ASSESSMENT, INNOVATION STRATEGIES OF E-LEARNING AND SOCIAL NETWORKING FOR SUSTAINABLE DEVELOPMENT AMONG POST GRADUATE STUDENTS IN PUBLIC UNIVERSITIES IN RIVERS STATE

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Abstract
The paper examined the assessment of innovation strategies of e-learning and social networking for sustainable development among post graduate students in public universities students in Rives State. A descriptive research survey design was adopted and a sample size of 136 post graduate students from the study area, representing 10% of the population, was used for the study. A stratified random sampling technique was adopted to identify the sample element for the study. A questionnaire titled "Assessment Innovation Strategies of e-learning Social Networking Questionnaire" (AISeLSNQ) was used and complimented with document analyses. The research questions were analyzed using mean scores, standard deviation, rank order and decision rules while z-test statistical tool was used to test the null hypotheses at 0.05 level of significance. The findings reveals that innovation strategies on e-learning and social network have significant impact on the academic performance of post graduate students in the public universities in Rivers State. It was concluded, that the impact of innovation strategies of e-learning and social networking on the academic performance of post graduate students have not been felt much. The paper recommended that: e-learning and social networking facilities should be adequately provided by the various stakeholders in the affair of public universities in Rivers State and utilized by most

graduate students, for effective education service delivery and the training and retraining on the use of information and communication technology (ICT) facilities should be made mandatory at the primary level so to inculcate the e-technology habit in post graduate students.

Introduction

Education in Nigeria is seen as an instrument per excellence, a tool for producing, quality manpower for every facet of the labour market, and the most veritable tool for measuring thee level of development of a nation. Education is seen in the national policy on education (FRN, 2004) as an instrument per excellence" for effecting national development; therefore, it is fundamental to the construction of knowledge for economy and society in all nations. Tertiary education in Nigeria, as stipulated in National Policy on Education, FRN (2004), is the education given after secondary education in universities, colleges of education, polytechnic and monotechnic, including those institutions offering correspondence courses. Acknowledged worldwide, the fundamental mission of universities is in teaching, research and community services. Higher education has the ability to stimulate other levels of the educational system and enhance their contributions to the development of the whole education system; notably through improved teacher education, curriculum, education research and provides people with an opportunity to reflect on the critical, social, economic, cultural, moral and spiritual issues facing humanity. In essence, it contributes to national development through dissemination of specialized knowledge, skills and transcends beyond national boarders to international connectivity in its triple mission teaching, research and service (Agade, 2016). According to Ogunleye (2017), most universities are still using the didactic method, which emphasizes talk and chalk where the lecturer does much of the talking without allowing the student to discover things by themselves. It is as a result of this that our universities produce graduates who cannot think creativity and proffer solutions to life problems rather they have become liabilities to the society.

In the face of this traditional approach to teaching, innovative teaching with technology has the potential to turn the fortunes of teaching into more pragmatic results. Innovative teaching is a teaching strategy, approach, technique or tool that is used or applied in a new

technological way to produce quantifiable gains for students outcome or experience, because innovative feeling with the use of e-learning innovation helps to add value in teaching capabilities and outcomes, making teaching more purposeful and results oriented (Adeyemi, 2017).E-learning according to Hedge and Hayward (2017), is defined as an innovative approach for delivering electronically medicated, well-designed, learner-centered and interactive learning environment to anyone at any place or any time, by utilizing the internet and digital technologies concerned with instructional design principle. E-learning is further defined "as the use of ICT to acquire knowledge and improve skills on terms defined by each learner in an interactive and engaging environment, (Dutta, 2017). Thus, e-learning simply means the delivery of learning or educational content, using information and communication technology (ICT) and various forms of electronic media (since the "e" stands for electronic) such as internet, intranet, extranet, satellite broadcast, audio and video tapes, interactive TV, interactive CDs and corporate computer based system, strategies are more open and allow participants more freedom than cooperative learning (Panitz, 2017). Learning though the social network technologies is creating a new kind of electronic communication medium that is ideal for encouraging multiple types of learning; in particular, social learning. In line with the popularity of outline social networking (OSN), reports on its appropriation and repurposing for education purposes in universities are aplenty because academic staff are currently still trying to work out how best to make use of older technologies, many students have moved ahead in their social lives, using electronic communication tools that are much more flexible and used-centre (Novabueze, 2017). According to Ekanein (2017), social networking is a spectrum of instruction that involves small group of students who have been assign an academic goal. At one end of the spectrum are transient groups that may be formed to assigned an academic goal. At one end of the spectrum are transient groups that may be formed to quickly generate some ideas for immediate in-class discussion. Social networking is at their other end of the collaborative learning spectrum, since it is a carefully planned learning strategy that involves forming appropriate and sustained groups of interdependent members who have been assigned a specific learning goal, (Obaro, 2017).

