



MOBILE APPLICATION SOFTWARE CORRELATES OF LECTURERS INSTRUCTIONAL EFFECTIVENESS IN PUBLIC UNIVERSITIES IN SOUTH EAST, NIGERIA

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Abstract

The study examined mobile application software adequacy and usage as correlates of lecturer's instructional effectiveness in public universities in South East Nigeria. Two research questions were answered and two null hypotheses postulated and tested at 0.05 level of significance guided the study. The study adopted a correlational design. The population was 634 lecturers from six colleges and faculties of education in the studied universities. The sample size was 317 lecturers which represented 50% of the population. This consisted of 80 lecturers' from Michael Okpara University of Agriculture, Umudike (MOUUAU), 75 lecturers from University of Nigeria, Nsukka (UNN), 53 lecturers' from Alex Ekwueme Federal University Ndufu Alike Ikwo (AE-FUNAI), 28 lecturers from Abia State University, Uturu (ABSU), 48 lecturers from Imo State University, Owerri (IMSU) and 33 lecturers from Ebonyi State University Abakaliki (EBSU). The sample was arrived at using four-staged sampling technique. Data for the study was collected using researchers' self-developed questionnaires titled Mobile Application software Questionnaire (MASQ) and Lecturers Instructional Effectiveness Questionnaire (LIEQ). The instruments were validated by two experts from the Department of Educational Management and one expert from the Department of Science Education specialized in Measurement and Evaluation, all from MOUUAU. The reliability of the instruments was determined using Cronbach Alpha Method which yielded an alpha of .70 and .80 respectively which were considered reliable. Data were analyzed using Pearson Product Moment Correlation Coefficient (PPMCC) to answer the research questions while linear regression analysis was used to test the null hypotheses at .05 level of significance. The findings of the study revealed that use of zoom mobile application technologies to positive low extent correlate with lecturers instructional effectiveness in public universities in south east, Nigeria. Use of goggle classroom mobile application technology to a positive low extent correlate with lecturers' instructional effectiveness in public universities. The study recommended that Google classroom, zoom technological software and other internet sites that supports educational activities should be incorporated into the university curriculum as means of instructional delivery. The university management, educational policy makers and NUC should introduce measures such as strict laws and provision of education during orientation week to new students on how to manage their mobile phones during classroom lectures; an approach that may possibly help in increasing the quality of instructional delivery in the university system.

Keywords: Mobile application, zoom application, goggle classroom application, instructional effectiveness.

Introduction

The 21st century global society is known by its numerous emergent technological software that supports effective teaching and learning exercise in the educational world. This software is installed in computer systems and mobile phone for easy access of academic and other relevant information. Rumuanyika and Mashenen (2015) defined mobile phones as electronic wireless device that can provide suitable learning



platforms as they compose a lot of applications which students may use in their academic activities and still, they are cheaper and affordable. Diverse portable mobile devices are used in day-to-day activities of man to fulfill diverse roles in our daily life activities; this may involve iPhones (iPhone 8, 11xi, amongst others), Samsung j7, smart phones like infinix note 8, note 9, 10 etc.

Mobile phone technologies have contributed meaningfully to educational development and self-reliance of the students' in searching for information and ideas that are knowledge oriented thus make learning student-centered. Baradaran and Kharazyan (2016) concerted that variety and usage of technological devices have been increasing in education system. Nishizaki (2015) aptly noted that many new technologies such as laptops, computers, high speed Wi-Fi, tablet, cell phones and other mobile application technologies have found their places in the classroom as well as become an integral part of teaching-learning activities in the 21st century classroom.

In today's society, many mobile application technologies support daily transactions in both education and other sectors of the economy. Ogedi (2021) noted that this has made available different smart phones and diverse applications that support the use of such phone. Smartphones have at present a relevant potential as learning tools towards the development of educational interventions based as it has attracted increasing attention.

Zoom mobile application is a conference and classroom video software designed by zoom video communication which supports effective online organizational transaction which the educational sector is inclusive irrespective of the location of the communication. Zoom accommodates free plan in its usage which allows approximately 100 concurrent participants, with limited time factor of 40 minutes. Lorenz, Griffith and Issac (2020) contend that zoom is the basic social media software utilized by millions of people globally which most users are high school and college students as such learning in educational institutions becomes online based. Users also has the option to upgrade their zoom communication link by subscribing to a paid plan. Zoom highest plan supports up to 1,000 concurrent participants for meeting online which has the capacity to sustain instructional exercise for about 30 hours which is a day and 6 hours. Zoom mobile application technology was developed by Eric Yuan on 10 September, 2012 with supporting operating system such as windows, macOS, Linux, Android, iOS and chrome iOS. The software is configured in 11 languages which supports videoconferencing, VoIP and instant messaging.

