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Preparedness of Colleges of Education in Southwestern Nigeria for the Adoption of Blended Learning

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Abstract

The study investigated the preparedness of colleges of education in Southwestern Nigeria in terms of available facilities and infrastructure for the use of blended learning. The study adopted the survey design. The population consisted of students and lecturers in colleges of education in Southwestern Nigeria. The sample size was 1,059 students and 168 lecturers. Three states were selected from which three colleges of education (one per state) also selected using the random were sampling technique. From each of the three colleges of education, 400 students and 60 lecturers were selected by stratified random sampling technique using school as stratum. Students' Blended Learning Facilities Questionnaire, Lecturers' Blended Learning Facilities Questionnaire and Institutions' Blended Learning Facilities Checklist (IBLFC) were used for the study. The results showed that the institutions were not adequately prepared for blended learning as ICT facilities in the institutions were below the minimum required standard stipulated by the Federal Government of Nigeria for tertiary institutions. The study concluded that ICT facilities and infrastructure in colleges of education were inadequate for blended learning.

Keywords: *Blended learning, Hybrid, Preparedness, Instructional methods, checklist*

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Introduction

Instructional method adopted by teachers is very important in teaching and learning process. In fact it is one of the major determinants of any effective teaching endeavour. Teachers are expected not only to vary their teaching methods, they are also expected to adopt and use new innovation that will enhance their job performance. Instructional or teaching methods are very fundamental in effective teaching and learning process. An instructional method is an organized arrangement of the techniques intended to achieve a discrete learner outcome. Methods are the backbone of instruction because they are the most basic way students are taught. Researchers have also confirmed that instructional methods usually correlate with students academic success (Gurpinar, Alimoglu, Mamakli & Aktekin (2010); Oladipo, Olowoye, & Adenaike's (2010). Also, report by Marks and Louis (2011) indicated that teacher's pedagogical quality affects students' academic performance.

The skills necessary in dissemination of knowledge by teachers are recently been affected by many factors. One of such factors is the introduction of technology in teaching and learning process. The introduction of the use of electronic media and online method of teaching with the use of conventional method known as blended learning is changing method of teaching across the globe

Blended, hybrid or mixed learning does not have a definite definition, but the common strings connecting various researches on blended learning is the presence of traditional method and use of multimedia (computer, mobile devices, online etc.) It is a formal education program in which a student learns: at least in part through online learning, with some element of student control over time, place, path, and/or pace; at least in part in a supervised brick-and-mortar location away from home; and the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience (Horn & Staker, 2013)

The benefits of hybrid learning are increasingly being realized as an escalating number of courses demonstrate that the blended format is the most popular mode of instruction (Buzzetto-More & Sweat-Guy, 2006; Wu & Hiltz, 2004; Young, 2002). Collis (2003) opined that blending learning gave opportunity for development on educational applications prevailing in both computer-centred and face-to-face learning environments. Blended learning environments might help increase the student-centred strategies and activities (Collis, 2003); facilitate the transition from teacher-centred instruction to a student-centred one (Morgan, 2002); increase student interest towards learning (Collis, 2003); and improve individual consultation services for students. As observed by Powell, Rabbitt, & Kennedy (2014), blended learning is an instructional modality important for the future of learning.

Blending is a strategy for helping teachers achieve what they strive to do every day—deeply understand and enable each student they work with to reach the very highest levels of educational mastery. Teaching involves the use of wide body of knowledge about the subject being taught. Teachers at all levels of the educational system are very important in the overall development of any nation. Teacher education aims at balanced development of the teacher's personal and professional competences. Particular attention is focused on building pedagogical thinking skills that enable teachers to manage the teaching process in accordance with contemporary educational knowledge and practice (Westbury, Hansen, Kansanen, & Björkvist, (2005). Teachers' education is the process which nurtures prospective teachers and updates qualified teachers' knowledge and skills in the form of continuous professional development.