Several researchers have elucidated the numerous advantages of group learning and some of the advantages are: It is effective in achieving all types of cognitive, effective and interpersonal objectives; helps students have deeper understanding of learned materials and retain factual materials longer; develop problem solving skills, decision making, leadership, communication, social, conflict resolution, administration, negotiation, delegation and creative thinking skills as well as other divergent thought. Social networking among students on the other hand refers to e-learning strategy, which students adopt by organizing themselves into small learning teams. Such grouping is self-deviated and usually among students in the same course and level of study, as well as helping students in their preparing for examinations and often use the learning strategy, (Oloko, 2017).In this way students learn content through group activities where they interact with each other, exchanging information and knowledge, and work as a team to achieve individual learning goals. This learning mode is student-centered and encourages students to cooperate and collaborate with each other in achieving their learning outcomes. It also encourages students foster interpersonal competencies, such as oral communication, active listening, leadership, the ability to examine assumption, the ability to tolerate ambiguities and opposing views; and the informed nature of this learning mode provides students with relaxed environment to learn from their peers and at a pace that is not strictly regimented (Lyanmu, 2017).

The social networking is still part of the type of cycle of educational technology tools that are involved in the wider spread of usage of social technologies (software and or application that are used for social purposes). The social networking technologies popularity can be credited to highly utilized services like blogging, video staring and social networking sales. Online discussion board stemmed from web 1.0 is also frequently included in web 2.0 (Shin & Lowes, 2017). Although social network technologies have only been around for about five years, yet they are already having a noticeable impact on higher education (Armstrong, 2014). The majority of social network users are youngsters Boyd (2016) and this group of individuals are categorized as the “Digital Natives’ (Prensky, 2017). Kennedy (2014), suggested that careful planning must be made prior to adoption of social network technologies in classroom as not all digital native are keen to have such

technologies for various reasons; diversity of experiences, familiarity, attitudes and expectations of the students towards online technologies. Mumay (2016) indicated that the digital natives use online social networks mostly outside of classroom context and for non-educational purposes. Ensuring to the arguments, scholars have proposed that educators need to adjust their pedagogical models if they were to use web 2.0 for teaching and learning in order to suit this kind of new generation learners (Suraya, 2016). As higher education deals with digital natives who are perceived to be familiar with OSN and web 2.0, there is need to appropriate and repurpose these technologies to support education activities. The concept of delivering educational activities using social networking tools is basically an innovation on line. Learning used to be delivered via teaching and learning (Suraya, 2016).

Learning through the social network technologies is creating a new kind of participatory medium that is ideal for encouraging multiple types of learning; in particular, social learning (Brown, 2017). Web-based institution in higher education has grown exponentially, with more than a thousand universities offering courses over the web in the United State (Robin, 2017). Web-based instruction offers obvious advantages for distance and continuing education population by making access to education at any time or place feasible. This kind of flexibility is similarly advantageous for informal or professional training. However, a major use of web-based institution is to enhance traditional, on-campus courses, where the benefit of web enhancement as a supplemental resource is less obvious. Generally, group learning enhances social, emotional and academic growth but has its own disadvantages like someone may try to take over the group, quiet people may feel uncomfortable, people may not pull their weight, sometimes people do not just get along and difficult in assessing students academic performance (Felder, 2017). The researcher is of the opinion that the advantages of social networking outweigh the disadvantages.

