

Virtual Classroom System and Students' Academic Performance in University of Ilorin

**Omosidi, Abdurahman Suyuti, Ajao, Rasheed Lanre, Ahmed, Raheemat
Opeyemi**

Department of Educational Management,
University of Ilorin, Ilorin, Nigeria

Department of Educational Planning, Research and Development,
Kwara State Ministry of Education and Human Capital Development, Ilorin
Department of Education, College of Arabic and Islamic Legal Studies,
Kwara State, Ilorin

omosidi.as@unilorin.edu.ng
rlajao1313@gmail.com

ahmedraheematomosidi@gmail.com
+2348035234840/ +2347036585347/ +2347063545863

Abstract

This study was conducted to examine the relationship between virtual classroom system and students' academic performance in University of Ilorin. Descriptive survey design of correlational type was adopted for the study. The population of the study comprised all the students in the Faculty of Education, University of Ilorin, Ilorin, Kwara State. A random sampling technique was adopted to select 180 respondents across the nine departments in the faculty. The main instruments used for the study were titled "Virtual Classroom System Questionnaire" (VCSQ) and "Students' Academic Performance Proforma" (SAPP). Three research hypotheses were formulated to guide the study and inferential statistics of Pearson Product Moment Correlation (PPMC) was used to test the hypotheses at 0.05 level of significance. The findings revealed that there was a positive relationship between virtual classroom system and students' academic performance in University of Ilorin. Based on the findings, it was recommended among others that; as technology becomes more and more embedded in school system, students must be provided with relevant and contemporary knowledge that allow them to successfully engage with virtual system.

Keywords: Google classroom, Moodle, Internet accessibility, virtual classroom, students' academic performance

Introduction

Virtual classroom has increasingly been used in most parts of the world as a viable alternative to conventional classroom teaching and learning. Bhuasiri, et al. (2012) viewed virtual learning as a modern medium of instruction through electronic means that promotes students' knowledge, skills and also leads to improvement in

their academic performance. They further stated that virtual learning brings about a revolution in education which leads to a change in the old or conventional system of teaching and learning which was more teacher-dominated but now gives room for learners to actively participate in the process – a learner-centered approach. Learning in tertiary institutions all over the world has undergone tremendous transformation, especially since the advent of Information and Communication Technology (ICT) (Bassey, et al., 2007). There has been a shift from traditional approach of teacher directed to modern methods where computer technology plays a significant role to the delivery of classroom instruction. This has promotes learning and made it more meaningful, where students can stay even in their homes or classrooms and join lectures without being physically present (Adewole-Odeshi & Egbe, 2014).

The significance of education, particularly in a developing country like Nigeria has increased because of the need to catch up with the developed world in several areas particularly in global competitiveness and best practices. As the world grows more towards being a global village, the need to innovate in the practice of teaching with particular reference to Information Communication Technology (ICT), becomes imperative. Owing to the advent of ICT, classroom environment for teaching and learning has changed. A teacher is no longer necessarily needed to emphasize face-to-face interaction before a group of students for lecturing, dissemination of a list of instructions and questions to be answered for assignment and then the eventual dismissal of the class.

Many schools are yearning to change the traditional brick-and-mortar classrooms with a teacher physically present and look on to technology driven strategies like the online environment where students and teachers are virtually present. Virtual classroom has been described by Turoff (2007) as a web-based environment that allows an individual to participate in live training events without traveling to any other place. With Virtual Classroom, you can sit in the comfort of your environment and listen to lectures, you can participate in the laboratory exercises, ask questions and effectively interact with the teacher as if the action is taking place in a conventional classroom but it is done with the help of technological gadgets as desktop that have internet and phone connection. The internet on the other hand provides such advantages and new ways of communicating, interacting, and assessing information for both teachers and students.

