PERCEPTION OF BUSINESS EDUCATORS ON THE IMPACT OF ICTS ON STUDENT LEARNING IN TERTIARY INSTITUTIONS IN NIGERIA

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Introduction

For over two decades now, there has been a groundswell of interest on ICTs across the globe. The education system, business environment and world of work have witnessed tremendous changes in their modus operandi due to the exponential growth rate of ICTs. ICTs are encountered in virtually all spheres of life and are increasingly becoming key tools in the education system where they have introduced innovations in educational objectives, contents and instructional processes. Emphasis is not only on the learner's acquisition of knowledge and skills but also on ensuring that the learner develops a positive attitude and confidence in using ICTs. According to Chinammai (2005), ICTs enable the student to explore new areas of learning and thinking that could not be done with pen and paper, discover knowledge through inquiry and experimentation rather than memorizing facts in a teacher dominated classroom in order to develop into a responsible, creative, self directed, independent and active individual.

Consequently, education and the business environment are challenged with the demands and opportunities characterized by ICTs and globalization. Tertiary institutions in Nigeria are faced with the challenge of incorporating the new technologies in their programs. This places increasing competitive pressure on business educators to differentiate themselves and compete distinctively by adopting the new technologies in their program to meet the needs of students who must be prepared adequately to fit into

the ICTs permeated environment (Okuta 2010). Business educators are professional teachers of business courses who are constantly aware of the state of the art in education “for” and “about” business. The advent of ICTs demands that business educators should adequately possess the competencies which they are required to impart to students (Okeke and Ezenwafor 2011).

ICTs are defined by Zarini, Wilson, Mar, and Varies (2009) as the integration of a variety of electronic tools that deliver and exchange information to enhance the quality of life unconstrained by location, time and distance. Akudolu, Aremu and Larnuren (2011) posited that ICTs comprise those tools used basically for collaboration, searching and exploring information, processing and storing of data. ICTs, therefore, imply the unification and application of technological tools/devices and resources used to process, store, retrieve, receive and disseminate information electronically anytime and anywhere to aid learning. ICT tools and resources aid student learning by presenting materials in electronic form through on-line digital libraries, video projection screens, cd-roms, internet facilities and mobile technologies such as i-pod, smart phones, mp player, e-book reader, among others.

In Nigeria, the use of ICTs in the education system has been of paramount interest to the government and educational institutions. In a bid to join the trend of globalization and ICTs, the government mandated all the tertiary institutions to produce ICT literate graduates who can embrace globalization and meet the demands of local employers (Dryden, 2008 & Obanya, 2009). Consequently, the new learning environment should be ICT driven and tailored to individual needs of learners by making educational materials available electronically for students to generate papers, handle assignments and projects, graded and obtain results electronically as well because the traditional methods of instruction no longer meet the needs of today’s learner (Aminpoor, 2007).

However, the effects of ICTs on student learning may vary according to environment, knowledge, skills and utilization. The European Union (2005) reported that the impact of ICTs on student learning varies greatly between countries and outlined possible positive impacts of ICTs on student learning to include linking theory and practice better, enhancing the level of student knowledge; skill and competences,

increasing efficiency, leading to individualized learning, preparing the student for life-long learning, among others. In support, Youssef and Dahmani (2008) noted the positive effects of ICTs on the learning process to include, among others, equalizing individual differences and having particular dramatic effect for student with special needs, enabling collaborative learning, encouraging use of peer-coaching and peer reviews and giving the student more control. The authors observed that the relationship between the use of ICTs and student learning in higher education is unclear. Studies on the role and added value of ICTs in classrooms and on student learning show mixed results. Youssef and Dahmani, cited the studies of Kirkpatric and cuba (1998), Angrist and Lavy (2002), Benerjee, Cole, Duflo & Linder (2004) which showed no evidence of key roles of ICTs on student learning in higher education and Kulik (1999), Sosin, Blecha, Agawal, Barlett and Daniel (2004), Fushs and Wessman (2004), Coates et al (2004) and Talley (2005) which showed real impacts. These variations constitute a source of worry to researchers. Although ICT literacy is now compulsory for lecturers and students in Nigerian tertiary institutions, many institutions appear not to have registered evidence of the potentials of ICTs in transforming students' knowledge and skills acquisition (Okeke, 2008; Edozie, Olibie & Agu, 2010). Supporting, Okebukola (2006) Mbakwem (2008) and Ikediugwu (2008) observed that the impacts of ICTs on student learning in Nigerian tertiary institutions have not been as impressive as expected. It was on this premise that this study was designed to ascertain the perception of business educators on the impact of ICTs on student learning in tertiary institutions in Nigeria relative to extent of utilization, impact on student learning and utilization problems.

