

VIRTUAL LEARNING INFLUENCE ON ACADEMIC PERFORMANCE OF POST GRADUATE STUDENTS IN THE SOUTH- SOUTH GEO-POLITICAL ZONE OF NIGERIA.

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Abstract

The study focused on virtual learning influence on academic performance of post graduate students in the south- south geo-political zone, Nigeria. The descriptive survey design was adopted in the study. The population of the study consisted of 9,500 male and female postgraduate students. A sample of 780 Post Graduate students from the six (6) Federal Universities in the South-South Geo-political zone of Nigeria was drawn for the study using the multi-stage sampling procedure. The instrument for data collection was a questionnaire titled "Video Conferencing in Education and Academic Performance of Students" (VCEAPOS). The validity of the instrument was determined by experts in Test, Measurement and Evaluation while the reliability was done using Cronbach Alpha with a reliability index of 0.95. T-test was used in testing the hypotheses. Findings revealed that there was significant influence of Video Conferencing and Google Classroom on academic performance of Post Graduate students. The study recommended that more facilities should be provided by educational stakeholders and government in particular that will support video conferencing since this has been revealed to influence positively the academic performance of postgraduate students. Secondly, more facilities should be provided by educational stakeholders and government in particular that will support video conferencing since this has been revealed to influence positively the academic performance of postgraduate students.

Keywords: Virtual Learning, Academic Performance, Video Conferencing, Google Classroom,

Introduction

In the field of education, tremendous changes had been witnessed to take place from the traditional method of teaching and learning to digitalized education. With the use of Laptops, Computers, Android and Information, Communication Technology (ICT) etc. students can enroll for a programme, receive lectures, participate in group assignment, take examination without being physically present but seeing themselves online. Today many teachers and students are no more interested in carrying hardcopy text book, but soft copy, and governments and educational institutions at different levels have adopted the use of electronics devices in the administration of education both inside and outside the school premises such as Virtual learning etc.

Statement of the Problem

As the world is getting technologically advanced, every sector of the society including education have tried to fit into the digital world, (Osim, 2017). In spite of all these innovations especially, the transition from traditional method to digitalized education, it is still alleged that academic performance of postgraduate students is not optimal. Besides, up till about a decade ago, there have been speculations that the introduction of the new software (internet) will prove a boon to its users. Undoubtedly, students constitute significant part of the population that use the internet yet the speculated optimal academic performance of students had failed to materialize. This has remained a source of worry hence the decision to embark on this research.

Aim and Objectives of the Study

The aim of this study is to examine virtual classroom and video conferencing in education, and how it influences the academic performance of post graduate students in south-south public universities.

Specifically, the objectives of this study are:

- i. To ascertain the extent to which video conferencing for learning influence the academic performance of postgraduate students in Public Universities in South- South Geo-political Zone of Nigeria.

Research Questions

- i. To what extent do Video Conferencing influence the academic performance of postgraduate students in public universities in the South-South Geo-Political zone of Nigeria?
- ii. To what extent do Google Classroom influence the academic performance of postgraduate students in public universities in the South-South Geo-Political zone of Nigeria?

Hypotheses

For the purpose of this research, the following null hypotheses were formulated and used at 0.05 level of significance.

Ho₁: The use of videoconferencing for learning does not significantly influence the academic performance of male and female postgraduate students in public universities in the South-South Geo-political Zone of Nigeria.

Ho₂: The use of Google Classroom for learning does not significantly influence the academic performance of male and female postgraduate students in public universities in the South-South Geo-political Zone of Nigeria.

Significance of the Study

The study focuses on the use of video conferencing and Google Classroom in teaching and learning process. This study would be of immense benefit to the students. To the students, virtual learning would increase their knowledge of software since it would be used. The students can receive lectures without necessarily traveling to the university campus or physical classroom. The students stay at the comfort of their homes or work places and receive lecture. In fact, it saves the risk of traveling or shuttling between home and school campus.

Scope of the Study

With regards to the content, this study would be delimited to postgraduate students' academic performance vis-à-vis google classroom influence, video conferencing for learning influence.

Geographically, the study would be delimited to Federal Government owned universities in the South-South Geo-Political zone of Nigeria.

Methodology

Design

This study adopted a descriptive survey design, to enable the researcher describe the characteristics of the population and determine the extent of association between the variables. Descriptive research aims to accurately and systematically describe a population, situation or phenomenon.

