Impact of E-Learning on Academic Performance of Postgraduate Students in Higher Institutions in Nigeria

[1]Egoigwe, Sochima Vincent, [2]Nweke Prince Onyemaechi, [1]Mamah Nnedinkpa Valeria, [3]Isiaku Wada Bashir, [4]Ali Adizetu Aneru and [5]Madu Chioma Vivian

[1]Department of Electronic Engineering, University of Nigeria, Nsukka, Nigeria

[2]Institute of Education, University of Nigeria, Nsukka, Nigeria

[3]School of General Education, Aminu Kano College of Islamic and Legal Studies, Kano State, Nigeria

[4]Nnamdi Azikiwe Library, University of Nigeria, Nsukka, Nigeria

[5]Department of Educational Foundations, University of Nigeria, Nsukka, Nigeria

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Corresponding Author:
Ali Adizetu Aneru
Nnamdi Azikiwe Library, University of Nigeria, Nsukka
410101, Enugu State, Nigeria

Abstract: This study examined the impact of e-learning on academic performance of postgraduate students in higher institutions in Nigeria. The study adopted a descriptive survey design. Three research questions guided the study. The population of the study was 850 respondents, comprises 350 academic lecturers and 500 postgraduate students. The study adopted a simple random sampling technique to select 20% of the total population which was 170. The instrument for data collections was structured questionnaire. The instrument was validated by three experts, two from the Faculty of Engineering and one from the Faculty of Education (Measurement and Evaluation), all from the University of Nigeria, Nsukka. Data collected were used to determine the internal consistency and reliability of the instrument using Cronbach alpha techniques. An overall reliability coefficient of 0.89 was established. Mean and standard deviation were used for data analysis. The findings of the study revealed that e-learning has positive impact on academic performance of postgraduate students in higher institutions. The findings of the study revealed challenges militating against the use of e-learning to enhance academic performance of postgraduate students in higher institutions in Nigeria. Based on the findings, the study recommend among others that government should ensure a maximum standard set for institutions to get computer and internet facilities to enhance effective e-learning process in the higher institutions in Nigeria.

INTRODUCTION

Globally, the strength of e-learning is gradually taking over the contemporary educational system in Nigeria and as well dominating in day-to-day activities across the globe. Also, academic performance of postgraduate students in the current computer-based standard examination (CBT) in Nigerian institutions has been of much anxiety among postgraduate students hence the need to consider the causes affecting the academic performance of postgraduate students in screening test, other examinations, teaching and learning in higher institutions in Nigeria is also the focused of this study. In particular, the governments of developing nations unlike Nigeria are influenced with the intention of their mission with the intention to improve relevant technology skills facilities[1, 2]. Thus, technology teaching and learning is the main objective in which higher education will move towards to obverse. E-learning is regularly considered as the essential instrument for educational improvement which required extremely serious continues during teaching and learning technique in Nigeria tertiary institutions. This shows that the chain of interdependent relationships between development, technology, education and tertiary institutions in bringing the issue of the conceptual change in teaching and learning methodologies in other to improve student's academic performance and achievement. This inter-reliant sequence is repeated such that teaching and learning supports growth of technology while in return, technological services sustain educational system and as well enhance academic performances of postgraduate students[3].

E-learning is simply regarded as the use of information and communication technology such as internet, computer, mobile phone, learning management system, televisions, radio and others to enhance teaching and learning activities. E-learning is a unifying term used to describe the fields of online learning, web-based training and technology delivered instructions[4]. E-learning is also defined as a system based on technology, organization and management which bestows upon the students the ability to learn. via internet and facilitates their learning[5]. Operationally, e-learning can be defined as achievement of the increasing information by means of electronic devices. It is also defined as the process of utilizing electronic systems in teaching and learning such as computer, internet, multimedia disks, electronic magazines to reduce time, charges to accomplish better, faster and easier learning process.