The study was anchored on social interdependence and social constructivism theories which focused on group learning method (Edubase, 2017). Manir (2017) in his study on e-learning (ICT) in Nigeria universities, highlighted that it is obvious that the concept of e-learning is considered to be very attractive as a new learning paradigm whose effect will be a positive one to the development of education in

developing countries especially, Nigeria. According to him, the awareness of ICT among the higher institutions is very high but investment and commitment to developing an e-learning application is very poor and below expectation according to the study. Most of the staff and students in the higher institutions only use internet related e-learning and sites just for the sake of finding related information for their research, since their libraries cannot afford to provide them with adequate and current materials, but not for the sake of normal online learning. Olaniyi (2016) has opined that the e-learning technique mostly adopted by most of the Nigerian institutions is informed of prepared lecturers on a CD-ROM that can be played as when the need arises.

This has limited advantages because of the low number of students per computer which most of the facilities are not interactive enough as compared to when the lecture is received in real time over the internet. The internet facilities adopted in most schools are not well maintained because of its high cost of running, especially on the absence of adequate power supply. Usually, the students take the challenge upon themselves to go to the public internet cafes where there is diverse attention because of people with diverse interests on the net. The bandwith shared on various systems at the cafes is very low hence; a multimedia interactive lecture will be obtainable because of low band with, but the population of students is often large while the facilities are usually inadequate. Despite all the hindrance faced by e-learning social networking in Nigeria, most of the public universities in Rivers State among others have the facilities for e-learning. In the present study, the researcher examined the innovative strategies of e-learning and social networking among public university students in Rivers State.

Statement of the Problem

The world as a global village ensures commonness which transcends national interest and boundaries because it is expected that the significance of the e-learning network should bring in necessary transformation into the university education system, but is still far from reality. The researcher believes that many of the public universities in Rivers State are yet to embrace most of the opportunities and benefits that come with globalization through ICT application/usage which are the vanguard of globalization. Presently, most universities have realized

the significance of e-learning network in the improving the operational techniques and students academic performance, but this is faced with many challenges like infrastructural facilities, personal skill, conductive environment, e-learning network for effective and efficient operation, inadequate finance to procure the facilities, poor electricity supply in the country which has dampened the use of electronics as well as lack of maintenance culture in the society. Based on this, the new generation can fully take advantage of e-learning electronic communication and they must learn how to use it appropriately in their studies. There are numerous benefits associated to the e-learning and social networking, among public university students in Rivers State; this is the truth of the study.

Purpose for the Study

The main purpose of the study is to evaluate the impact of innovation strategies of e-learning and social networking among public universities post graduates students in Rivers State. More specifically, the objectives are as follows:

PS_1 Determine the usage level of cell phone network on academic performance of post graduate students in the public universities in Rivers State.

PS_2 Ascertain the usage level of on-line social network o academic performance of post graduate students in the public universities in Rivers State.

PS_3 Determine how social network can be applied in academic achievement of post graduate students in their instructional enhancement in public universities in Rivers State.

PS_4 Evaluate the challenges facing e-learning and social networking on academic performance of postgraduate students in the public universities in Rivers State.

Research Questions

The following four (4) research questions guided the study

RQ_1: What is the usage level of cell phone network on academic performance of post graduate students in public universities in Rivers State?

RQ_2: Is the usage level of on-line social network on academic performance of post graduate students in public universities in Rivers State?

RQ_3: To what extent is social network application applied in academic achievement of post graduate students in their instructional enhancement in public universities in Rivers State?

RO_4: What are the challenges facing e-learning social networking on academic performance of post graduate students in public universities in Rivers State?

Hypotheses

To achieve the objectives of the study, the following four (4) null hypotheses were formulated and tested at 0.05 level of significance.

Ho_1: There is no significant difference between the mean rating of federal and state post graduate students on the usage level of cell phone network on academic performance of post graduate students in public universities in Rivers State.

Ho_2: There is no significant difference between the mean rating of male and female post graduate students in the usage level of on-line social network on academic performance of post graduate students in public universities in Rivers State.

Ho_3: There is no significant difference between the mean rating of male and female post graduate students in the social network application on academic achievement of post graduate student in their instructional enhancement in public universities in Rivers State.

Ho_4: There is no significant difference between the mean rating of doctorate and master post graduate students on the challenges facing e-learning, social networking in academic performance of post graduate students in public universities in Rivers State.