It is in this light that the Nigerian government established colleges of education. The colleges of education are the "train-the-trainers" colleges established to train and equip teachers for their esteemed functions. Graduates of the 117 Colleges of Education are assigned to teach in the Nations primary schools, helping to nurture and shape the kids who are the future and leaders of tomorrow. The Colleges of Education award the National Certificate in Education (NCE). This is generally a three (3) year course of study in a chosen discipline.

Admission into a College of Education is through applying and scaling through the Universal Matriculation Tertiary Examination (UMTE) conducted by the Joint Admissions and Matriculation Board (JAMB). In addition to the classroom work, students are required to do a mandatory 1 - 4 months teaching practice in an assigned primary school. The functions of the College as spelt out in the Decree establishing them include:

1. To provide full-time courses in teaching, instruction and training in Technical, Vocational, Sciences and Arts;
2. To conduct courses in education for qualified teachers.
3. To arrange conferences, seminars and workshops related to the field of learning specified in paragraph (a) above.
4. To perform such other functions as in the opinion of the college council may serve to promote the objectives of the college.

The National Commission for Colleges of Education Promulgated by Act, 1989 NO, 3, is the body in charge of the supervision of the colleges of education.

However members of the public have been expressing their concern about the low performance of students in colleges of education in Nigeria (Akinbote, 2000; Adeyemi & Adeyemi, 2014). This they blamed among other factors on the instructional methods of their teachers. As Obanya (2004) observed, teacher professionalization in Nigeria need to produce real teachers that will meet the challenges of the 21st century. Thus, adoption of blended learning may be in the positive direction in achieving effective teaching and learning.

Implementation of blended learning initiatives is essential for the acceptance of blended learning approach. Suhail (2011) reported that availability of necessary technological infrastructure is the basic requirement for the implementation of blended learning strategy in any organization. The access to an adequate network infrastructure which includes speed (bandwidth) of internet, service and support, reliable and affordable internet connection, hardware and software are very essential in blended learning environment. The provision of appropriate technological infrastructure, administrative, technical, and logistic support is crucial for the successful implementation of blended learning in an organization. The access to an adequate network infrastructure includes: speed (bandwidth) of Internet, service and support, reliable and affordable Internet connection, hardware and software [Canaria report 2002].

Alabi and Okemakinde (2010) discovered that lack of facilities and basic infrastructure has been the bane of effective educational planning in Nigeria. Masalela (2009) carried out a study and discovered that one of the most frequently mentioned points by respondents in blended learning environment are related to technological infrastructure (physical and human). Faculty members are clearly influenced by the capability and reliability of the systems in place for online learning delivery. Apart from e-learning, other Information Communication Technology (ICT) infrastructures are also aiding effective teaching and learning in the traditional classroom setup. Availability of personal computers and accessories has enhanced the output of teachers and students. Furthermore, allowing students to revisit lectures that may have been missed, or not fully understood, allows for deeper understanding and a more flexible approach to learning (Brotherton & Abowd 2004; Hermann, Hürst & Welte 2006; Krüger & Nickolaus, 2005). Since availability of necessary technological infrastructure is the basic requirement for the implementation of blended learning strategy in any institution, therefore there is need to assess the ICT facilities that are available in colleges of education in Southwestern Nigeria.

The objectives of the study are to:

- (a) investigate the preparedness of colleges of education in Southwestern Nigeria for blended learning in terms of existing facilities and infrastructure in the institutions;
- (b) determine students and lecturers preparedness in terms of ICT facilities

Research Questions

1. How prepared are the institutions for blended learning in terms of the facilities and infrastructure in place?
2. Are students and lecturers prepared in terms of adequate ICT facilities for blended learning?