Similarly, Jimoh-Kadiri and Bupo[6] posited that e-learning approach has become an increasingly popular learning approach in higher educational institutions due to vast growth of internet technology. Moreso, e-learning has a competitive advantage and many higher institutions have implemented it and this has impacted on student's academic performance. However, there are other academic institutions that use very low interactive e-learning which is not enough to contribute to the performance of the students. In contrary to that, other higher institutions use highly interactive e-learning which directly improves student's academic performance in universal[7]. Today technology is a tool used to remove geographical obstacles and facilitates everybody to learn anytime and anywhere without the presence of the lecturer. The main purpose of e-learning is to increase accessibility of education and reducing costs and time as well as improving student's academic performance. The approach to learning facilitates students at diverse continents to attend the same classes almost at the same time. Nowadays, used of Information and Communication Technology (ICT) is becoming the standard for teaching and learning without being at institutions learning environments. This technology also enabled instructional learning method to advance eminence of education and students academic performance. It has found that students in higher institutions that engaged in e-learning, normally executed better than those in face-to-face learning environment. Holley[8] posited that students who participate in online/e-learning achieve better grades than students who studied conventional approach. As a result of these findings, e-learning is growing very fast and become popular that is why a lot of higher institutions are adopting to virtual learning system. E-learning is far and wide used in countless higher institutions in the world. However, in many higher institutions, their e-learning does not add any value to teaching and learning activities and perhaps they do not examine the challenges militating against the impact of e-learning on academic performance of postgraduate students in their various institutions and and strategies to improve on them[9].

Research by Ohiwerei et al.[10] postulated some challenges militating against effective implementation of e-learning in higher institutions of higher learning which include: lack of computers, lack of qualified lecturers to teach ICT in higher institutions, lack of electricity/power supply, fear of indispensable, lack of internet or slow connectivity, lack of initiative by the universities to connect ICT, broken down computers, fear of redundant by older lecturers, expensive modem, lack of finance and distributive capacity, lack of qualified academic lecturers and inadequate instructional materials in teaching and learning. Similarly, Ng et al.[11] posited that some of the problems associated with the use of e-learning to enhance academic performance of students can be attend to lack of effective monitoring of management of funds allocated to the institution, inadequate funding of proposed project by the government or donors, multiplicity of initiative, especially, in ICT and education without any coordinating mechanism resulting in duplication of efforts and wastage of resources and lack of systematic approach in ICT use

in educational settings in order to tap into the potential of ICTs to address the challenges in the education system[12]. Thus, there is need to identify strategies to tackle the above challenges of e-learning in higher institutions in Nigeria.

Sheng and Basaruddin[13] pointed out strategies to improve student's performance which the posited that for any students to achieve in academic environment such students must have a positive attitude towards e-learning, never skip classes and having competitive spirits and strong self-motivation; the university to provides motivational workshops/seminars that relate to time management, students to have technique of studying and problem solving skills; university to provide counselling session for postgraduate students; university to engage academic lecturers with appropriate qualification to meet teaching expectation; university to make e-learning a compulsory tasks for all newly employed academic staff without teaching experience or training; academic lecturers to attend workshop on teaching through e-learning; the university to send academic staffs for further training on e-learning; university to make ICT instructors/facilitators to be aware of self-commitment and responsibility towards teaching students with online facilities; university to comply with the accreditation requirements by having academic staff to tally with students admitted teaching ratio; university to make sure that all e-learning facilities are in good condition and well maintained before lectures or examinations.

Statement of the problem: The inevitability of education is increasing by the day because of increasing pressure to catch up with the developed countries when it comes to global competitiveness. Earlier than the beginning of e-learning, a lot of people who wanted to get hold of institutions of higher learning degree had to compete for the few places that were offered by the other institutions. Those offered places had to apply for study leave as they had to go through the conventional knowledge system characterized by limited number of students that could be absorbed per an academic session. From the study, it can be deduced that there seems to be no research studies on the joint contributions of e-learner's socio-demographic, hours spent online/offline and prior computers skills variables to their academic performance. Whereas, scholars have stressed on the need for a complete approach, to be taking into consideration in all aspect of experiences of e-learners as well as the exceptional facets of e-learning setting. However, it has also been examined that research has been offered to investigate issues that foresee the academic performance of e-learners in higher institutions while those that subsist concerted mainly on probability correlates as a factor in their learning. Studies have been carried out on academic performance, especially, on conventional students but not much on

academic performance of postgraduate students on e-learning in higher institutions in Nigeria. Therefore, this study sought to examine the impact of e-learning on academic performance of postgraduate students in higher institutions in Nigeria.