Research questions: The following research questions guided the study:

1. What is the perception of business educators on the extent ICTs are utilized on student learning in tertiary institutions in Nigeria?
2. How do business educators perceive the impacts of ICTs on student learning in tertiary institutions in Nigeria?
3. What problems do business educators perceive as being encountered in the utilization of ICTs on student learning in tertiary institutions in Nigeria?

Hypotheses: The following hypotheses were tested at 0.05 level of significance.

1. There is no significant difference in the mean responses of the respondents on the extent ICTs are utilized on student learning in tertiary institution in Nigeria based on gender.
2. Male and female respondents do not differ significantly in their mean responses on the impacts of ICTs on student learning in tertiary institutions in Nigeria.
3. Male and female respondents do not differ significantly in their mean responses on the problems encountered in the utilization of ICTs on student learning in tertiary institutions in Nigeria.

The survey research design was adopted for this study which involved all business educators in all the tertiary institutions in Nigeria. Nigeria is one of the West African countries and is regarded as the giant of Africa due to her size, population, mineral resources such as gold, coal, limestone and tin as well as agricultural produce of cocoa and oil which constitute her biggest sources of external revenue. Nigeria has six geopolitical zones namely; north central; north-east; north-west; south-east, south-south and south-west. The population of this study was 466 registered members of the Association of Business Educators of Nigeria (ABEN) as at 2011. Purposive sampling was used to select 215 from the six geopolitical zones using Yaro Yamane formula for finite population on the sample size. It was judged that business educators, being professional teachers of education “for” and “about” business, are in a position to match education with the business environment and the world of work visa-viz, the impact of ICTs on student learning to provide the needed data for the study. According to Uzoagulu (2011) the sample size must be indicated when the entire population cannot be studied. A questionnaire consisting of 39 items in two parts (A and B) was used for data collection. Part A was on demographic data of the respondents while Part B had three sections (Sections B1, B2 and B3) covering the three research questions. Section B1 had 13 items on a 5-poing rating scale with Very High Extent (VHE) = 5 points, High Extent (HE) = 4 points, Low Extent (LE) = 3 points, Very Low Extent (VLE) = 2 points and No Extent (NE) = 1 point. Sections B2 and B3 had 15 and 11 items respectively on a 4-point rating scale of Strongly Agree (SA) = 4 points, Agree (A) = 3 points, Disagree (DA) = 2 points and Strongly Disagree (SD) 1 point. The instrument was face validated by three experts in the field.

A pilot study was conducted with 39 business educators that were not included in the sample and data collected were analyzed with Cronbach coefficient alpha to establish the reliability of the instrument which yielded a score of 0.58 showing that the instrument was reliable for the study. 215 copies of the instrument were administered by the researchers to the study sample and a total of 214 copies (representing 99.5%) were retrieved and used for the study. The arithmetic mean and standard deviation were used for data analyses to answer the research questions as well as determine how close the responses were to the mean. The three hypotheses were tested using t-test at 0.05 level of significance. For Research Question 1, items with mean score of 3.0 and above were considered high extent while those with mean score below 3.0 were considered low extent. Also for Research Questions 2 and 3, items with mean score of 2.5 and above were regarded as agree while items with mean score below 2.5 were regarded as disagree. A hypothesis was accepted when the t-calculated at 0.05 level of significance was less than the table t-value for the given degree of freedom (df) otherwise, it was rejected.

Results

Data analyses for the research questions and hypotheses are presented in Tables 1-6.

Research Question 1

What is the perception of business educators on the extent ICTs are utilized on student learning in tertiary institutions in Nigeria?

Table 1**:** Mean responses and standard deviations of respondents' perception on the extent ICTs are utilized for student learning in tertiary institutions in Nigeria. (N=214).

	Item statement	$\overline{X}$	SD	Decision
1	Programs and education materials made available in electronic form for student learning	1.63	0.82	LE
2	Teachers preparing materials in electronic form for student learning	1.40	0.59	LE
3	Students generate papers, assignments and projects in electronic form	1.41	0.61	LE
4	Video project screens for student learning	2.62	0.87	LE

5	Books with storage device saver and CD ROMs for student learning	1.46	0.59	LE
6	On-line digital libraries for student learning	2.78	0.76	LE
7	Exams through electronics means	1.00	0.00	LE
8	Students grade in electronic form	1.44	0.39	LE
9	Tutorial exercises on a computer rather than classroom	1.65	0.87	LE
10	Cell phone to send and receive information for student learning	1.65	0.93	LE
11	Internet resources to search and generation materials for student learning	2.99	0.88	LE
12	Electronic mails for student learning	1.98	0.73	LE
13	Other mobile technologies (I pod smart phones mp player etc for student learning	1.89	0.90	LE
	Mean of means	1.84	0.69	LE

Key: LE = Low extent

The data presented in Table 1 showed that the mean of the items ranged between 1.00 and 2.99 for all the 13 items and were below the cut-off point of 3.0 while the mean of means of the items was 1.84. This revealed low extent of ICTs utilization on student learning in tertiary institutions in Nigeria. The standard deviations of the items ranged from 0.00 – 0.90. This implied that the respondents were close in their perceptions.