Population, Sample and Sampling Techniques

The population for this study consisted of all the students and lecturers in colleges of education in Southwestern Nigeria. The multi-stage sampling technique was adopted in the selection of samples for the study. Three states were randomly selected out of the six states in Southwestern Nigeria. In each of the three states, a college of education was selected randomly. In each institution, four hundred students (80 students from each of the five schools in the institution) and 60 lecturers (12 lecturers from each of the five schools in the institution) were selected using stratified random technique. Schools (for example school of science, arts, vocational et cetera) in the institutions were used as strata. A total of 1,200 students' and 180 lecturers' questionnaires were administered. However, only 1,059 students' and 168 lecturers' questionnaires were well completed and returned. Institutions Blended learning Facilities Checklist (IBLFC), Students' Blended Learning Facilities Questionnaire (SBLQ) and Lecturers' Blended Learning Facilities Questionnaire (LBLQ) were used to collect information from the institutions, teachers and students on facilities and infrastructure available to them. The items were adapted from (TDev21) Pilot, (2011) conducted by National Commission for Colleges of Education; NCCE minimum standards, (2012); Adeyemi and Olaleye, (2010); Agyeman (2007). The instrument comprised 17 items. The items were used to: 1) compare the number of the facilities with the number of lecturers and students in the institutions. 2) assess the institutions' policy concerning the facilities. 3) determine the accessibility of both students and lecturers to the facilities. 4) investigate

maintenance of the facilities and its frequency. The researchers went round the three institutions selected for the study to observe the facilities. Every department in the institutions was visited by the researchers and the collation was done on an institutional basis.

Results

Research Question One: How prepared are the institutions in terms of the facilities and infrastructure in place?

To answer this question, ICT items available in schools visited were counted and correlated with the requirement of Federal Ministry of Education accreditation criteria for colleges of education in Nigeria (NCCE 2012) and Agyeman (2007). The criteria include, maximum of 5 students to a computer, a laptop and a printer for each lecturer, a projector and screen in each department, at least a printer and a photocopier for each department, a server in the institution, and so on. Also, items related to the preparedness of students and their lecturers in terms of facilities in place were analysed using frequency counts and percentages. The results of these analyses are presented in Tables 1 (a & b) and 2.

Table 1(a). List of ICT Facilities Available in Institutions Selected for the Study

S/N	ICT ITEM	N _o required	N _o available	Difference	% difference
1	Desktops	8490	396	8094	95.3%
2	Laptops	585	585	-	-
3	Projectors	87	43	44	50.6%
4	Projector Screen	87	43	44	50.6%
5	Video Camera	87	5	82	94.3%
6	Compact Disk	87	45	42	48.3%
7	Television Set	87	57	30	34.5%
8	Radio Cassette	87	62	25	28.7%
9	Printers	699	72	627	89.7%
10	Scanners	87	4	83	95.4%
11	Photo Copiers	87	48	39	44.8%
12	Handsets	612	594	18	2.9%
13	Computer Labs	3	3	0	0%
14	Generators	87	40	47	54.0%
15	Server	6	3	3	50.0%
16	Software	15	5	10	66.7%
17	Satellite Dish	87	2	85	97.7%

Table 1(a) above suggested that some ICT facilities available at the institutions are inadequate. There are 95.3% percentage differences in the standard required number of desktops computers for student use.

The institutions are also in short supply of projector and projectors screen with percentage difference of 50.65. Also, video camera (94.3%), scanners (95.4) and printers (89.7%) are grossly inadequate. There is inadequate supply of photocopier machines with a shortage of 44.8%. Most lecturers in the institutions had personal laptops. Besides laptops, other facilities are in short supply except handsets. The servers in most of the institutions had low bandwidth and so it could not be used for teaching and learning purposes. Students did not have access to the Internet in some of the institutions.