Method

This study adopted a descriptive survey research design to ascertain the assessment of e-learning and social networking among post graduate students in public universities in Rivers State, for sustainable development. The population of this study comprised all the post graduate students of University of Port Harcourt, Choba, and Rivers

State University, Port Harcourt, Rivers State. The table 1 and 2 below showed a better understanding of the population and sample size of the study.

Table 1: The post graduate students that registered in 2016/2017 academic session in the affiliated universities in Rivers State

No	Name of Institutions	P.G Students	Male	Female	Ph.D	M.Ed
1	University of Port, Choba, Rivers State	1,255	799	4	319	936
2	Rivers State University of Port Harcourt, Rivers State	528	307	221	105	422
	Total item	1,882	1,106	677	625	1,358

Source: *Post Graduate School secretaries' offices, 2017*

Table 2:10% of the sample size of post graduate students that registered in 2016/2017 academic session in the affiliated universities in Rivers State

No	Name of Institutions	P.G students	Male	Female	Ph.D	M.Ed
1	University of Port, Choba, Rivers State	126	80	46	32	94
2	Rivers State University of Port Harcourt, Rivers State	53	31	22	11	42
	Total item	179	111	68	43	136

Source: *Field work, 2017.*

A stratified and random sampling technique was used which represented 10% from the population, and was achieved through the balloting method. An instrument titled "Innovation Strategies of e-

learning-Social Networking Questionnaire" (ISe-LSNQ) was structured in the four (4) points Likert scale with thirty five questionnaire items and the researchers designed and validated the instrument. The internal consistency of the instrument was determined through test-retest pilot survey of 50 samples which were not part of the sample used for the study and the co-efficient (r) = 0.91 with high level of reliability was used in determining the result. All the 179 instrument items were administered to the sample size and 165 were successfully filled and responded to, these represent 93% high responses rate. The research questions were analyzed with mean score ($\bar{x}$), standard deviation (SD) and decision rules and z-test was used to test the null hypotheses at 0.05 level of significance.

Results

The results were analyzed based on the information given below.

RQ_1: What is the usage level of cell phone network on academic performance of post graduate students in public universities in Rivers State.

Table 3: Mean Score$(\bar{x})$, Standard Deviation (SD) , Rank Order (RO) and Decision Rules on the usage level of cell phone network on academic performance of post graduate students in public universities in Rivers State

S/N		Male		Female		$\sum\frac{x_1x_2}{2}$	Rank order	Decision Rule
		$(\bar{x})$	SD	$(\bar{x})$	SD			
1	Sharing of knowledge information through phone cells.	3.17	1.78	3.22	1.79	3.20	3rd	Agreed
2	Communicating to other students about assignment/homework through short message service (SMS).	2.98	1.72	3.07	1.75	3.03	6th	Agreed
3	Communicating to other students about assignment/home through multi-media service (MMS)	3.09	1.75	3.21	1.79	3.15	4th	Agreed
4	Searching for	3.50	1.87	3.61	1.90	3.55	1st	Agreed

	information and learning natured in the internet through cell phones							
5	Using the cell phone to share knowledge with other through on line social network and sites.	3.21	1.79	3.27	1.81	3.24	2nd	Agreed
6	Retrieving and storing information./learning materials	2.99	1.73	3.08	1.75	3.03	6th	Agreed
7	Using cell phone to pass knowledge/information via blackberry	3.09	1.76	3.13	1.77	3.11	5th	Agreed
8	Recording of experiments and instruction using cameras phone	2.89	1.70	2.97	1.72	2.93	8th	Agreed
	Aggregate Mean Score	**3.11**		**3.19**				
	Average Aggregate Mean Score					3.**15**		

The result in table 3 revealed that the rank order, mean score, and decision rule were as followed; 1st (3.55) Agreed; 2nd (3.24)2nd Agreed; 3rd (3.20) Agreed; 4th (3.15) Agreed, 5th(3.11) Agreed, 6th (3.03) Agreed, 6th (3.03) Agreed and 8th (2.93) Agreed. The average aggregate mean score of 3.15 was greater than the criterion mean score of 2.50 this implied that both male and female post graduate students in public universities in Rivers State agreed that the usage level of cell phone network helps to improve on their academic performance.