In another words, virtual classroom could be seen “as the classroom that is totally or partially capable of replacing the conventional educational system, evaluative and administrative function of a regular classroom by adopting the advanced computer and ICT technologies like the internet, e-mail, on-line chatting, World Wide Web(www), teleconferencing, and video conferencing" (Mangal & Mangal, 2009). The modern system of using internet in teaching and learning is receiving great attention globally. Thus, the use of virtual system of teaching and learning is phasing out the traditional method of teaching which is limited to chalk

and talk system of teaching and learning (Olibie, Ezoem& Ekene, 2014). The variables that contribute effectively to the academic performance of students at all educational levels have been an issue of interest to stakeholders in education, trainers, policy makers, administrators and researchers.

Academic performance of students is a principal yardstick of academic attainment at university level. Students with higher levels of achievement in higher institutions have high tendency to obtain good employment. Academic performance of students is a key factor in education of a country because it can be seen as a determinant of success of education of a country. Academic performance assumes a crucial role in producing the best quality graduates who will become outstanding pioneers in the workforce in a nation, and hence be in control of the nation's economic and social advancement (Nwokocha & Amadike, 2005). This can only be achieved if a nation values its education and is ready to bring innovation into the delivery system of learning.

The complete adoption and adaptation of Virtual system of learning become necessary as a result of the total lockdown, caused by the trending deadly disease popularly known as Corona Virus (Covid-19). The University of Ilorin was able to successfully carryout her academic activities even while students were at the comfort of their respective place of abode. The University of Ilorin made a publication about the commencement of Virtual Classroom and various faculties adopted different online platform which includes Microsoft team, Google Classroom, Zoom Meetings, Skype, Moodle, Telegram, Google Meet, WhatsApp, among others.

Virtual Classroom has proved to be very useful in terms of online instructional delivery making it possible and easier for instructors i.e. lecturers in the University of Ilorin to share and monitor training as well as enabling distance learning for students. The world has gone global, and in a bid to modernize teaching and learning with the view of bringing knowledge closer to the learners. It is therefore necessary for all and sundry both students and lecturers to brace up and meet up with the trending situation of the world especially as it concerns education and pedagogue. As the use of virtual learning is becoming more and more widespread in higher education it has become increasingly important to have a study such as this to examine the existence of the relationship between virtual classroom system and students' academic performance.

Statement of the Problem

Information and Communications Technology has rapidly covered the whole nations of the world, improving the technological awareness of students and various individuals in their pursuit to acquire diverse knowledge to harness their professional dreams. With this explosive awareness of technological knowledge, the higher education environment is expected to expand focus on meeting students' expectations with more attention in widening the students' greater involvement in virtual learning.

Various studies have been carried out within and outside Nigeria on virtual classroom and students' academic performance. For examples, Anekwe(2017) examined the impacts of virtual classrooms on students' learning. Virtual classrooms are technologically-driven classrooms that support self-directed and self-regulated learning. The study was carried out in two federal and two state universities in the South-East zone of Nigeria while the present study is on University in North-central Zone of Nigeria. Similarly, Falode, et al., (2015) examined whether Virtual Mathematics Classroom Package (VMCP) is suitable and effective in teaching and learning of Nigerian senior secondary school Mathematics concepts. This study is centered on learning Mathematics in secondary schools using Virtual classroom while the present study focuses on tertiary education. Adebayo (2019) carried out a study to determine the effect of e-learning tools on the students' academic performance in secondary schools in Ilorin metropolis, Nigeria. This study is limited to students' academic performance in secondary school while this present study is on students' academic performance in university. Furthermore, Sylvester, Paulinus, and Stella (2016) carried out a study to investigate Virtual Classroom Instruction on Academic Performance of Educational Technology Students in Distance Education, Enugu State. This study is on distance learning education system while the present study centered on conventional tertiary institution.

Most studies conducted on variables influencing academic performance of students in Nigeria. To the best of researcher's knowledge, little research works have been conducted on virtual classroom with other variables such as teachers' performance, learning outcome of students while most of the studies cited above were on students' academic performance in secondary schools while this present study is on students' academic performance in university, hence, the rationale for this study.

Purpose of the Study

The purpose of this study is to examine the relationship between virtual classroom system and students' academic performance in University of Ilorin, Nigeria. Specifically, other purposes are to:

1. Determine the relationship between the use of Google classroom to teach and students' academic performance in University of Ilorin;
2. Determine the relationship between the use of Moodle to teach and students' academic performance in University of Ilorin; and
3. Examine the relationship between internet accessibility and students' academic performance in University of Ilorin.

