactive television and radio broadcast services	60	114	400	497	1071	1.43	R
13	Web based modules	120	120	360	500	1100	1.47	R
14	Interactive electronic white board	48	54	240	600	942	1.26	R
15	Power supply	120	102	212	580	1014	1.35	R
16	Accommodation for technological equipment	180	129	400	462	1171	1.56	R
17	Satellite and internet server	70	66	240	540	918	1.22	R
18	Print materials (modules and reference materials)	1400	735	164	72	2371	3.16	A
19	Radio cassettes and CD ROMs	280	261	510	328	1379	1.84	R
	Grand mean						1.64	R

The result in Table 3 shows that a grand mean of 1.64 from the respondents indicates that the available resource materials, facilities and equipment were inadequate and not functional. A mean score of 3.16 shows that the only resource materials that is not in short supply is the modules and reference materials.

Research Question 3: To what extent are the course tutors competent in the use of E- learning resource materials in lesson delivery?

Table 4 shows course tutors' competency in the use of E-learning resource materials in lesson delivery.

s/no	STATEMENTS	SA	A	D	SD	T	\bar{x}	Decision
19	Teaching e-tutorial	48	48	440	502	1038	1.38	Rejected
20	E-mentoring / coaching	56	54	400	518	1028	1.37	R
21	E-collaboration skills	32	60	164	640	896	1.19	R
22	E-moderation	40	42	176	638	896	1.19	R
23	Internet /e-mail	600	300	400	300	1600	2.13	R
24	E-publishing	72	48	152	640	912	1.22	R
25	Plan lesson using digital resources	56	66	176	626	924	1.23	R
Grand Mean							1.39	R

The result in Table 4 shows that the course tutors are not competent in the use of E-learning resource materials in lesson delivery. A mean score of 1.39 from the respondents show a strong disagreement on the competency level of the course tutors in the use of E-learning resource material

HQ1:

Table 4. Course Tutors competency in the use of E-learning resource materials.

Row	Col	Df	LS	X ² CAL	X ² CRIT	Probability	Decision
12	4	3	0.05	734.42	43.27	0.00	Reject null

In Table 4 the null hypothesis was rejected because the p(0.00) is less than the level of significance of (0,05). The computed χ^2 (734.4) is greater than the critical χ^2 (43.77)

SUMMARY OF FINDINGS.

ICT Resource materials, equipment and facilities were in very short supply both the NCE/DLS and the NOUN study centres.

Available resource materials such as computers, radio cassette, facilities and equipment were not enough and were not functional to meet the demands of the distant learner.

Course tutors lacked competency in the use of E-learning resource materials.

The null hypothesis was rejected because the computed χ^2 value 734.2 is greater than the critical $\chi^2_{43.77}$. indicating a significant difference in the competency skills between course tutors in NCE/DLS and their counterparts in NOUN.

Discussion of Findings.

The result on Table 2 shows the findings to Research Question 1. Apart from radio cassettes and CD ROMS, resource materials used in teaching were basically the module. It is pertinent to note that distance education according to the National policy on Education (2004) is a lifelong learning which includes different categories of people such as those who were deficient in school and wish to remedy their deficiencies,. Modules and print materials may not be as effective as ICT based materials, which will not only expose the learner to teacher-learner, learner-learner interaction, but will enable the learner collaborate, communicate, create and think critically before constructing new knowledge. Module and print materials encourage memorization and regurgitation of information. which according to Rodgers ,Runyon, Starrett and Holzen(2010) do not agree with the 21st century learner who is a multi-tasker that uses sound and images to convey contents. The use of the modules with limited face to face contact may not give the desired result when compared to the blended learning approach.

The quality of instruction using ICT far more outweighs the traditional tutorial model which is predominantly used in open and distance education programmes in Nigeria. The advantages associated with ICT may compel distant learners who are employed to buy their own computers and access information from the course tutors or fellow students online.