RQ_2:Isthe usage level of on-line social network on academic performance of post graduate students in public universities in Rivers State.

Table 4: **Mean Score $(\bar{x})$, Standard Deviation (SD) , Rank Order (RO) and Decision Rules on the usage level of on-line social network on academic performance of post graduate students in public universities in Rivers State**

S/N		Male		Female		$\sum\frac{x_1x_2}{2}$	Rank order	Decision Rule
		$(\bar{x})$	SD	$(\bar{x})$	SD			
9	Open a social networking account for academic purpose	3.09	1.76	3.12	1.76	3.11	6th	Agreed
10	Exchange academic knowledge and information through social network sites.	2.93	1.71	2.88	1.69	2.91	7th	Agreed
11	Sharing of ideals and Learning materials using social network sites.	3.47	1.86	3.38	1.84	3.43	4th	Agreed
12	They used of social network sites for classroom teaching and learning	2.88	1.70	2.92	1.71	2.90	8th	Agreed
13	Downloading and uploading files/pictures for assignments and projects.	3.18	1.78	3.28	1.81	3.23	5th	Agreed
14	Retrieving and string information for research analyses	3.78	1.94	3.68	1.92	3.73	1st	Agreed
15	Open a social networking account for academic purpose	3.67	1.92	3.79	1.95	3.73	1st	Agreed
16	Exchange of academic knowledge and information through social network sites.	3.50	1.87	3.66	1.97	3.58	3rd	Agreed
	Aggregate Mean Score	**3.31**		**3.34**				
	Average Aggregate Mean Score				**3.33**			

The result on table 4 revealed that the rank order, mean score and decision rule were as followed: 1st (3.73) Agreed; 1st (3.73) Agreed; 3rd(3.58) Agreed; 4th (3.43) Agreed; 5th (3.23) Agreed; 6th (3.11) Agreed;

7th (2.91) Agreed and 8th (2.90) Agreed. The average aggregate mean score of 3.33 was greater than the criterion mean score of 2.50; this implied that both male and female postgraduate students in public universities in Rivers State agreed that the usage level of on-line social network helps to improve on their academic performance.

RQ_3: To what extent is the social network application applied in academic achievement of post graduate students in their instructional enhancement?

Table 5: Mean Score $(\bar{x})$, Standard Deviation (SD) , Rank Order (RO) and Decision Rules on the extent of social network application applied in academic achievement of post graduate students in their instructional enhancement

S/N		Male		Female		$\sum\frac{x_1x_2}{2}$	Rank order	Decision Rule
		$(\bar{x})$	SD	$(\bar{x})$	SD			
17	Student-student interaction	3.76	1.94	3.84	1.96	3.80	1st	Agreed
18	Student-lecturers interaction	3.38	1.84	3.44	1.85	3.42	6th	Agreed
19	Group work interaction	3.74	1.93	3.68	1.92	3.71	4th	Agreed
20	Use of classroom technology for organization of course content and delivery.	3.76	1.94	3.68	1.92	3.72	3rd	Agreed
21	Inter-faculty guzzes and debates	2.53	1.59	2.59	1.61	2.56	8th	Agreed
22	Online discussion forum on instructional enhancement	3.68	1.91	3.74	1.93	2.71	4th	Agreed
23	Cross-fertilization of knowledge and ideas between schools.	3.79	1.94	3.67	1.92	3.73	2nd	Agreed
24	Dissemination of career information and workshop	3.08	1.75	3.14	1.77	3.11	7th	Agreed
	Aggregate Mean Score	**3.46**		**3.48**				
	Average Aggregate Mean Score				**3.48**			

The results in table 5 revealed that the rank order, mean score and decision rule were as followed; as follows: 1st (3.80) Agreed; 2nd (3.73) Agreed; 3rd (3.72) Agreed; 4th (3.71) Agreed; 4th (3.71) Agreed; 6th (3.42) Agreed; 7th (3.71) Agreed and 8th (2.56) Agreed. The average aggregate mean score. 3.48 was greater than the criterion mean score 2.50. This implied that both male and female postgraduate students in public universities in Rivers State agreed that social network application helps in boosting their academic performance

RO$_4$: What are the challenges facing the e-learning social networking on academic performance of post graduate students in public universities in Rivers State?