Purpose of the study: The generally purpose of this study is to examine the impact of e-learning on academic performance of postgraduate students in higher institutions in Nigeria. Specifically, the study sought to:

- Examine the impact of e-learning on academic performance of postgraduate students in higher institutions in Nigeria
- Ascertain challenges militating against the use of e-learning to enhance academic performance of postgraduate students in higher institutions in Nigeria
- Determine strategies to improve academic performance of postgraduate students in higher institutions in Nigeria

Research questions: The following research questions guided the study:

- What are the impacts of e-learning on academic performance of postgraduate students in higher institutions in Nigeria?
- What are the challenges militating against the use of e-learning to enhance academic performance of postgraduate students in higher institutions in Nigeria?
- What are the strategies to improve academic performance of postgraduate students in higher institutions in Nigeria?

MATERIALS AND METHODS

The study adopted a descriptive survey design. The population of the study was 850 respondents, comprises 350 academic lecturers and 500 postgraduate students. The study adopted a simple random sampling technique to select 170 respondents been the 20% of the total population of the study. The instrument for data collections was structured questionnaire titled: E-learning on Academic Performance of Postgraduate Students Questionnaire (EAPPSQ). The questionnaire consisted of two sections A and B. Section A provided personal data of respondents while section B was made up of three clusters. Responses to the items in the questionnaire were based on a four-point rating scale options, ranging from Strongly Agree (SA) (4 points), to Agree (A) (3 points), Disagree (D) (2 points) and Strongly disagree (SD) (1 point). The instrument was duly validated by three experts, two from the Faculty of Engineering and one from the Faculty of Education (Measurement and

Evaluation), all from the University of Nigeria, Nsukka. In other to ascertain the reliability of the instrument, 35 copies of the instrument were administered to lecturers and students in the University of Nigeria, Nsukka. Data collected were used to determine the internal consistency and reliability using Cronbach alpha techniques. An overall reliability coefficient of 0.89 was established which signified very high reliability of the instrument. The instrument was administered to respondents by the researcher and one research assistant, through direct method by distributing and collecting the questionnaire from the respondents at their various locations. The research assistant was briefed on the modalities for distributing and collecting the questionnaire from the respondents on the spot. This ensured that the respondents appropriately complete the questionnaire. Thus, there was 100% return rate of the questionnaire and were duly used for data analysis. Mean and standard deviation were used for data analysis. A mean of 2.50 was used as benchmark for decision making for each item, since, a four-point rating scale was used for the study. Thus any item with a mean of 2.50 and above was considered as accepted by the respondents, while any item with a mean below 2.50 was considered as unaccepted.

RESULTS AND DISCUSSION

Research question one: What are the impacts of e-learning on academic performance of postgraduate students in higher institutions in Nigeria?

Table 1 shows response of subjects on the impacts of e-learning on academic performance of postgraduate students in higher institutions in Nigeria. All the nine items obtained mean scores above 2.50. This is an indication that all the items were accepted as impacts of e-learning on academic performance of postgraduate students in higher institutions in Nigeria based on the attainment of overall mean of 2.61 (0.55%) for Postgraduate students while 2.61 (0.57%) for academic lecturers.

Research question two: What are the challenges militating against the use of e-learning to enhance academic performance of postgraduate students in higher institutions in Nigeria?