Table 1(b). Sources of Institutions' Facilities

S/N	ITEMS	1	2	3
1	How Equipments are acquired for Teachers	Private	Private and National Communication Commission	Private and National Communication Commission
2	How Equipments are acquired for Students	School and Management Information System (MIS)	Tertiary Education Trust Fund	Management Information System (MIS)
3	Maintenance of Equipments	Routine	Routine	Routine
4	Who repairs and maintains the Equipments	External Company	Technician in the School	Management Information System
5	How ICT are used by staff and students	Personal use/e-mails	Research and Personal use/e-mails	Research and Personal use/e-mails
6	Fees for Internet use by Students	₦500.00 for Online Registration	₦150.00 per Hour	₦100 per hour
7	ICT training for staff	School organised training for staff	School organised training for staff	Self taught/ learn by doing

Key:

1. Osun State College of Education Ila-Orangun
2. Michael Otedola College of Education Noforija-Epe
3. Adeyemi College of Education. Ondo

Table 1(b) above showed the ICT facilities available for the use of blended learning in the three institutions selected for the study. However, it was revealed that National Communication Commission supplied 100 laptops for the use of lecturers in the institution. The equipments are being maintained by external company in Osun State College of Education while the other institutions are making use of school technicians and MIS staff. Furthermore, both students and lecturers are only using the ICT facilities for personal and e-mail services and not for research and academic purposes. Students in institutions 1 and 2 are paying ₦500.00 per hour as internet fees.

Research Question Two: Are students and lecturers prepared in terms of adequate ICT facilities for blended learning?

		Students			Lecturers		
		Yes	No	Not Sure			
1	I have access to my own personal computer	534 (50.4%)	471 (44.5%)	54 (5.1%)	144(85.7%)	19(11.3%)	5(3.0%)
2	We have uninterrupted power supply in our institution computer centre	399 (37.7%)	549 (51.8%)	111 (10.5%)	55(32.7%)	108(64.3%)	5(3.0%)
3	Students have access to use facilities in our computer centre.	510 (48.2%)	442 (41.7%)	107 (10.1%)	40(23.8%)	112(66.7%)	16(9.5%)
4	I have uninterrupted power supply at my residence	408 (38.5%)	588 (55.5%)	63 (5.9%)	144(85.7%)	19(11.3%)	5(3.0%)
5	I have access to our institution's computer	421(39.8%)	519 (49.0%)	119 (11.2%)	23 (14.5%)	134 (79.7%)	11 (6.5%)
6	Do you have examinations scoring machine (OMR)?	120 (11.33%)	900 (85.7%)	39 (3.7%)	12(7.14%)	150 (89.3%)	6 (3.7%)
7	Do you have electronic class roll (ECR)?	99 (9.3%)	930 (87.8%)	30 (2.8%)	56 (33.33%)	110 (65.5%)	2 (1.2%)
8	Do you have computer screen Reading software?	45 (4.2%)	1000 (94.4%)	14(1.3%)	65 (38.7%)	100 (59.5%)	3 (1.8%)
9	Do you have institutionally-produced educational software?	54 (5.1%)	890 (84.0%)	115 (10.9%)	42 (25%)	120 (71.4%)	6 (3.7%)
10	Do you have departmental website?	42 (4.5%)	972 (91.8%)	45 (4.2%)	34 (20.2%)	131(78.9%)	3 (1.8%)
11	Do you have institutional scientific virtual library (Digital library)?	63 (5.9%)	960 (91.0%)	36 (3.4%)	10 (6.5%)	156 (92.9%)	2 (1.2%)
12	Do you have virtual experimental laboratories	65 (6.14%)	900 (85.7%)	94 (9.7%)	64(38.1%)	99(58.9%)	5 (3.5%)
13	Do you have departmental functional e-mail address?	78 (7.4%)	800 (75.5%)	181 (17.1%)	11 (6.5%)	119(78.5%)	38 (23.1%)
14	Do you have CD-Rom database	83 (8.0%)	920 (87.0)	56 (5.3%)	120 (71.4%)	43(25.6%)	5 (3.5%)
15	Internet connected computers	410 (38.7%)	549 (51.8%)	100 (9.4%)	17 (10.1%)	149 (88.7%)	2 (1.2%)
16	Do you have multimedia classrooms (Audio-Visual centre)?	56 (5.3%)	800 (75.5%)	203 (19.2%)	23 (14.5%)	134 (79.7%)	11 (6.5%)