Research Hypotheses

The following hypotheses was formulated and tested at 0.05 level of significance

Main Hypothesis

Ho: There is no significant relationship between virtual classroom system and students' academic performance in University of Ilorin, Nigeria

Operational Hypotheses

Ho₁: There is no significant relationship between the use of Google Classroom to teach and students' academic performance in University of Ilorin

Ho₂: There is no significant relationship between the use of Moodle to teach and students' academic performance in University of Ilorin

Ho₃: There is no significant relationship between internet accessibility and students' academic performance in University of Ilorin.

Literature Review

Quite a lot of studies exist at both national and international level relating to Virtual Learning, e-learning, or distance learning; these terms are sometimes used interchangeably. The objective of this section is to review the few available materials or studies which are related to this study. Anekwe and Josephine Uzoamaka (2017) examine the impacts of virtual classrooms on students' learning. Virtual classrooms are technologically-driven classrooms that support self-directed and self-regulated learning. The study was carried out in two federal and two state universities in the South-East zone of Nigeria. Four research questions and four hypotheses guided the study. The sample comprised of 280 federal university students and 226 state university students given a total sample of 506 respondents. Stratified random sampling due to ownership (federal and state) was used. The results showed among others that virtual classrooms have positive impacts on the students of federal and state universities, they reported positively on their continued support and preparedness for virtual classrooms. Based on the findings, the recommendation were that many more students should be made to be more aware of the impacts of the virtual classrooms. Moreover, students should be motivated to be more familiar with the varieties of tools which are being used as a medium of Virtual Classroom instructional delivery.

Also, Falode, et al. (2015) examine whether Virtual Mathematics Classroom Package (VMCP) is suitable and effective in teaching and learning of Nigerian senior secondary school mathematics concepts. Three research questions were raised while one hypothesis was tested. The study adopted mix-method (survey and quazi-experimental) design. Twenty mathematics teachers were purposively sampled to evaluate the teaching functions of the package while intact classes of 102 senior secondary school students from two co-educational secondary schools were employed for the experimental exercise. Mathematics achievement test and virtual mathematics classroom evaluation questionnaire were the research instruments used for the study. Findings that emanated from the administration of the instruments indicated that VMCP is suitable in teaching of the concepts treated mathematics. The

package was therefore recommended for teachers and students' use as a supplement to conventional classroom instruction in order to greatly improve students' performance in Mathematics.

Adebayo (2019) carried out a study to determine the effect of e-learning tools on the students' academic performance in secondary schools in Ilorin metropolis, Nigeria. Descriptive research design of survey type was adopted for this study, a total of three hundred and thirty (330) teachers made up the sample of the study drawn from 10 public and private schools each. The instrument for the study consisted of 20 items questionnaire generated to answer the research questions and hypotheses. The study found that there is positive and significant relationship between the use of e-learning tools and students' academic performance. Based on the findings of the study, it was concluded that students' use of e-learning tools has significant effect on their academic performance. Thus, it is affirmed that e-learning tools would significantly promote students' interest in the learning contents, make learning easy for students, allow students and motivate students towards better academic performance. The study recommends that the use of e-learning tools and technology in secondary schools should be encouraged so as to improve students' academic performance significantly.

Similarly, Sylvester, Paulinus, Udom and Stella (2016) carried out a study to investigate Virtual Classroom Instruction on Academic Performance of Educational Technology Students in Distance Education, Enugu State. The population for this study was limited to the Students in National Open University, Enugu study Centre. Simple random sampling technique was used to select forty respondents from the educational technology students. A researcher's developed questionnaire was used to gather the needed data. Data were analyzed using frequency counts and percentage. The findings from this study suggested that the students' acknowledged that the availability and use of virtual classroom influenced their academic performance. Although the virtual classroom available was adequate, it was not often utilized for instruction. Thus, the researcher recommended that the virtual classroom should be utilized for maximum learning.