Area of the Study

The study area is the south-south region of the country. For the purpose of this study the six (6) Federal Universities in South-South Geo-Political zone of Nigeria has been selected as the study area. They include: Federal University of Petroleum, Effurum, Delta State, University of Benin, Benin city, Edo State, Federal University, Otueke Bayelsa State, University of Port Harcourt, Port Harcourt, Rivers State, University of Uyo, Akwa Ibom State, and University of Calabar, Cross River State.

Population

The population of the study is 9,500 it included all the postgraduate students, both males and females from the six (6) Federal Universities in the South-South Geo-political zone of Nigeria.

Sample and Sampling Technique

The sample size of the study is 780 post graduate students.

Instrument for Data Collection

The instrument used for data collection is a questionnaire titled Digitalization of Education and Academic Performance of Students. (DEAPOS). It was structured into two parts, section A and B. Section A was designed to collect demographic data, while section B was used to elicit information from the respondents which bothers on the research questions. The section B was structured in a modified four point Likert's scale of Very High Extent (VHE), High Extent (HE), Low Extent (LE) and Very Low Extent (VLE).

Validity of the Instrument

The instrument for this study was structured and validated under the guidance and scrutiny of two experts in Test, Measurement and Evaluation. Criticisms and corrections were made to ensure the validity of the instrument.

Reliability of the Instrument

The reliability of the instrument was done using test-retest method to determine the reliability of the instrument. The results obtained was analyzed using Pearson Product Moment Correlation statistic which gave a coefficient of 0.80

Method of Data Collection

The researcher with three trained research assistants visited the six (6) Federal Universities in South-South and administered the instrument. They administered the copies of the questionnaire and retrieve them.

Method of Data Analysis

Research questions were answered using mean and standard deviation. A criterion mean of 2.50 was generated using the modified Likert 4 points rating scale of Very High Extent (VHE), High Extent (HE), Low Extent (LE) and Very Low Extent (VLE). Thus $4+3+2+1 = 10 \div 4 = 2.50$. Any mean below 2.50 was rejected while 2.50 and above was accepted in the final analysis. Meanwhile, T-test was used to test the hypotheses at 0.05 alpha level.

Literature Review

Concept of Virtual Classroom

Okanezi & Amadi (2021) believe that:

Virtual Classroom which students participate in, provides the opportunity to receive direct instructions from a trained instructor for instant feedback and direction. There is structured schedule of classes provided in virtual Classroom, and this can be useful for students who may find the freedom of synchronous learning to be overwhelming. Most virtual Classroom applications are featured with recording devices. Each class is recorded and stored on a server, which allows for instant playback of any class over the course of the school year. This stands as an opportunity for students who may have missed any class to watch any of such classes, hence they never lag behind (p.5,6).

Concept of Video conferencing

Video conferencing involves two-way audio and video and data communication between two or more person's or group of people over a remote connection. Video conferencing is done over a variety of media, which uses Internet. Videoconferencing system has become an integral part of modern society which provides many facilities like right to equal educational quality, medical facilities and also very much useful for the industrial and commercial development of any country. Nwaneri and Ikwegbu (2017) noted:

This is an effective way to use one teacher who teaches in a number of sites, it is very cost effective for classes which may have small number of students in enrolled at its site. Video conferencing enables the institution or group to provide courses which would have been cancelled due to low enrolment or which could not be supported otherwise because of cost of providing an instructor in an unusual subject area. It is a combination of audio and video to provide communication and video image. It can display anything that can be captured by a television camera. Through teleconference, institutions are able to serve all students equitably (p. 270).

Ward in Weli & Prince (2017) reacted thus:

Two-way video such as used in interactive video conferencing provides the means to overcome the passivity of more traditional one-way video. Video conferencing requires that both the transmitting and receiving site be set up with monitors and video camera. Each site can thus view and hear interaction at the other sites. The constant presence of both video audio from all locations enhances the learning environment (Hannu, 1990). From a distance education perspective, full video conferencing is highly desirable as a delivery mode (p. 76).

Features of Video Conferencing

- i. Reducing the cost of production of educational material and increasing the possibility to update educational materials more frequently.
- ii. Video conferencing involves two-way video, audio and data communication between two or more parties over a remote connection.

- iii. Video conferencing is done over a variety of media, the most popular of which uses Internet.
- iv. Streaming technology is considered to be a very important internet based network technology that enables the deployment of video conferencing services.
- v. Real-time streaming of videoconferences is of great importance as a videoconference service.
- vi. In order to make video conferencing to function effectively, the instruction and course content must be interactive, and the instructor must exhibit flexibility and creativity when teaching the class.
- vii. Video conferencing enhanced distance learning increases educational opportunities offered by any institutions. It reduces the costs of teaching and learning, while allowing students to have more access to a variety of degree programmers.