Table 6: Mean Score $(\bar{x})$, Standard Deviation (SD) , Rank Order (RO) and Decision Rules on the challenges facing the e-learning social networking on academic performance of post graduate students in public universities in Rivers State

S/N		Male		Female		$\sum\frac{x_1x_2}{2}$	Rank order	Decision Rule
		$(\bar{x})$	SD	$(\bar{x})$	SD			
25	Differences in the level of usage of technological equipment on e-learning/social networking among the post graduate students	3.01	1.73	3.09	1.75	3.05	5th	Agreed
26	Difference in the level of seriousness among the post graduate students concerning e-learning social networking.	2.89	1.70	3.09	1.72	2.93	6th	Agreed
27	Lack of tend to purchase modern e-learning social networking	3.57	1.89	2.97	1.0	2.60	8th	Agreed
28	Lack of tend to purchase modern e-learning facilities by some post graduate students in their social	3.63	1.91	3.53	1.94	2.70	7th	Agreed

	networking.							
29	Difference behaviourail conceptualization to e-learning social networking among post graduate students	3.17	1.78	3.77	1.82	3.52	1st	Agreed
30	Most post graduate students are not knowledgeable enough in the adaptation of e-learning/social networking considering the strength and weakness.	2.99	1.72	3.33	1.75	3.25	2nd	Agreed
31	Differences in the level of usage of technological equipment on e-learning/social networking among the post graduate students	3.08	1.75	3.07	1.76	3.03	4th	Agreed
32	Difference in the level of seriousness among the post graduate students concerning e-learning social networking.	2.97	1.72	3.12	1.75	3.10	3rd	Agreed
	Aggregate Mean Score	**3.16**		**3.07**				
	Average Aggregate Mean Score				**3.26**			

The result in table 6 revealed that the rank order, mean score and decision rules were as followed; 1st (3.52) Agreed; 2nd (3.25) Agree; 3rd (3.10) agreed, 4th (3.08) Agreed; 5th (3.05) Agreed, 6th (2.93) agreed, 7th (2.70) agreed and 8th (2.60) Agreed. The average aggregate mean score of 3.26 was greater than criterion mean score of 2.50; thus, this implied that both male and female post graduate students in public universities in Rivers State agreed that there are numerous challenges facing the e-learning social networking on academic performance.

Hypotheses

To achieve the objectives of the study, the following four (4) null hypotheses where tested at 0.05 level of significance.

Ho_1: There is no significant difference between the mean rating of federal and state post graduate students on the usage level of cell phone network on academic performance of post graduate students in public universities in Rivers State.

Table 7: z-test of no significant difference between the mean rating of federal and state post graduate students on the usage level of cell phone network on academic performance of post graduate students in public universities in Rivers State

Gender	N	$\bar{X}$	SD	df	z-cal. value	z-cri. value	Decision
Federal	126	3.11	1.76				
State	53	3.19	1.78	177	±1.35	±1.96	Accepted

Table 7 showed that the z-calculated value of ± 1.35 was less than the z-critical value of ± 1.96 with 177 degree of freedom at 0.05 level of significance and was accepted, since the z-calculated value (±1.35) was less than the z-critical value (±1.96); thus, this implies that both the federal and state post graduate students agreed that the level of on-line social network help to improve academic performance of post graduate students in public universities in Rivers State.

Ho_2: There is no significant difference between the mean rating of male and female post graduate students on the usage level of on-line social network on academic performance of post graduate students in public universities in Rivers State.

Table 8: z-test of no significant difference between the mean rating of male and female post graduate students on the usage level of on-line social network on academic performance of post graduate students in public universities in Rivers State

Gender	N	$\bar{X}$	SD	df	z-cal. value	z-cri. Value	Decision
Male	111	3.31	1.82				
Female	68	3.34	1.83	177	±1.37	±1.96	Accepted

Table 8 shows that the z-calculated value of ±1.37 was less than the z-critical value of±1.96 with 177 degree of freedom of 0.05 level of significance and was accepted since the z-calculated value (±1.37) was less than the z-critical value (±1.96); thus, this implied that both male and female post graduate students agreed that the usage level of on-line social network helps to boost students' academic performance in public universities in Rivers State.