Table 2 shows response on the challenges militating against the use of e-learning to enhance academic performance of postgraduate students in higher institutions in Nigeria. The fourteen items obtained mean scores above 2.50. This is an indication that all the items were accepted as the challenges militating against the use of e-learning to enhance academic performance of postgraduate students in higher institutions in Nigeria based on the attainment of overall mean of 2.61 (0.55%) for Postgraduate students while 2.61 (0.57%) for academic lecturers.

Research question three: What are the strategies to improve academic performance of postgraduate students in higher institutions in Nigeria?

Table 3 shows response on the strategies to improve academic performance of postgraduate students in higher institutions in Nigeria. The twelve items obtained mean score above 2.50. This is an indication that the items were accepted as strategies to improve academic performance of postgraduate students in higher institutions in Nigeria base on the attainment of overall mean of 2.61 (0.55%) for Postgraduate students while 2.61 (0.57%) for academic lecturers.

The findings of the study revealed the positive impacts of e-learning on academic performance of postgraduate students in higher institutions in Nigeria which include improving students' academic performance and increases accessibility of education among others. These finding are corroborated by Jimoh-Kadiri and Bupo[6] who noted that e-learning improves student's academic performance; remove geographical obstacles and facilitates everybody to learn anytime and anywhere and increases accessibility of education; reduces the costs and time factors. The finding is also in consonant with the findings of Holley[8] who posited that student's participation in e-learning achieves better grades than those who studied conventional approach and as well far and wide used in countless higher institutions. The findings of the study revealed the challenges militating against the use of e-learning to enhance academic performance of postgraduate students in higher institutions in Nigeria. This findings is in consonant with the findings of Ohiwerei *et al.*[10] who postulated some challenges militating against effective implementation of e-learning in higher institutions of higher learning which include: lack of computers, lack of qualified lecturers to teach ICT in higher institutions, lack of electricity/power supply, fear of indispensable, lack of internet or slow connectivity, lack of initiative by the universities to connect ICT, broken down computers, fear of redundant by older lecturers, expensive modem, lack of finance and distributive capacity, lack of qualified academic lecturers and inadequate instructional materials in teaching and learning. The findings is also similar with the findings of Ng *et al.*[11] who posited some of the problems associated with the use of e-learning to enhance academic performance of students to include lack of effective monitoring of management of funds allocated to the institution, inadequate funding of proposed project by the government or donors and multiplicity of initiative, especially in information and communication technology.

The findings of the study also revealed strategies to improve academic performance of postgraduate students in higher institutions in Nigeria. The findings of the study is in line with the findings of Sheng and Basaruddin[13] who pointed out strategies to improve student's performance which the posited that for any students to

Table 1: Mean response and standard deviation rating of the impacts of e-learning on academic performance of postgraduate students in higher institutions in Nigeria

Items statement	Postgraduate students			Academic lecturers		
	M	SD	Decision	M	SD	Decision
1. E-learning improves student's academic performance	2.81	0.55	Accepted	2.51	0.57	Accepted
2. E-learning has removed obstacles and facilitates everybody to learn anytime and anywhere	2.77	0.55	Accepted	2.67	0.56	Accepted
3. E-learning increases accessibility of education	2.69	0.56	Accepted	2.60	0.57	Accepted
4. E-learning reduces the costs and time	2.71	0.56	Accepted	2.57	0.57	Accepted
5. E-leaning enabled instructional learning method to move ahead importance of student's academic performance	2.87	0.55	Accepted	2.53	0.57	Accepted
6. Student's participation in e-learning achieves better grades than students who studied conventional approach	2.90	0.54	Accepted	2.71	0.56	Accepted
7. E-learning is far and wide used in countless higher institutions	2.83	0.55	Accepted	2.74	0.56	Accepted
8. E-learning provides learners with additional resources to assist resource-based learning	2.94	0.54	Accepted	2.65	0.56	Accepted
9. E-learning provides distance learners country-wide to assist resource-based learning	2.75	0.56	Accepted	2.55	0.57	Accepted
Cluster means	2.81	0.55	Accepted	2.61	0.57	Accepted