Saliently, the outbreak of corona virus indeed introduced many societies to adopt the use of zoom for both religious, political, educational and other social activities for achieving a sustainable economy. The application and utilization of zoom technology actually increases the work done in different sectors of the economy, promote distance education, encourage online bi-lateral corporation and social relations. The increase in the use of zoom made the application the 5th most downloadable mobile and computer supported device globally in 2020, rating the user rate for 477 million downloads. Abbott (2020) argued that zoom platform is a classroom technology that keeps people together not minding the largeness of the class, thou not all student may benefit. Zoom therefore is an active classroom participatory and exploratory device that supports effective instructional delivery by the lecturers which also permits the learner to contribute their ideas during instructional activities as well as to enhance their technological competence in the online classroom. Google classroom thus is another social media dimension that facilitates quality instructional exercise in educational sector and other sectors of the economy.

Goggle classroom is a popular Web 2.0 tools that provides the users with different interesting facilities and applications that supports their information needs. Wang, Woo, Quek, Yang and Liu (2012) opined that google classroom like many other Web 2.0 tools, has the potential of carrying out instructional activities as a result of its unique built-in functions that offer new pedagogical, social and technological affordances. Google Classroom is a new mobile technological application introduced in Google Apps for Education activities in 2014. This innovative classroom facilitates the lecturers and other instructors in the educational sector to create and organize assignments quickly, provide feedback efficiently, and communicate with their classes in a speed and ease approach.

On the context of integration of Google classroom into the education for data mining and related applications concepts, the users (lecturers or students) must possess good perception and control ability that Google classroom is useful in facilitating instructional process, as its ease of use they will intend to use it when needs arise. Izwan, Jastini and Rodzi (2016) assert that the instructor of goggle classroom uphill tasks is to make students aware of its use in future workplace, as well as to ensure students confidence that it is easy to use. Google classroom can be presumed to become a 21st century pedagogical/cognitive tool to help in



changing the focus of the classroom activities from one that is lecturers-centered and controlled to student-centered which is open to inquiry, dialogue, and creative thinking on the part of students as active participants.

Similarly, Uhegbu (2012) utilization is the actual putting into appropriate use of acquired information. Utilization therefore deals with quality accessibility of information resources which the user needed to accomplish a stated purpose. Ogedi, Bappah and Nwialu (2017) argued that online application could be used to empower teachers to become innovative in their teaching and also to develop students' creative skills and innovation. It entails that the present day social networking and online system has drastically improved through the use of emergent mobile phones and their applications. In agreement with this, Musa, Alhaji and Aliyu (2017) consented that a broad range of everyday activities such as shopping, socializing, reading, eLearning, checking of mail and video call can be done using mobile phones (smart phones) and their application. Mobile application technologies are important and promising tools for improving instructional delivery in university education in Nigeria.

Instructional effectiveness is very cogent in evaluating the overall educational system since it is only through effectiveness, efficiency and quality that organizational goals could be achieved. Akinz (2011) defined instruction as the whole process applied for learning to occur and for the development of the target behavior. School serves the function of impacting the learner with adequate knowledge, attitude, value and skill to apply what he/she has learnt after instruction has been completed. Effectiveness in organization the university community precisely is linked to efficiency which is the ability to get things done correctly in the context of output-input system process with a limited resources and limited time.

Statement of the Problem

The present-day society is marked by its technological trends in carrying out daily transactions. This has made mobile application technologies to be compatible with mobile phones such as smart phones, iPhones, tablets, apple phones for convenient sourcing of information using the internet. The ideal situation involves the use of mobile application technological software such as zoom and goggle classroom for effective delivery of instruction amongst lecturers. This should incorporate instructional effectiveness, managing learning for instructional effectiveness, availability of mobile application technologies, lecturers' positive attitude towards the use of mobile technologies, constant power supply, good network operator, low cost of internet access, competence in using mobile application technologies amongst lecturers.

Others include competence among students', availability of mobile application software, good management strategies in using mobile application technology, quality control over mobile application technologies, effective instructional control, organization and implementation all of which remain essential factors in education system. If mobile application software such as google zoom, google classroom and others is introduced in the education system, the tendency of students been exploratory and self-reliant in carrying out their educational activities becomes obtainable.