Ho_3: There is no significant difference between the mean rating of male and female post graduate students in the social network application on academic achievement of post graduate students in their instructional enhancement.

Table 9: z-test of no significant difference between the mean rating of male and female post graduate students in the social network application on academic achievement of post graduate students in their instructional enhancement

Gender	N	$\bar{X}$	SD	df	z-cal. value	z-cri. value	Decision
Male	111	3.46	1.76				
Female	68	3.48	1.78	177	±1.41	±1.96	Accepted

Table 9 shows that the z-calculated value of ±1.41 was less than the z-critical value of ±1.96 with 177 degree of freedom of 0.05 level of significance and was accepted since the z-calculated value (±1.41) was less than the z-critical value (±1.96); this implied that both male and female post graduate students agreed that social network application helps to boost academic achievement in public universities in Rivers State.

Ho_4: There is no significant difference between the mean rating of Doctorate and Master post graduate of post graduate students in public universities in Rivers State.

Table 10: z-test of no significant difference between the mean rating of Doctorate and Master post graduate students on the challenges facing the e-learning and social networking in academic performance of post graduate students in public universities in Rivers State

Gender	N	$\bar{X}$	SD	df	z-cal. value	z-cri. value	Decision
Doctorate	43	3.46	1.76				
Master	136	3.48	1.78	177	±1.41	±1.96	Accepted

Table 10 shows that the z-calculated value of ±1.47 was less than the z-critical value of ±1.96 with 177 degree of freedom of 0.05 level of significance was accepted since the z-calculated value (±1.47) was less than the z-critical value (±1.96); This implied that both the doctorate and master post graduate students agreed that numerous challenges facing e-learning and social networking on the students academic performance in public universities in Rivers State.

Discussion of Findings

The results in table 3 revealed that the average aggregate mean score of 3.15 was greater than the criterion mean score of 2.50, while the z-calculated value of 1.35 was less than the z-critical value of 1.96 with 177 degree of freedom at 0.05 level of significance and was accepted, thus, this implies that both male and female postgraduate students in public universities in Rivers State agreed that the usage level of call phone network helps to improve on their academic performance. Oloko, (2016) in his opinion agreed that innovative strategies of e-learning help to boost academic performance among public senior secondary schools in Ondo State. This finding confirms the view of Nwafor (2016) who observed that for university lecturers to deliver high quality teaching, there must the research and community development through positive involvement in the usage of social networking among the post graduate students, for better interaction in the process of teaching, learning and various research methodology procedurial processes.

The finding coincides with the views of Obasi (2014). Information and communication technology (ICT) in national development includes among others, supports quality, coverage of

education and internet facilities in public universities that are grossly inadequate to meet the demand of people for their usage. Based on the findings of the study, the important issues identified are that e-learning facilities such as CD ROM, electronic bill boards, computer-based teaching, virtual classroom and even internal facilities that are not adequately provided as well as utilized which make the goal of Nigerian students competing favourably with foreign students to be mirage and failure. The results in table 4 revealed that the average aggregate mean score of 3.33 is greater than the criterion mean score of 2.50, while the z-calculated value of 1.37 was less than the z-critical value of 1.96 with 177 degree of freedom at 0.05 level of significance and was accepted. Thus this implies that both male and female post graduate students in public universities in Rivers State agreed that the usage level of on-line social network helps them to improve on their academic performance with the effective usage of e-learning facilities.

This finding agrees with Marcus (2014), who said experience has proven that the benefits of e-learning could be fully taken advantage of, expectation could not be met and that technology often was used to simply reinforce out model approaches to learning. E-learning can enhance different learning styles and also leads to increase in retention on the subject, these findings agree with Danu (2014) who said e-learning allows students to have a more personalized way of learning, allowing more flexibility and experience. Asoqwa (2014), noted that e-learning has become one of the most important and potentially significant and efficient instructional methods to improve teaching and learning, with the emerging new technologies, the teaching profession is evolving from our emphasis on teacher centred lecture based instruction to students, centred interactive learning environment. According to the findings of Ayodele (2014) most public universities in Rivers State showed that most of the e-learning facilities were available in the universities. The available one includes CD ROOM, computer-based teaching, microphones, internet/web browser, laptops/desktops and electronic boards while the unavailable ones include teleconferencing, live chat, costumed e-learning courses, satellite television and virtual classroom. It was observed that these available e-learning and facilities learners are expected to have more of training in various areas. This is in agreement with the finding of Kamba (2014), who stated that Nigeria universities are in the trend of creating