Virtual Classroom System has played a crucial role in the higher education institutions of Nigeria most importantly during the recent COVID-19 pandemic and the eventual locked down of entire nation. Owing to this, countless studies have been carried out on Virtual Classroom and the academic achievements of students in Nigerian Universities and worldwide. To the best of researchers' knowledge, only few studies have been carried out to explore the relationship between Virtual Classroom System and academic performance of students in the University of Ilorin and the level of satisfaction derived by students in the use of online teaching. In this regard, this study is an attempt to eliminate the research gap observed in previous researches. Thus, this study shall look into the relationship between Virtual Classroom System and academic performance of students in the University of Ilorin

and also to evaluate the level of satisfaction derived by both lecturers and students in the use of Virtual Classroom System of teaching and learning.

Methodology

The descriptive survey design was adopted to investigate the virtual classroom system and students' academic performance. The population of this study comprised the entire students of the University of Ilorin while target population of the study involved all the students in Faculty of Education, University of Ilorin, Kwara State. The sample for the study comprised of 180 students who were randomly selected from the nine departments in Faculty of Education, using simple random sampling technique. The main instruments used for the study were titled “Virtual Classroom System Questionnaire” (VCSQ) and “Students' Academic Performance Proforma” (SAPP). The draft of the questionnaire was validated by four lecturers in the department of Educational Management for corrections and necessary amendments for contents and construct validities. To determine the reliability of the instrument; test-retest reliability method was used to ascertain the reliability of instrument. Thus, a reliability coefficient of 0.75 was obtained. Furthermore, inferential statistics of Pearson Product Moment Correlation (PPMC) was used to test the hypotheses raised for this study at 0.05 level of significance using Statistical Package for Social Sciences (SPSS) version 24.0.

Data Analysis and Presentation of Results

Hypotheses Testing

Main Hypothesis

Ho: There is no significant relationship between virtual class room system and students' academic performance in University of Ilorin, Nigeria.

Table 1: Correlation analysis of virtual classroom system and students' academic performance

Variable	N	Mean	SD	Df	Cal r-value	P-value	Decision
Virtual Classroom System	180	2.01	.614				
				178	.663	.000	Ho Rejected
Students' academic performance	180	9.90	1.724				

P<0.05 at 0.05 alpha level

Source: Field work (2023)

Table 1 shows the calculated r-value of .663 while p-value (0.000) is lesser than the significance level of 0.05 for 178 degrees of freedom. Therefore, the

hypothesis which states that there is no significant relationship between virtual classroom system and students' academic performance in University of Ilorin was rejected. This means that, there is significant relationship between virtual classroom system and students' academic performance in University of Ilorin.

Ho₁: There is no significant relationship between the use of Google Classroom to teach and students' academic performance in University of Ilorin.

Table 2: Correlation analysis of the use of Google classroom to teach and students' academic performance

Variable	N	Mean	SD	Df	Cal r-value	P-value	Decision
The use of Google classroom to teach	180	2.27	.894				
				178	.756	.000	Ho Rejected
Students' academic performance	180	9.90	1.724				

P<0.05 at 0.05 alpha level

Source: Field work (2023)

Table 2 shows the calculated r-value of .756 while p-value (0.000) is lesser than the significance level of 0.05 for 178 degrees of freedom. Therefore, the hypothesis which states that there is no significant relationship between the use of Google classroom to teach and students' academic performance in University of Ilorin was rejected. This means that, there is significant relationship between the use of Google classroom to teach and students' academic performance in University of Ilorin.

Ho₂: There is no significant relationship between the use of Moodle to teach and students' academic performance in University of Ilorin.

Table 3: Correlation analysis of the use of Moodle to teach and students' academic performance

Variable	N	Mean	SD	Df	Cal r-value	P-value	Decision
The use of Moodle to teach	180	1.67	.473				
				178	.571	.000	Ho Rejected
Students' academic performance	180	11.97	1.20				

P<0.05 at 0.05 alpha level

Source: Field work (2023)

Table 3 shows the calculated r-value of .571 while p-value (0.000) is less than the significance level of 0.05 for 178 degrees of freedom. Therefore, the hypothesis which states that, there is no significant relationship between the use of Moodle to teach and students' academic performance in University of Ilorin was rejected. This means that, there is significant relationship between the use of Moodle to teach and students' academic performance in University of Ilorin.

