



ELECTRONIC LEARNING AS EDUCATIONAL INNOVATION AND STUDENTS' ACADEMIC PERFORMANCE IN UNIVERSITY OF UYO, AKWA IBOM STATE, NIGERIA

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Abstract

*The study examined the difference between Teaching Effectiveness and Electronic Learning on Educational Innovation of a Nigerian University Education. The study adopted a descriptive survey research design. Four research question and hypothesis were raised to guide the study. The population of the study comprises all the 1356 students in Faculty of Education in 2016/2017 academic session. **Source:** University of Uyo, Senate Business Committee (SBC). The sample size of the study was 300 students, this represent 47% of the lecturers. The proportional sample technique was adopted to select the respondents. The researcher developed instrument titled "Electronic Learning and Academic Performance Questionnaire" (ELAPQ) which containing 16 items developed on four-scale point of SA Strongly Agree for 4 points, A Agree for 3 points, D Disagree for 2 points and Strongly Disagree for 1 point respectively. The instrument was face-validated by the 2 experts, one from each of the Departments of Educational Management and Planning, Vocational Education and as well as Educational Foundations, all in University of Uyo. The reliability of the instrument was carried out using Cronbach Alpha reliability statistic for internal consistency which produced a reliability coefficient of 0.94 which justifying its use for the study. The instrument was administered personally to the respondents to fill and return immediately within an interval of two weeks and all copies were retrieved. The data collected were analysed using mean to answer the research questions and t- test statistical tools in testing the hypothesis at 0.05 level of significant. It was concluded that since students depend on educational innovation of lecturers with electronic learning devices to perform well in academic and life challenges, lecturers should acquaint themselves with e-learning skills through regular seminars and workshop. It is recommended among others that Educators should make learning more time and cost efficient so as to catch the interest of the learner for further innovations.*

Keywords: *Teaching, Effectiveness, Electronic Learning, Innovation.*



Introduction

Education as a tool for self-reliance and national development is indispensable for any individual or society to survive and thrive. For education to comprehend fully in addressing the needs of the society in sustainable manner, it must take the shape of evolving the spirit of advancement in inculcating fast-changing, inevitable, educational innovation where lecturers, educators, policy makers are to change from ancient and archaic pattern of teaching and embrace innovative ways of teaching and learning to ensure quality production among the students who will contribute to life and workforce environment.

Educational innovation is an art of teaching or impacting knowledge with new ideas, new ways of education that will produce learning that have value. Innovation means to bring to focus those ideas of output that will cause something different to take precedence. The lecturers are the ones in this case to embrace electronic learning devices in order to create new knowledge in the lives of the students. According to Serdyukov (2017), innovation can be directed towards progress in one, several or all aspects of the educational system, theory and practice, curriculum, teaching and learning, policy, technology, institutions and administration, institutional culture and lecturer education. It can be applied in any aspect of education that can make a positive impact on learning and learners.

Educational innovation is not an island on its own, rather it goes with the education system in a way of integrating all aspects of educational system be it human, facility and material to raising the quality of education to positively affect the lecturers and learners themselves. Teaching effectiveness can be anchored by electronic learning in that a lecturer who is not naïve in using technological appliances such as computer-based learning, networked learning, e-learning, etc will improve productivity in quality of teaching and relief him/her of some hard work done manually.

According to Skelton (2005), teaching effectiveness, is linked to the specific context where teaching is evaluated with three elements: (i) Criteria with features of teaching being effective; (ii) Evidence where teaching is supported by facts; and (iii) Standards where quality and quantity of teaching is considered. Teaching effectiveness can take the shape of innovative strategies which will lead to students' better living.

Electronic learning, according to Dauda, Korga and Gnapowski (2014) is a way of transferring knowledge in textual-graphic- audio visual or using screen to display what is to be taught. Electronic learning is referred to using completely online process to deliver a course or lesson. It could also be seen as a form of innovation in teaching which is used to refine and shape the learners' quality in learning and raise his/her productivity in learning in an effective and efficient way, make them grounded and prove the worth of learning. When a lecturer teaches in an effective way, the learner grasp what is being taught without much effort, and achieves the result with less stress, time and cost. Lecturers teaching



effectiveness can encompass the use of innovative methods like the use of technologies in the classroom settings to facilitate learning culture in learners. Using e-learning in the classroom to deliver lessons gives learners impetus to grasp necessary knowledge quickly and effectively.