Table 2: Mean response and standard deviation rating of challenges militating against the use of e-learning to enhance academic performance of postgraduate students in higher institutions in Nigeria

Items statement	Postgraduate students			Academic lecturers		
	M	S D	Decision	M	SD	Decision
10. Insufficient number of computers and accessories	2.67	0.56	Accepted	2.70	0.56	Accepted
11. Lack of qualified lecturers and skills to teach ICT in higher institutions	2.72	0.56	Accepted	2.51	0.57	Accepted
12. Lack of electricity/power supply	2.81	0.55	Accepted	2.62	0.57	Accepted
13. Lack of internet or slow connectivity	2.93	0.54	Accepted	2.57	0.57	Accepted
14. Lack of initiative by the universities to connect ICT	2.97	0.54	Accepted	2.84	0.55	Accepted
15. Fear of redundant by older lecturers	2.59	0.57	Accepted	2.73	0.56	Accepted
16. Lack of finance and distributive capacity	2.52	0.57	Accepted	0.52	0.57	Accepted
17. Inadequate instructional materials in teaching and learning	2.69	0.56	Accepted	2.60	0.57	Accepted
18. Lack of effective monitoring of management of funds allocated to institution	2.80	0.56	Accepted	2.65	0.56	Accepted
19. Range of initiative in ICT without coordinating mechanism resulting duplication of efforts and wastage of resources	2.68	0.56	Accepted	2.69	0.56	Accepted
20. Lack of systematic approach in ICT in order to tap potential to address the challenges in educational system	2.77	0.55	Accepted	2.81	0.55	Accepted
21. Poor literacy skills on students	2.89	0.55	Accepted	2.58	0.57	Accepted
22. Cost of implementing e-learning in high	2.99	0.54	Accepted	2.61	0.57	Accepted
23. Lack of desire, decision and determination	2.66	0.56	Accepted	2.55	0.57	Accepted
Cluster means	2.76	0.56	Accepted	2.64	0.56	Accepted

Table 3: Mean response and standard deviation rating of strategies to improve academic performance of postgraduate students in higher institutions in Nigeria

Items statement	Postgraduate students			Academic lecturers		
	M	SD	Decision	M	SD	Decision
24. Students to have positive attitude towards e-learning	2.91	0.54	Accepted	2.63	0.57	Accepted
25. Student to avoid skipping classes and having competitive spirits to learn	2.84	0.55	Accepted	2.53	0.57	Accepted
26. university to provides motivational workshops/seminars that relate to time management	2.98	0.54	Accepted	2.51	0.57	Accepted
27. Students to have technique of studying and problem solving skills	2.77	0.55	Accepted	2.68	0.56	Accepted
28. University to provide counselling session for postgraduate students	2.66	0.56	Accepted	2.70	0.56	Accepted
29. University to engage academic lecturers with appropriate qualification to meet teaching expectation	2.90	0.54	Accepted	2.59	0.57	Accepted
30. University to adopt e-learning a compulsory tasks for all newly employed academic staff	2.87	0.55	Accepted	2.55	0.57	Accepted
31. Academic lecturers to attend workshops and seminars on e-learning	2.78	0.55	Accepted	2.61	0.57	Accepted
32. University to sponsor academic staffs for further training on e-learning	2.68	0.56	Accepted	2.68	0.56	Accepted
33. University to make ICT instructors/facilitators to be aware of self-commitment and responsibility towards teaching students with online facilities	2.92	0.54	Accepted	2.60	0.57	Accepted
34. University to comply with the accreditation requirements by having academic staff tally with students admitted teaching ratio	2.81	0.55	Accepted	2.58	0.57	Accepted
35. University to make sure that all e-learning facilities are in good condition and well maintained before lectures or examinations	2.87	0.55	Accepted	2.66	0.56	Accepted
Cluster means	2.83	0.55	Accepted	2.61	0.57	Accepted

achieve in academic environment such students must have a positive attitude towards e-learning, never skip classes and having competitive spirits and strong self-motivation; the university to provides motivational workshops/seminars that relate to time management, students to have technique of studying and problem solving skills; university to provide counselling session for postgraduate students; university to engage academic lecturers with appropriate qualification to meet teaching expectation; university to make e-learning a compulsory tasks for all newly employed academic staff; academic lecturers to attend workshop on teaching through e-learning; the university to send academic staffs for further training on e-learning; university to make ICT instructors/facilitators to be aware of self-commitment and responsibility towards teaching student with online facilities; university to comply with the accreditation requirements by having academic staff to tally with students admitted teaching ratio; university to make sure that all e-learning facilities are in good condition and well maintained before lectures or examinations.