Ho₃: There is no significant relationship between internet accessibility and students' academic performance in University of Ilorin.

Table 4: Correlation analysis of internet accessibility and students' academic performance

Variable	N	Mean	SD	Df	Cal r-value	P-value	Decision
Internet accessibility	180	2.10	.474	178	.661	.000	Ho Rejected
Students' academic performance	180	13.82	.808				

P<0.05 at 0.05 alpha level

Source: Field work (2023)

Table 4 shows the calculated r-value of .661 while p-value (0.000) is less than the significance level of 0.05 for 178 degrees of freedom. Therefore, the hypothesis which states that, there is no significant relationship between internet accessibility and students' academic performance in University of Ilorin was rejected. This means that, there is significant relationship between internet accessibility and students' academic performance in University of Ilorin.

Discussion of Findings

The findings on the main hypothesis revealed that there is a significant relationship between virtual classroom system and students' academic performance in University of Ilorin. This shows that there exists a positive relationship between virtual classroom system and students' academic performance. This is because the students were able to complete assignments either with Google Docs, sheets or slides and sent, same via Moodle to lecturers for grading, which implies that there were high levels of interactions between the lecturers and students and consequently influence directly teaching/learning situations during COVID-19 period. The implication was that the more students were involved in the use of virtual classroom system, the more it enhances the students' academic performance. This finding is in line with the findings of Falode, et al. (2015) that discovered that there is significant relationship between Virtual Mathematics Classroom Package (VMCP) and

effective in teaching and learning of Nigerian senior secondary school Mathematics concepts. Similarly, Anekwe (2017) also discovered positive relationship between virtual classrooms and students' learning. In another findings Adebayo (2019) supported the findings of this study where a positive significant relationship was discovered to exist between e-learning tools and students' academic performance in secondary schools in Ilorin metropolis, Nigeria.

There is a positive relationship between the use of Google classroom system to teach and students' academic performance in University of Ilorin. It shows that Google classroom is effective in hosting virtual classroom lessons and it has the advantages of improving students' academic performance. This was in line with Adebayo (2019) study which found that there is positive significant relationship between the use of e-learning tools and students' academic performance.

The hypothesis which stated that there is no significant relationship between Moodle and students' academic performance is rejected. This implies that, there is significant relationship between Moodle and students' academic performance in University. The findings revealed that students were able to answer quizzes and read materials on Moodle even while on offline and it also enhance and provides wider convey of learning activities which aids effective learning of the students. This was in line with Effendi and Yussof (2013), which concluded that students have a positive view towards Moodle.

The hypothesis which stated that there is no significant relationship between internet accessibility and students' academic performance is rejected. This implies that, there is significant relationship between internet accessibility and students' academic performance. The results show that internet connection has not always been a hindrance during a virtual classroom session, because through it, students were able to contribute to the classroom activities. The finding is in consonant with Anekweet al. (2017) who discovered a positive impact of virtual classrooms on students' learning. Virtual classrooms are technologically-driven classrooms that support self-directed and self-regulated learning through internet accessibility.

Conclusion

It is sufficient based on the findings of the study to conclude that there is a significant relationship between virtual classroom system and students' academic performance in University of Ilorin. There is a significant relationship between the use of Google classroom to teach and students' academic performance in the University of Ilorin. Also, the findings revealed that there is a significant relationship between the use of Moodle to teach and students' academic performance in University of Ilorin. It was also revealed that there is a significant relationship between internet accessibility and students' academic performance in University of Ilorin.

Recommendations

The following recommendations are made:

1. As technology becomes more and more embedded in school system, students must be provided with relevant and contemporary knowledge that allow them to successfully engage with virtual system.
2. As the use of virtual learning is becoming more and more widespread in higher education; it has become increasingly important to give students proper training on how to use Google classroom and Moodle application.
3. The school management should ensure that reliable internet facilities is put in place like bandwidth and coverage so as to enable effective learning via virtual system.

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