Electronic learning process is a part of technological advancement that embraces all aspect of theoretical and practical experiences in learning. Teaching with electronic devices such as computer, projector, interactive white board and using Google search engine can foster learning without being bored. It can increase growth in learning without much time. It can also give rise in learning an amount of information in less time and period. Barbera (2015), citing Serdyukov and Serdyukov (2017) writes, “can we, the educators, teach more effectively, can students learn more, better than, in less time? The answer to this question can have profound social, economic, and personal significance as it may affect a learner's career and lifestyle, societal attitude toward education, the rate of investment in education, and eventually the nation's wellbeing.

A computer according to Ukpeh (2016) is an electronic device widely used for creation, manipulation and storage of documents. It is a machine or device that performs processes, calculations and operations based on instructions provided by a software or hardware programme. In this study, computer is described as an 'artificial intelligence' programmed electronically used by the lecturers to impart knowledge to the students in a way for easy assimilation of the learners. Consequently, Etim and Okon (2018) defines computer as a programmable electronic device that accepts data perform operations on the data, present the result and can save the data or results as needed. Berry (2014) described projector .as an optical device that projects an image (or moving images) onto a surface, commonly a projection screen. It is on the other hand an electronic device which is used to display an image or text on the screen for easy assimilation of the learners. Interactive whiteboards are device used in lecture or classroom environments that its technology allows to write or draw on the surface, print off the image, save it to computer or distribute it over a network (Techlearn, 2018). Interactive whiteboard is used to enhance classroom interaction. It is being connected to a computer and allows the learners view input and collaborate in diverse ways. Google search engine, according of Etim and Okon (2018) also defined Google search engine as a software programme in conjunction with a huge database of information about web pages that help visitors find web pages that contain the information they are looking for. It can be described as an internet search for retrieving information relating to people or topics of interest on the web sites address.

The purpose of the study therefore is to determine:

1. The difference in academic performance of undergraduate students taught using computer and those taught without computer?



2. The difference in academic performance of undergraduate students taught using projector and those taught without projector?
3. The difference in academic performance of undergraduate students taught using interactive white board and those taught without interactive white board?
4. The difference in academic performance of undergraduate students that uses Google search engine for their assignments and those that did not use Google search engine?

Statement of the Problem

Electronic learning in Nigerian tertiary education is not very efficient. A call is being made on lecturers to encapsulate electronic learning such as using computer, interactive board, projectors, and Google search engine to support effective teaching. The fact that lecturers are not embedded with technological innovation has brought about low experience in learner's technological know-how especially in computer usage to search for solutions on some problematic assignment that will need consulting internet network for solution. They are not keenly vested with the knowledge and technical expertise to search for answers by goggling into websites. The lack of technical know-how and phobia for using computer by lecturers towards emerging electronic gadgets in learning has contributed to their ineffectiveness in teaching especially in the new trend of technological advancement where everything is taking the shape of social network, modernization and globalization in instructional strategies.

The lukewarm attitude by lecturers in trying new methods has deprived them of joining the cue of innovation that would have triggered their teaching in an effective and efficient way. These problems have brought about dysfunctionality among students as the parlance goes 'one cannot give out what he/she does not possess.' When a lecturer is incapacitated on the usage of electronic gadgets for effective teaching, the students bear the brunt by being deformed for that particular knowledge that he/she is supposed to gain from the course. It is against this background, the researcher sought to investigate the level to which University of Uyo in Akwa Ibom have developed their lecturers to initiate and employ electronic learning in teaching.

Methodology

The study adopted a descriptive survey research design. Four research questions and hypotheses were raised to guide the study. The population of the study comprises all the 1356 students in Faculty of Education in 2016/2017 academic session. Source: University of Uyo, Senate Business Committee (SBC). The sample size of the study was 300 students which represent 47% of the students. The proportional sampling technique was adopted to select the respondents. In the course of administering the instrument, 100 respondents indicated as having been taught with computer while 200 were not. A total of 60 respondents indicated having been taught with projector while 240 were not. Furthermore, 80 respondents



indicated being taught with interactive white board while 220 were not. Similarly, 220 respondents indicated being taught with Google search engine while 80 were not. The researcher developed instrument titled “Electronic Learning and Academic Performance Questionnaire” (ELAPQ) which contain 16 items developed on four-scale point of SA Strongly Agree for 4 points, A Agree for 3 points, D Disagree for 2 points and Strongly Disagree for 1 point respectively.