Research Question 2

How do business educators perceive the impacts of ICTs on student learning in tertiary institutions in Nigeria?

Table 2**:** Mean responses and standard deviations of the perception of business educators on the impacts of ICTs on student learning in tertiary institutions in Nigeria (N = 214)

	Item statement	$\bar{X}$	SD	Decision
1 4	Develop student's knowledge through inquiring and experimentation	3.11	0.32	A
1	Equalize individual differences and has dramatic effect for	2.84	0.33	A

5	student with special needs			
16	Facilitate self-pacing with increased capacities to deal with individual learning styles	3.06	0.54	A
17	Enable collaborative learning	3.16	1.29	A
18	Encourage use of peer coaching and peers reviews	2.97	0.21	A
19	Have impact on resource based learning and access to real world information through the web	3.47	0.43	A
20	Link theory and practice better	2.96	0.48	A
21	Enhance the level of student's knowledge, skills and competences	3.11	0.32	A
22	Better prepare students for the world of work	3.24	0.39	A
23	Increase efficiency	3.38	0.38	A
24	Increase motivation	2.97	0.46	A
25	Lead to individualized learning	3.12	0.34	A
26	Prepare the students for lifelong learning	3.40	0.40	A
27	The ease of access to information develops the research spirit	3.16	0.31	A
28	Improve student writing through word processing	3.58	0.60	A
8	Mean of means	3.17	0.45	A

In table 2, mean scores of all the items ranging between 2.84 and 3.58 were above the cut off point of 2.5 while the mean of means was 3.17. This showed that business educators perceived ICTs to have positive impacts on student learning in

tertiary institutions in Nigeria. The standard deviation of 0.21 – 1.29 indicated that the respondents were very close in their perceptions.

Research Question 3

What problems do business educators perceive as being encountered in the utilization of ICTs for student learning in tertiary institutions in Nigeria?

Table 3: Mean and standard deviation of respondents' perception on problems being encountered in the utilization of ICTs on student learning in tertiary institutions in Nigeria (N=214).

	Item statement	$\bar{X}$	SD	Decision
29	Inadequate fund leading to limited access to computers	3.74	0.39	A
30	Expensive software	3.20	0.43	A
31	Lack of maintenance culture	3.70	0.33	A
32	High cost of equipment	3.04	0.80	A
33	Lack of Icts literacy skills	3.02	0.49	A
34	Lack of skills in managing data and time	2.77	0.81	A
35	Lack of immediate feedback from instructors	2.95	0.44	A
36	Lack of adequate support and services	3.24	0.43	A
37	Unsteady power supply	3.80	0.39	A
38	Unwillingness to change	2.59	0.50	A
39	Lack of infrastructure and funding	3.75	0.43	A
	Mean of means	3.25	0.19	A

Table 3 showed that the mean scores of all the items, ranging between 2.59 and 3.80, were above the cut off point of 2.5. The mean of means of the items was 3.25. This implied that the respondents perceived all the items as problems encountered in the utilization of ICTs on student learning in tertiary institutions in Nigeria. The standard deviation ranged from 0.19 - 0.81 showing that the respondents were not far apart in their perceptions.

Hypotheses 1: There is no significant difference in the mean responses of the respondents on the extent ICTs are utilized on student learning in tertiary institution in Nigeria based on gender.

Table 4: t-test comparison of the mean ratings of male and female respondents on the extent ICTs are utilized in tertiary institutions in Nigeria.

Gender	N	$\bar{X}$	S	t-cal	P	t-crit
Male business educators	33	1.65	0.75			
				0.22	0.05	1.96
Female business educators	181	2.05	0.55			

Key: N = number of respondents; $\bar{X}$ = Mean; S = variance; t-cal= t-calculated; p = probability t-crit = t- tabulated.

The result in table 4 showed that male respondents (33) had a mean response of 1.65 and a standard deviation of 0.75 while the female respondents (181) had mean response of 2.05 and a standard deviation of 0.55. These yielded a calculated t-value of 0.22 which is less than the t-crit of 1.96 at 0.05 level of significance. This was considered to be non-significant. The null hypothesis was therefore accepted

Hypothesis 2: Male and female respondents do not differ significantly in their mean responses on the impacts of ICTs on student learning in tertiary institutions in Nigeria.