Currently in the education system, efforts have been made by the university management to provide Wi-Fi network within the university range but not connected to lecturers' and students' cell phones as a result of high cost of internet subscription. The cost of providing mobile phones and the installation of applications that supports instructional activities in the classroom is incurred by the lecturers' and students; poor practical use of mobile application technologies for instruction delivery and manipulative skills in using mobile apps for social networking and other social activities remain trendy among users of mobile phone.

However, it seems that the use of technology in the education system has remained a serious problem in the use of mobile application technologies for managing learning and ensuring effective delivery of instruction amongst lecturers. The problem of instructional ineffectiveness and management of learning caused by non-availability of mobile application technologies, high cost of mobile phones like iPod, iPhone, apple phone, Blackberry and other smart phones; poor network operating system, high cost of internet access, unwilling attitude among lecturers' to adopt the use of mobile application technologies for instructional delivery, incompetence in using emergent mobile technological facilities by lecturers, not believing to have control over technologies by lecturers'. The issue of poor instructional activities using mobile phone application technology, inability to adapt to paradigm shift in technology by the lecturers and students amongst others remain a constraint in making available as well as using mobile application technologies for managing learning and effective delivery of instruction by lecturers.

The problem of this study put in question form is; how do mobile application technology software correlate with lecturers instructional effectiveness in public universities in South East, Nigeria?

Purpose of the Study

The purpose of this study is to ascertain if mobile application technologies software correlates with lecturers instructional effectiveness in public universities in South East, Nigeria. Specifically, the study seeks to:

4. Ascertain the extent to which zoom mobile app technology correlate with lecturers instructional effectiveness in public universities in South East, Nigeria.
5. Ascertain the extent to which goggle classroom mobile application technology correlate with lecturers instructional effectiveness.

Research Questions

The following research questions were asked to guide the study:

4. To what extent does zoom mobile app technology correlate to lecturers instructional effectiveness in public universities in South East, Nigeria?
5. To what extent does goggle classroom mobile application technology correlate with lecturers instructional effectiveness?

Hypotheses

The following null hypotheses were formulated and was tested at 0.05 level of significance to guide the study:

H₀₁: There is no significant relationship between zoom mobile application technology and lecturers instructional effectiveness in public universities in South East, Nigeria.

H₀₂: There is no significant relationship between goggle classroom mobile application technology and of lecturers instructional effectiveness.

Methodology

The study adopted a correlational design. The design was used to ascertain the perception of the lecturers on managing learning strategies as a correlate of lecturers' instructional effectiveness in public universities in South East Nigeria. Maduabum (2014) opined that correlational design is one aimed at determining the relationship between variables which enable a researcher to ascertain the extent to which variation in one variable is associated with variation in another. The accessible population of this study was 634 lecturers from six colleges or faculties of education from the studied universities. The universities studied were University of Nigeria Nsukka (151 lecturers), Michael Okpara University of Agriculture Umudike (161 lecturers), Alex Ekwueme Federal University Ndufo Alike Ikwo (106 lecturers), Abia State University Uturu (56 lecturers), Imo State University Owerri (95 lecturers) and Ebonyi State University, Abakaliki (65 lecturers). (Personnel Administration Department MOUAU, AEFUNAI, UNN, ABSU, EBSU and IMSU).

Sample and sampling technique

The sample size for this study was 317 lecturers which represented 50% of the population. This consisted of 75 lecturers from UNN, 80 lecturers from MOUAU, 53 lecturers from FUNAI, 28 lecturers from ABSU, 48 lecturers from IMSU and 33 lecturers from EBSU. The sample was arrived at using four-staged sampling technique.

In the first stage, the researchers' adopted a purposive sampling technique in selecting six universities out of ten universities in south east Nigeria. The choice of the institutions was on the bases that the selected institutions have functional education faculties and lecturers to respond to the instruments. In the second stage, quota sampling technique by convenience was used by the researchers to select respondents based on the departments offering education. Johnson and Christensen (2000) opined that in quota sampling, the researcher determines the appropriate sample size or quotas for the groups identified as important and take convenience sample from those groups. Thirdly, simple random sampling technique was used by the researchers to select the sample size. The use of simple random sampling technique was justified because the respondents were given equal opportunity to be selected for the study. Finally, Proportionate stratified random sampling technique was used to select the sample size of the study from the six universities involved. This was done using sample fraction of .5. Ball and Gall in Uzoagulu (2011) opined that for a population of 1000 use 20%, for 5000 use 10% and a population of 10,000 use 5%. Supporting this view, Nwana in Uzoagulu (2011) opined that no fixed number or percentage is ideal rather it depends on the circumstances of the study that determines what number or percentage of the population should be used. The researcher justified the use of 50% of the population on the bases of the view of Nwana and also if 20% of population of 1,000 is 200 and the researcher