Challenges of Video Conferencing

- i. The geographical distance of the participants
- ii. The number of separate sites involved in the interaction.
- iii. The more groups are involved, the more complex the interaction
- iv. Technical issue
- v. managerial problems
- vi. Lack of motivation and the needs of the students, etc.

Skype Learning: This is also known as video call whereby a teacher will teach his students through phone calls. This type of teaching happens mainly in the developed world or in more digitalized countries like US, UK, CANADA, CHINA, and JAPAN etc. (Nwadike & Godwins, 2017, p. 259).

Zoom Application

Zoom application software is an online digital account that someone can download from application play store and create an account with it. You can use hold a large audience in a conference meeting and larger classes.

In contribution to the above, Mubarak (2021) reacted thus:

Zoom online conference tool is another yet very popular App/tool to consider when teaching online. Many organizations and other academic circle resorted to using this Application software during the Covid-19 pandemic period for their seminars and conferences. This app gives you the opportunity to present your material online live where you can share your power point slides to a large crowd. You can also controls who talks and there is a feature for allowing participants to raise up their hands to ask questions, just like atypical classroom you can interact with your students without much difficulty. Nigerian schools should provide training for their teachers and students in order to organize lessons and lectures so as to abide by the COVID-19 social distancing requirements. As a user all you need to do is to go either the Google play store for Android phones or App store for iOS user to download the App and then register your details to start zooming. But remember, you need to by giving the address for each chat room/ conference room in order to be able to join the conversation/lectures (p. 368).

Google Classroom

Google is the most widely web that teachers, students and researchers frequently used during investigation. Mubarak (2021) affirm thus:

It is undisputed that Google has been the most popular of all search engines in the World Wide Web. We see it as the default search engine in our web browser or the internet explorers on our computers and mobile phones, (p. 367).

Adedokun, Olasehinde-Williams, Obielodan & Salawu (2017), opine that:

The Google Apps for Education cover a wide range of free applications provided by GOOGLE to facilitate teaching/learning and interaction between and among teachers and students. Google apps have similar functional Web applications with traditional office suites, which includes: Gmail, Hangouts, Google calendar, Drive, Docs, Slides, Groups, News, Sheets, Play, Sites, Google classroom and a host of others.

Adedokun, Olasehinde-Williams, Obielodan and Salawu (2017) see:

Google classroom as a blended learning platform developed by Google to create an exciting experience for both teachers and students to conduct classroom activities in a paperless manner (p. 198).

Mubarak (2021) agreed with the view of Adedokun, Olasehinde-Williams, Obielodan and Salawu (2017) when he writes:

With this tool teachers can distribute assignments, communicate and collaborate with Students Online without having to see each other. You first create your classroom with the details needed, and then it gives you option to invite your students using your emails. However, this email should be a Google based (Gmail) before the students can be allowed to join the classroom. After that you can share media and also make a live streaming with your students so that the content of the curriculum can be effectively communicated. You can also add another teacher in case of collaborative teaching so that he can also share with the students what you are sharing with them. However, not with a personal account you can only add 250 students in a classroom. This is a limitation, especially for those having large classes in universities, it is only through the G-suit or School Account that one can add up to 1000 members, that is both teachers and students (p. 368)

In another perspective, Etherington (2017, as cited in Adedokun, Olasehinde-Williams, Obielodan & Salawu, 2017, p. 198) observe that Google Classroom is opened to any personal Google user to create and teach a class with invited students and experts participating asynchronously.

Features and prospects of Google Classroom

Among the essential features of the Google classroom is that when connected to the internet, students and teachers can interact without being physically present.

For the Students: Specially, Adedokun, Olasehinde-Williams, Obielodan & Salawu (2017) maintain that:

Students can be invited classes through the institutions data base, through a private code, or automatically imported from a school domain. Each class creates a separate folder in the respective users Drive, where the student can submit work to be graded by the teacher (p. 198).

For the Teachers: Furthermore, the prospect of Google classroom for teachers is as follows:

Teachers can monitor the progress for each student, and after been graded, return work, with comment. Teachers can also manage multiple classes, reuse existing announcements, assignments, or questions from another class, share posts across multiple classes and archive classes for future for future classes, (Adedokun, Olasehinde-Williams, Obielodan and Salawu 2017, p. 198)

Challenges of Google Classroom

Lapowsky, 2014; Luckerson (2015, as cited in Adedokun, Olasehinde-Williams, Obielodan & Salawu (2017, p. 198) summarized thus:

- i. Heavy integration of Google apps and services with limited or no support for external files or services
- ii. Lack of automated quizzes and tests
- iii. Lack of discussion forums or live chats that can aid in feedback effort
- iv. Data mining of Students browsing history, searches, and other usage of services for advertising
- v. Enabling the mass collection and storage of information on children without the consent of their parents.