The instrument was face-validated by 3 experts, one from each of the Departments of Educational Management and Planning, Educational Foundations and as well as Vocational Education, all in University of Uyo. The reliability of the instrument was carried out using Cronbach Alpha reliability statistic for internal consistency which produced a reliability coefficient of 0.94 which justifying its use for the study. The instrument was administered personally to the respondents to fill and return immediately within an interval of two weeks and all the copies were retrieved. The data collected were analysed using mean for answering research questions and t- test statistical tools in testing the hypothesis at 0.05 level of significance respectively. The decision rule for answering the research questions was determined against the mean score.

Research Question

1. What is the difference in academic performance of undergraduate students taught using computer and those taught without computer?
2. What is the difference in academic performance of undergraduate students taught using projector and those taught without projector?
3. What is the difference in academic performance of undergraduate students taught using interactive white board and those taught without interactive white board?
4. What is the difference in academic performance of undergraduate students that uses Google search engine and those that did not use Google search engine?

Hypothesis

- HO₁. There is no significant difference in the performance of undergraduate students taught using computer and those taught without computer.
- HO₂. There is no significant difference in the academic performance of undergraduates students taught using projector and those taught without projector.
- HO₃. There is no significant difference in the academic performance of undergraduate students taught using interactive white board and those taught with interactive white board.
- HO₄. There is no significant difference in the academic performance of undergraduate students used Google search engine and those that did not use Google search engine.



Results

Research Question One

What is the difference in academic performance of undergraduate students taught using computer and those taught without computer?

Hypothesis One

There is no significant difference in the performance of undergraduate students taught using computer and those taught without computer.

Table 1: T-test of difference in the performance of There is no significant difference in the performance of undergraduate students taught using computer and those taught without computer.

Variables	N	Mean	Std	Df	t-cal	t-crit	Sig.
With Computer	100	12.5	1.9	298	5.45	1.96	0.05
Without Computer	200	25	2.12				
Total	300						

From the table, the result showed the mean value of lecturers not using computer was higher than those using. In addition, it shows calculated t-value of $5.45 > 1.96$. The null hypothesis is therefore rejected. Its implication is that there is a significant difference in the performance of undergraduate students taught using computer and those taught without computer.

Research Question Two

What is the difference in academic performance of undergraduate students taught using projector and those taught without projector?

Hypothesis Two

There is no significant difference in the academic performance of undergraduate students taught using projector and those taught without projector.

Table 2: T-test of difference in the academic performance of undergraduate students taught using projector and those taught without projector.

Variables	N	Mean	Std	Df	t-cal	t-crit	Sig.
With Projector	60	7.5	-0.06	298	7.46	1.96	0.05
Without Projector	240	30	2.32				
Total	300						

From the table 2, the result showed the mean value of lecturers not using projector was higher than those using. Also, the calculated t-value is 7.46 at $P < 0.05$ and $df = 298$. This value was found to be greater than the t-crit of 1.96, thus $7.46 > 1.96$. Thus the null hypothesis was rejected; therefore there is a significant difference in the academic performance of undergraduate students taught using projector and those taught without projector.

Research Question Three

What is the difference in academic performance of undergraduate students taught using interactive white board and those taught without interactive white board?

Hypothesis Three

There is no significant difference in academic performance of undergraduate students taught using interactive white board and those taught without interactive white board.

Table 3: T-test of the difference in academic performance of undergraduate students taught using interactive white board and those taught without interactive white board.

Variables	N	Mean	StdDf	t-cal	t-crit	Sig.
With Interactive White Board	800	10	2.53			
Without Interactive White Board	220	27.5	3.72	298	2.37	1.96 0.05
Total	300					

From the table, the result showed the mean value of lecturers not using interactive white board was higher than those using. Additionally, calculated t-value of 2.37 is greater than the t-crit of 1.96 with $P < 0.05$ and degree of freedom 298. The null hypothesis therefore is rejected which simply means that there exist difference in academic performance of undergraduate students taught using interactive white board and those taught without interactive white board with a greater standard deviation of 3.72 against 2.53.