CONCLUSION

Conclusively, the study was carried out to examine the impacts of e-learning on academic performance of postgraduate students in higher institutions in Nigeria through the use of ICT facilities to improved postgraduate students learning process. The findings of the study result understandable revealed that e-learning assisted postgraduate studies to extensively advance academic performance, learning methods and self-improvement.

RECOMMENDATIONS

Based on the findings, the study also recommend among others that:

- University administration should seriously consider ways of incorporating the use of ICT in teaching and learning in higher institutions
- Regular training of postgraduate students with ICT facilities will go a long way to promote and strengthen their scientific and technical knowledge skills
- Lack of manageable size should be considered during admission process into higher institutions, so as to maintain a reasonable number of lecturers/students ratios
- There must be opportunity for in-service training of academic lecturers to be grounded enough in ICT skills and there is need for well furnished computer laboratories with internet facilities and other ICT equipments

- Government should ensure a maximum standard set for institutions to get computer and internet facilities to enhance effective e-learning process in the higher institutions in Nigeria

REFERENCES

01. Ministry of Education and Vocational Training (MoEVT), 2005. Evaluation of the Orientation Secondary Class (OSC) Zanzibar May-June 2005-consultancy report by Pauline Rea-Dickins, John Clegg and Casmir Rubagumya funded by the Swedish International Development Cooperation Agency (SIDA). Ministry of Education and Vocational Training, Dar es Salaam, Tanzania.

02. Serbessa, D.D., 2006. Tension between traditional and modern teaching-learning approaches in Ethiopian primary schools. J. Int. Cooperation Educ., 9: 123-140.

03. Alsaadat, K., 2018. The impact of social media technologies on adult learning. Int. J. Electr. Comput. Eng., 8: 3747-3755.

04. Oye, N.D., M. Salleh and N.A. Iahad, 2010. Holistic E-learning in Nigerian higher education institutions. J. Comput., 2: 20-26.

05. Levy, Y., 2006. Assessing the Value of E-Learning Systems. Information science Publisher, London, UK.,.

06. Jimoh-Kadiri, S.O. and G.O. Bupo, 2011. Challenges facing E-learning (Electronic Learning) in teaching business education courses: Strategies for improvement. Unizik Orient J. Educ., 6: 163-169.

07. Rodgers, T., 2008. Student engagement in the E-learning process and the impact on their grades. Int. J. Cyber Soc. Educ., 1: 143-156.

08. Holley, D., 2002. Which room is the virtual seminar in please?. Educ. Train., 44: 112-121.

09. Sarikhani, R., M. Salari and V. Mansouri, 2016. The impact of E-learning on university students academic achievement and creativity. J. Tech. Educ. Train., 8: 25-33.

10. Ohiwerei, F.O., N. Azih and B. Okoli, 2013. Problems militating against utilization of ICT in teaching of business education in Nigerian universities. Eur. Int. J. Sci. Technol., 2: 40-48.

11. Ng, W.K., F. Miao and M. Lee, 2009. Capacity-building for ICT integration in education. Digital Rev. Asia Pac., 1: 67-76.

12. NITDA., 2008. ICT4D strategic plan for economic sectors of Nigeria. National Information Technology Development Agency, Abuja, Nigeria.

13. Sheng, E.L. and F. Basaruddin, 2014. Ways of improving students performances in assessments from instructors and students perspectives. Int. J. Asian Social Sci., 4: 301-306.