A mean score of less than 2 shows that infrastructure where the ICT materials were supposed to be stocked or displayed for use were unavailable. The few that were available

were not kept in good conditions or were originally not meant for ICT materials. This is true of study centres that use secondary schools as contact centres. Resource materials were housed in loaned apartment by the host schools. This in essence defeats the idea of ICT for distance learning. ICT materials are not only sensitive but in most cases very fragile. There is need for appropriate rooms and buildings to house the technological equipment and resource materials. Proper electrical wiring, heating/cooling and ventilation and safety and security measure should be ensured to avoid contamination with virus. The near absence of ICT in the open and distant learning centres confirms Ololube(2010) et al observation on the unpreparedness status of Nigeria in using ICT in teaching and learning.

Research Question 2 sought to find out the adequacy and functionality of the Resource materials, equipment and facilities. Table 3 shows that with a grand mean score of 2, the ICT materials were not enough. Twenty computers per centre as stipulated in the Open and distance education Handbook does not encourage, individualized learning/ constructivism which is the hallmark in distance learning. Adequate and functional ICT materials will enable and encourage learner's flexibility to learn when it is suitable. Again, it encourages construction of new idea or concepts from past knowledge. Access to information from E-books and E-journals can be meaningful if there is enough resource materials such as the computers and the internet.

Power supply seems to be the biggest problem that affects the use of the ICT materials. Hennessy, et al(2010) had earlier pointed out that one of the barriers to ICT use by teachers in the Sub Saharan Africa range from physical and cultural factors to lack of reliable access to electricity and limited technology infrastructure which is as a result of political will to alleviate the situation through proper planning. Yusuf (2006) therefore noted that successful distance education cannot be assured without effective communication and technological tools that are powered through electricity. Ololube et al(2010) noted that nations that invest heavily in higher education produce unquantifiable benefits to individuals, organisations and the society at large. Nigeria is one of the rich oil producing nations of the world; the issue of electricity should be a top priority in policy issue because according to Nwachukwu (1994) the pervasiveness of ICT will bring a rapid change in technology, social, political and global economic advancement.

Research Question 3. Sought to find out the competency of the course tutors in the use of ICT resource materials. A mean score of less than 1.8 shows that the course tutors lacked competency in E-learning literacy skills such as E-tutoring, E-mentoring/coaching, E-

collaborative skills, E- publishing and moderation. The result is expected because the paucity of E-Learning resource materials, lack of staff development and technology phobia which form part of national and the individuals unpreparedness as observed by Nwachukwu et al(2010) definitely has to affect the course tutors competency skills. A mean score of 2.2 shows that some of the course tutors are competent in the use of internet and e -mail. The course tutors' competency in the use of internet and e mail may be for personal and social reasons as the respondents who are the course tutors themselves disagreed using the e-mail and internet facilities for online teaching.

The null hypothesis rejected the non significant difference in the competency skills of the course tutors in the two programmes. The levels of competencies between the two groups of course tutors shows that the level of competency of course tutors teaching in NOUN is higher than their counterparts in the NCE/DLS. A reason for the difference may not be unconnected with the environment used for the study centres. NOUN is run in the University/ polytechnic environment while the NCE/DLS is run in the secondary schools. Facilities in the two host communities are not the same and will affect the competency skills of the course tutors.

Another factor that can affect the competency skills of the course tutors is the qualification and exposures of the course. Yaya(2005) observed that most of the course tutors used for the NCE/DLS are secondary school teachers. He also pointed out that apart for the orientation /induction on assumption of office, no serious training has been conducted for course tutors on the distance learning system and suggests need for training of staff to enable the course tutors meet up with the challenges of the 21st century.

Conclusion: The purpose of this study was to ascertain the availability, adequacy and functionality of E-learning resource materials, facilities and equipments used in the designated study centres of open and distance education programmes in Nigeria. The study was guided by three research questions and one null hypothesis. The instrument for data collection was the questionnaire structured on Likert 4 point scale. The population of the study consists of 750 course tutors sampled through alternate random sample of the study centres in the south east of Nigeria.

The Results of the findings show that Nigeria is yet to embrace fully the E-learning technology for open and distance education. This is evidenced by the paucity of E-learning

resource materials in the study centres. The course tutors lack of competency in the use of E-learning resource materials is of great concern especially where the graduates of open and distance education are expected to teach the 21st century learner who has been described as the digital natives. The unpreparedness of Nigeria in the use of E-learning resource materials may have adverse effect on the teeming population enrolled in the UBE programme in particular and economic advancement of the country in general.

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