Research Question Four

What is the difference in academic performance of undergraduate students that uses Google search engine and those that did not use Google search engine?

Hypothesis Four

There is no significant difference in the academic performance of undergraduate students used Google search engine and those that did not use Google search engine.



Table 4: T-test of the difference in the academic performance of undergraduate students used Google search engine and those that did not use Google search engine.

Variables	N	Mean	Std	Df	t-cal	t-crit	Sig.
With Google Search Engine	220	27.5	3.72	298	2.78	1.96	0.05
Without Google Search Engine	80	10	1.38				
Total	300						

From the table, the result showed the mean value of lecturers not using Google search engine was higher than those not using. It was indicated that calculated t-value was found to be 2.78 at $P < 0.05$ and $df = 298$. The value in t-value was found to be greater than the t-crit of 1.96. Thus we reject the null hypothesis and accept the alternative hypothesis. This implies that there is significant difference in the academic performance of undergraduate students used Google search engine and those who do not use Google search engine.

Findings of the Study

1. There is significant difference in the performance of undergraduate students taught using computer and those taught without computer.
2. There is significant difference in the academic performance of undergraduate students taught using projector and those taught without projector.
3. There is significant difference in the academic performance of undergraduate students taught using interactive white board and those taught with interactive white board.
4. There is significant difference in the academic performance of undergraduate students used Google search engine and those that did not use Google search engine.

Discussion of Findings

The result of hypothesis one showed a significant difference in academic performance of undergraduate students taught using computer and those taught without computer.

The reason is obvious that student that do learn with computer are easily grasp more than their counterpart did not know how use computer. This finding is in agreement with Etudor-Eyo, E, Jude, W. I and Emediong Okon, C. I. in Ukoette (2018), who upholds that students academics prefer to share knowledge through collaboration, ICT, business strategy, informal strategy and socialization strategy than their counterpart. Those who taught with computer are less nervous in the use of electronic or electrical apparatus, hence, the condition which probably gives them the confidence in the use of ICT than those that does not use computer.



The result in hypothesis 2 also showed a significant difference in academic performance of undergraduate students who were taught using projector. This indicates that electronic learning in terms of projector contributes to students' academic performance. The result is in support of Tella, E. (2017), and Carney (2004), who concludes that the urgent participation of students/lecturers in ICT usage in their different schools will make them to be grounded in the knowledge and skill required to explore in ICT to their development benefits and that of their performance.

The findings in hypothesis 3 indicate significant difference in academic performance of undergraduate students taught using interactive white board. This implies that any students that taught using an interactive white board in his/her learning will be demonstrating a good academic performance. This is in consonance with that of Ukoette (2018), who opined that ICT has made relevant impact on the teaching-learning processes, thereby putting aside the old ancient way of instructional delivery. The development of 'flipped classroom' model where students watch lecturers at home and classroom is being used to revolutionise discussion sessions. This is also in support of Etim (2017) who opined that any innovative strategy brought into teaching-learning process will motivate students to learn and cue them to particular information and emphasize important concepts and ideas within the content.

The findings in hypothesis 4 also indicate a significant difference in the academic performance of undergraduate students that used Google search engine. This shows that students who are conversant with Google engine are prone to be higher in academic performance, keeping those who did not use Google engine search in a lower academic performance. This agrees with the finding of Mangal and Mangal 2010) who stressed that the results of learning are always influenced by the nature and techniques employed by the lecturer.

Conclusion

Based on the findings, it was concluded that since students depend on effective teaching of a lecturer with different electronic learning devices to perform well in academic and life challenges, lecturers should acquaint themselves with e-learning skills through regular seminars and workshop.

Recommendation

It is recommended as follows:

1. Educators should make learning more time and cost efficient so as to catch the interest of the learner for further innovations.
2. There is an urgent need to introduce global education programme into lecturers' preparation programme especially the issue of educating them on how to manipulate the electronic learning devices.



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