Table 5: t-test comparison of the mean ratings of male and female respondents on the impacts of ICTs on student learning in tertiary institutions in Nigeria.

Gender	N	$\bar{X}$	S	t-cal	P	t-crit
Male business educators	33	3.19	0.26			
				0.06	0.05	1.96
Female business educators	181	3.14	0.30			

Key: N = number of respondents; $\bar{X}$ = Mean; S = variance; t-cal= t-calculated; p = probability t-crit = t- tabulated.

The result in table 5 revealed that the male respondents (33) had mean response of 3.19 and standard deviation of 0.26 while the female respondents (181) had mean responses of 3.14 and standard deviation of 0.30, these yielded a calculated t-value of 0.06 which is less than the t-critical of 1.96 at 0.05 level of significance. This revealed no significant difference. The null hypothesis was therefore not rejected.

Hypothesis 3: Male and female respondents do not differ significantly in their mean responses on the problems encountered in the utilization of ICTs for student learning in tertiary institutions in Nigeria.

Table 6: t-test comparison of male and female respondents' mean ratings on problems being encountered in the utilization of ICTs for student learning in tertiary institutions in Nigeria.

Gender	N	$\bar{X}$	S	t-cal		P	t-crit
Male business educators	33	3.20	0.43				
				0.07	0.05	1.96	
Female business educators		181	3.20	0.49			

Key: N = number of respondents; $\bar{X}$ = Mean; S = variance; t-cal= t-calculated; p = probability t-crit = t- tabulated.

The result in table 6 showed that the calculated value of t (0.07) is less than the critical value of t (1.96) at 0.05 level of significance. This means that there is no significant difference between the mean responses of male and female respondents' perceptions on the problems being encountered in the utilization of ICTs for student learning in tertiary institutions in Nigeria.

Discussion

The findings of this study have indicated general low extent ICTs utilization on student learning in Nigerian tertiary institutions. The findings buttressed the assertions of Okeke (2008) and Edozie, et al (2010) that although all the tertiary institutions in Nigeria have made ICTs literacy compulsory for lecturers and students, many institutions appear not to reap the potentials of ICTs on student learning. This supported Okebukola (2006) and Ikediugwu (2008) which affirmed that the low level of ICTs utilization for student learning in Nigerian tertiary institutions is a major challenge to the education industry. This situation could be attributed to low level of ICT literacy among tertiary institutions lecturers in Nigeria. The findings further agreed with Kulik (1999), Sosin, et al (2004), European Union (2005) Talley (2005) and Youssef et al (2008) that ICTs can impact on student learning in many positive ways such as developing students' knowledge through inquiry and experimentation, equalizing individual differences, self-paced learning with increased capacities to deal with individual learning styles, collaborative learning, peer coaching and peer reviews, among others. Finally, the evidence that so many problems are encountered in the utilization of ICTs in Nigerian tertiary institutions which are centered on inadequate provision of equipment and resources resulting from inadequate funding, lack of ICT literacy and skills among lecturers, lack of adequate support services, unsteady power supply and unwillingness to change, among others.

Conclusion

It is concluded that despite the fact that there was generally a low extent utilization of ICTs on student learning in Nigerian tertiary institutions, the fact that ICTs impact positively in several ways on student learning in Nigerian tertiary institutions reveal an urgent need for their increased utilization. It is worthy to note that business educators identified 11 problems encountered in the utilization of ICTs for which could serve as a starting point to addressing the low utilization. It is equally concluded that male and female business educators share the same view on the extent of utilization of ICTs, their impact on student learning and problems encountered in their utilization on student learning in tertiary institutions in Nigeria.

Recommendation

Based on the findings and conclusions of the study, the following recommendations are made:

1. Lecturers in Nigerian tertiary institutions should engage in retraining programs to update and increase their ICT knowledge and competencies to effectively utilize the resources on student learning.
2. Management of tertiary institutions in Nigeria should develop sustainable maintenance culture to repair and replace damaged ICT equipment and facilities as well as seek ways to solve all the problems encountered by lecturers in utilizing ICTs on student learning.
3. The regulatory bodies for tertiary education in Nigeria, namely; the National Universities Commission (NUC), National Board for Technical Education (NBTE) and National Commission for Colleges of Education (NCCE) should ensure an enabling environment and adequate capacity building for effective ICTs utilization in the nation's tertiary institutions.
4. Professional organizations and government agencies should organize seminars and conferences to update and increase lecturers' and students' ICT knowledge and competencies.
5. Governments at the state and federal levels should endeavor to increase funding for the education sector to enhance procurement of ICT equipment and facilities for effective educational activities in the country.

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