web pages which are used for advertisements of the university and not for the purpose of e-learning or teaching. The results in table 5 revealed that the average aggregated mean score 3.48 was greater than the criterion mean score of 2.50, while the z-calculated value of 1.41 was less than the z-critical value of 1.96 degree of freedom with 05level of significance and was accepted, thus, this implies that both male and female post graduate students in public universities in Rivers State agreed that social network application helps in enhancing their academic performance.

According to Erah (2004) e-learning social network helps in the process of teaching and learning, using the computer via internet. It involves passing structured instructional materials from repository to a learner. It refers to computer enhanced training as opposed to the computer based training of the 1980's. lt is by other communication technologies, to him,e-learning is an approach to facilitate and enhance learning through both computer and communication technologies. To Rosenberg (2014), e-learning is the appropriate application of the internet to support the delivery of skill and knowledge in a holistic approach not restricted to a particular course, technologies or infrastructure. E-learning has become a new paradigm and a new philosophy in library services as well as educational sector with a mission to serve as a development plat form for present day society based on knowledge.

According to Olaniyi (2014), e-learning is about learning that occurs at the, computer in our contemporary world. The learning through the aid of a computer simply means online knowledge acquisition through internet or off-line through CD ROM and so on.ln other words, it is the use of network technologies to create , foster, deliver and facilitate learning anytime and anywhere. The results in table 6 revealed that the average aggregate mean score of 3.26 was greater than the criterion mean score of 2.50, while the z-calculated value of 1.47 was less than the z-critical value of 1.96 with 177 degree of freedom. Thus, this, implies that both doctorate and master post graduate students in public universities in Rivers State agreed there are that numerous challenges facing e-learning and social networking on their academic performance. These findings agreed with Nwabueze (2014), who stated that one of the major problems facing public

universities is how to maintain equipment and facilities to ensure their functionality for students use.

Most of the conventional university administrators are ignorant of the fact that education which produces technical manpower for the advancement of technical innovation require tools, equipment and other facilities in working condition, and this can only be achieved through constant servicing which the administrators often reflect. Oloko (2017), also stated the following as inhibitions to proper maintenance of e-learning facilities, inadequate funding, lack of skilled and trained personal, corruption and greed, inadequate training and workshops, this corresponds with the findings in the study which revealed that embezzlement of funds approved for maintenance, non challant attitude by the administrators, lack of adequate training for students and academic staff as well as lack of enabling environment for teaching and learning are the major problem inhibiting the proper maintenance of learning facilities as agreed by Babajide (2014). There have been consistent complaints in the educational sector on training and retraining of both staff and students of public universities on the use of ICT, which makes it a lot easier for e-learning facilities to be properly utilized.

Conclusion

The study concluded that e-learning facilities were not adequately provided by the public universities in Rivers State and those that were provided mostly suffered misused. Most of the utilized e-learning and social networking facilities used by the post graduate students were computer, microphones, internet etc. It is also concluded that adequate provisions and utilization of e-learning and social network facilities were relevant to post graduate students academic performance in public universities in Rivers State.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. E-learning and social networking facilities should be adequately provided by the various stakeholders in the affair of public universities in Rivers State and utilized by most graduate students for effective education service delivery.

2. The training and retraining on the use of information and communication technology (ICT) facilities should be made mandatory at the primary level so to inculcate e- technology habit in post graduate students, this will make the use of e-learning and social network facilities at the tertiary level easy and conducive.
3. The accreditation agency, Nigeria university commission (NUC), should include in their accreditation requirement, internet connectivity for public universities in Rivers State, This will help to pave way for the implementation of e-learning and social networking in schools.
4. Resources should be provided by stakeholders for the public universities in Rivers State, on the implementation of e-learning and social network facilities in various public universities in Rivers State and beyond.

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