Research Question One: To what extent do video conferencing influence the academic performance of postgraduate students in public universities in the South-South Geo-Political zone of Nigeria?

Table 1: Mean, Standard Deviation and Criterion Mean Analysis of Video Conferencing Influence the Academic Performance of Postgraduate Students in Public Universities in the South-South Geo-Political Zone, Nigeria.

S/N	Items	SA	A	D	SD	Mean	Std	Decision
1	Video conferencing involves two-way audio and video and data communication between two or more person's or group of people over a remote connection	421	359	0	0	3.53	0.78	Agree
2	Video conferencing is done over a variety of media, which uses Internet.	562	218	0	0	3.72	0.88	Agree
3	video conferencing system has become an integral part of modern society which provides many facilities like right to equal educational quality	332	316	132	0	3.25	0.86	Agree
4	It is now possible due to rapid advancements in video capturing, processing, compression and delivery technique	201	382	169	28	2.96	0.77	Agree
5	it is very cost effective for classes which may have small number of students in enrolled at its site	301	411	68	0	3.29	0.88	Agree
6	Video conferencing requires that both the transmitting and receiving site be set up with monitors and video camera	623	157	0	0	3.79	0.77	Agree
7	Reducing the cost of production of educational material and increasing the	321	446	53	0	3.49	0.69	Agree

	possibility to update educational materials more frequently.								
8	Video conferencing is done over a variety of media, the most popular of which uses Internet.	271	274	210	25	3.01	0.86	Agree	
9	Video conferencing enhanced distance learning, increases educational opportunities offered by any institutions	521	259	0	0	3.67	0.77	Agree	
10	The more groups are involved, the more complex the interaction	321	129	167	163	2.77	0.67	Agree	
	Total Grand Mean					3.34			

Criterion Mean* = 2.50: Scale Range: Very Low extent = 1.50-2.50, Low extent = 2.51-3.00, High Extent = 3.1-3.5, Very High Extent = 3.51 & Above

The analysis in the table reveals that all the items were agreed upon because their mean value were up to the criterion mean of 2.50. In all, a total grand mean of 3.34 was realized indicating that video conferencing influences the academic performance of postgraduate students in public universities in the South-South Geo-Political zone of Nigeria to high extent

Research Question Two: To what extent does Google Classroom influence the academic performance of postgraduate students in public universities in the South-South Geo-Political zone of Nigeria?

Table 2: Mean, Standard Deviation and Criterion Mean Analysis of Google Classroom Influence the Academic Performance of Postgraduate Students in Public Universities in the South-South Geo-political zone, Nigeria.

S/N	Items	SA	A	D	SD	Mean	Std	Decision
1	Google is the most widely web that teachers, students and researchers frequently used during investigation	402	378	0	0	3.51	0.85	Agree
2	We see it as the default search engine in our web browser or the internet explorers on our computers and mobile phone	309	471	0	0	3.39	0.98	Agree
3	The Google Apps for Education cover a wide range of free applications provided by Google to facilitate teaching/learning	384	292	58	104	3.37	0.75	Agree
4	Teachers and students conduct classroom activities in a paperless manner in Google classroom	304	311	56	109	3.03	0.78	Agree
5	With this tool, teachers can distribute assignments, communicate and collaborate with Students online without having to see each other	128	152	123	377	2.03	0.83	Disagree
6	Google classroom is opened to any personal Google user to create and teach a class with invited Students and experts participating asynchronously.	12	102	299	367	1.69	0.75	Disagree
7	Students can be invited to classes through the institutions data base, through a private code, or automatically imported from a school domain	292	308	111	69	3.05	0.86	Agree

8	Teachers can also manage multiple classes, reuse existing announcements, assignments, or questions from another class, share posts across multiple classes and archive classes for future classes	362	197	103	118	3.02	0.74	Agree
9	Teachers can monitor the progress for each student, and after been graded, return work, with comments.	81	218	81	400	1.97	0.85	Disagree
10	With a personal account you can only add 250 students in a classroom.	384	396	0	0	3.49	0.82	Agree
Total Grand Mean						2.85		

Criterion Mean^{*} = 2.50: Scale Range: Very Low extent = 1.50-2.50, Low extent = 2.51-3.00, High Extent = 3.1-3.5, Very High Extent = 3.51 & Above

The analysis in the table reveals that items 1, 2, 3, 4, 7, 8 and 10 had mean values above the criterion mean of 2.50. On the contrary, items 5, 6 and 9 had mean values below the criterion mean of 2.50. In all, a total grand mean of 2.85 was realized indicating that Google Classroom influence the academic performance of postgraduate students in public universities in the South-South Geo-Political zone of Nigeria to a low extent.