The results in Table 2 indicated that 534 (50.4%) of students had access to their own personal computers and the Internet while 471(44.5%) did not. Also, 399 (37.7%) of the students had uninterrupted power supply in their institution computer centre, whereas 549 (51.8%) did not. Again, 510 (48.2%) of the students had access to use facilities in the computer centre, while 442 (41.7%) of the students claimed that they did not. Although 408 (38.5%) of the students had uninterrupted power supply at their residence, 588 (55.5%) did not. In summary, majority of the students reported that they do not have the facilities mentioned in table 2

The results in Table also suggested that 144 (85.7%) of lecturers had access to their own personal computer and the Internet, while 19(11.3%) did not. Also, 55 (32.7%) of the lecturers claimed they had uninterrupted power supply in their institution computer centre, whereas 108 (64.3%) said they did not. Again, 40(23.8%) had uninterrupted power supply at their residence, whereas 113 (66.7%) did not. Moreover, 89.3% of lecturers do not have electronic class roll, while 78.9% do not have digital library.

In conclusion, the results of data on Tables 1a, b and 2 revealed that most institutions are not adequately prepared for blended learning in terms of facilities. Many of the institutions do not have adequate and constant supply of electricity. Only a minimal percentage of lecturers had uninterrupted power supply at their residence. Where they are available, there is no easy accessibility to students.

Discussion

The findings of this study revealed that there were inadequate facilities for the use of blended learning in the colleges of education. Available computers - both desktops and laptops recorded were bought personally by the teachers. The desktops in most of the institutions were not enough for the students. Apart from this, the low bandwidth of the servers in these schools made the use of Internet difficult for both the students and their teachers. This is in line with the previous studies by Nwokeocha (2013), Sofowora (2012), the National Commission for Colleges of Education Nigeria, (TDev21) Pilot (2011), and Ololube (2006). These authors found that ICT facilities were inadequate in colleges of education in Nigeria. Also Oyovwe-Tinuoye and Adogbeji (2013) discovered that most ICT facilities in Nigeria are not sufficient to enhance quality education for learners and teachers and even where they exist they are not sophisticated enough to stand the test of time like the ones acquired in developed countries. Nwosu and Ugbomo (2012) stated that problems of quality and lack of resources are compounded by the new realities faced by higher education institutions' battle to cope with ever increasing students' population. The report also stated that most lecturers acquired their laptops through credit system (loans from banks and cooperatives).

Longe, Boateng, Longe and Olatubosun (2010) averred that there were many advantages in the use of ICT and that, despite the gains, the growth and development of ICT infrastructure and implementation in Nigeria are still faced with some challenges that have prevented the nation from maximizing the potentials offered by ICT and related technologies. Availability of necessary technological infrastructure is the basic requirement for the implementation of blended learning strategy in any organization. Availability of adequate network infrastructure which includes high speed (bandwidth) of Internet, adequate service and support, reliable and affordable internet connection, hardware and software are very essential in a blended learning environment. When a programme or new method is to be introduced, facilities with which to work are important. A successful implementation of blended learning by an education system should fulfil certain criteria, one of which is the acquisition of adequate technological infrastructure.

Recommendations

There is need for government both at the state and federal levels to provide necessary ICT facilities for the use of blended learning in tertiary institutions in the country. Although the financial burden may be too much for the government, private – public partnership may be encourage so that adequate facilities can be provided. There is need for the government at all levels, nongovernmental organizations (NGO) and philanthropists to invest in the development of ICT in colleges of education by providing adequate human and material resources. It is recommended that there should be regular training programme for the lecturers in colleges of education in the country. With this, the lecturers will be kept abreast of new innovation in teaching and learning.

There should be a strong institutional supervision mechanism to regularly supervise the teaching and learning and for the effective use of facilities provided. A culture supportive of experimentation and exploration should be created. Programmes like workshops, seminars, and conferences that geared towards staffs' leadership with problem-solving skills should be developed and implemented.

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