Test of Hypotheses

Hypothesis One: The use of video conferencing for learning does not significantly influence the academic performance of male and female postgraduate students in public universities in the South-South Geo-political Zone of Nigeria.

Table 3: T-test analysis of the use of video conferencing for learning does not significantly influence the academic performance of male and female postgraduate students in public universities in the South-South Geo-political Zone, Nigeria.

Gender	N	Mean	Std. D	Df	t	Sig	Result
Male	512	71.21	9.795	778	3.56	0.000	Significant
Female	268	68.46	12.226				

Table 4.19 shows that mean values were 71.21 for males and 68.46 for females. Standard deviation values were 9.79 and 12.22 respectively. Calculated t is 3.57 while sig. value is 0.000. Therefore, since ($0.00 < 0.05$) is less than 0.05 alpha at 778 degrees of freedom, the null hypothesis is rejected meaning that use of video conferencing for learning does not significantly influence the academic performance of male and female postgraduate students in public universities in the South-South Geo-political Zone of Nigeria.

Hypothesis Two: The use of Google Classroom for learning does not significantly influence the academic performance of male and female postgraduate students in public universities in the South- South Geo-political Zone of Nigeria.

Table 4: T-test analysis of the use of Google Classroom for learning does not significantly influence the academic performance of male and female postgraduate students in public universities in the South- South Geo-political Zone, Nigeria.

Gender	N	Mean	Std. D	Df	t	Sig	Result
Male	512	57.22	7.795	778	4.56	0.70	Insignificant
Female	268	57.46	9.226				

Table 2: shows that mean values were 57.22 for males and 57.46 for females. Standard deviation values were 7.79 and 9.22 respectively. Calculated t is 4.56 while sig value is 0.70. Therefore, since $(0.070 < 0.05)$ is greater than 0.05 alpha at 778 degrees of freedom, the null hypothesis is retained meaning that use of Google Classroom for learning does not significantly influence the academic performance of male and female postgraduate students in public universities in the South- South Geo-political Zone of Nigeria.

Discussion of Findings

From the research findings one: it is revealed that video conferencing influences the academic performance of post-graduate student in public Universities in South-south geopolitical zone of Nigeria to significant high extent. This means that postgraduate student in tertiary institution in the region use video conferencing a lot in the course of their academic performance. It also means as students who use video conferencing will likely perform better than those who do not use video conferencing in the process of teaching and learning. The finding of the study however is a bit surprising to the research because based on the power failure and lack of ICT facilities to support video conferencing, the researcher thought that it is practically difficult to utilize video conferencing in the process of the academic activities. The finding of Ayinde (2011) also differed from the current finding when it submitted that the use of video conferencing affects positively the academic performance of Post Graduate students.

From the research findings two: it is revealed that Google classroom influence academic performance of postgraduate in public University in the South-South geopolitical zone of Nigeria to a low and an insignificant extent. This means that the use of Google classroom by Post Graduate students their academic activities. The reason for this finding could be that they may be lack of technical expertise in the process of using the Google classroom. It could also mean that there are no facilities that would support the use of Google classroom. Finally, it could also be that the socio-economic differences amongst majority of the respondent may contribute to the lack of usage of Google classroom in carrying other academic activities by postgraduates' students. The finding of Krishe & Karpinski (2019) supports the present one by revealing significant influence of Google classroom on performance of postgraduates students in tertiary institution in Nigeria.

Conclusion

This study examined virtual learning influence on academic performance of post graduate students in the south- south geo-political zone, Nigeria. Two objectives, research questions and hypotheses were formulated for the study. The hypotheses focused on the difference between the opinions of male and female students on Google classroom and academic performance of post graduate students in the federal universities in the South-south Geo-Political zone of Nigeria. Furthermore, relevant literatures were reviewed. The literature on related study was grouped into conceptual framework. The conceptual framework was discussed under the concept of Video Conferencing and Google classroom on post-graduate students. The use of technologies has also been embraced starting from Video conferencing and Google classroom in learning to a high extent.

Recommendations

Based on the findings, the study recommends that:

- i. Government and educational stakeholders responsible for impacting these types of learning should improve on the provisions and facilities of this program so as to contribute positively to academic performance of student.
- ii. More facilities should be provided by educational stakeholders and government in particular that will support video conferencing since this has been revealed to influence positively the academic performance of postgraduate students.

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