used 50% of a population of 634 which gave a sizes sample of 317. Managing Learning Strategies Questionnaire” (MALESQ) and “Lecturers’ Instructional Effectiveness Questionnaire” (LIEQ) were used for data collection. The instruments were face validated by two experts from the Department of Educational Management and one expert from the Department of Science of Education all from Michael Okpara University of Agriculture Umudike. Croanbach alpha method was used to test the internal consistency of the instruments which yielded an index of .71 for MALESQ and .80 for LIEQ. The data collected from the field were analyzed using Pearson Product Moment Correlation Coefficient to answer the research questions while linear regression analysis was used to test the null hypotheses at .05 level of significance.

Decision Rule:

The strength of the relationship was established using Creswell (2008) correlation coefficient scale thus +/- .70 to 1.00 Strong/High Extent relationship, +/- .40 to .69 as Moderate/Medium Extent relationship and +/- .00 to .39 no correlation/ weak Extent relationship

Data Analyses

This chapter presents the results of the data analyses and discussions of the findings of the study. It consisted of result presentation, testing of hypotheses, findings and discussion. A total of 317 copies of the questionnaire were distributed to lecturers in public universities in south east, Nigeria. Two hundred and fifty-nine copies of the questionnaire were completed and returned from public universities studied. This gave 81.7% of the return rate of the questionnaire administered to the respondents. More so, the remaining 58 copies of the questionnaire showed that 17 copies were not adequately filled and completed which gave 5.3% not returned while 41 copies of the questionnaire were not retrieved from the respondents which gave 13%. In all, the percentage of unreturned questionnaire stood at 18.3%.

Result Presentation

The results were presented in tables as follows.

Research Question One:

To what extent does zoom of mobile application technology correlate with lecturers instructional effectiveness in public universities in South East, Nigeria?

The result was presented on table 1 with summary of public university lecturers’ responses.

Table 1 Correlation Matrix Between Zoom Mobile Application Technology and Lecturers Instructional Effectiveness

Correlations			
ZMAT	Pearson Correlation	ZMAT	LIE
	Sig. (2-tailed)	1	.267**
	N	259	259
LIE	Pearson Correlation	.267**	1
	Sig. (2-tailed)	.000	
	R ²	.071	
	N	259	259

**. Correlation is significant at the 0.05 level (2-tailed). ZMAT= Zoom Mobile Application Technologies; LIE = Lecturers Instructional Effectiveness; N = Number of Respondents

Data in table 1 indicated a correlation coefficient (r) of .267 which is a positive correlation and is within the coefficient limit of +/- .00 to 0.39 no correlation/ weak/low extent relationship. This indicates that zoom mobile application to a positive low extent correlate with lecturers instructional effectiveness in public universities in South East Nigeria. The coefficient determination (R²) .071 indicates that 7.1% of the variance



observed in the use of zoom mobile application technology is explained by the variation in lecturers instructional effectiveness. It implies that use of zoom mobile application technology to a positive low extent correlate with lecturers instructional effectiveness in public universities in south east Nigeria.

Hypothesis One:

There is no significant relationship between zoom mobile application technology and lecturers instructional effectiveness in public universities in South East, Nigeria.

Data for hypothesis one is presented in table 2

Table 2: Regression Analysis of Relationship Between Zoom Mobile Application Technologies and Lecturers Instructional Effectiveness

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.880	1	13.880	19.652	.000 ^a
	Residual	181.510	258	.706		
	Total	195.390	259			

a. Predictors: (Constant), ZMAT

b. Dependent Variable: LIE

Df = degree of freedom, F = F-calculated, correlation is significant at 0.05 level (2tailed)

Data in table 2 revealed that F-calculated value of 19.652 at 0.05 level of significance. The table also shows that the P-value of .000^a which is less than the alpha value at 0.05; thus, null hypothesis which states that There is no significant relationship between zoom mobile application technology and lecturers instructional effectiveness in public universities in south east, Nigeria is rejected. This mean that zoom mobile application technologies significantly relate with lecturers instructional effectiveness in public universities in south east, Nigeria.

Research Question Two

To what extent does the use of google classroom mobile application technology correlate with lecturers instructional effectiveness?

Table 3: Correlation Matrix of Use of Goggle Classroom Mobile Application and Instructional Effectiveness

		GMAT	LIE
GMAT	Pearson Correlation	1	.242 ^{**}
	Sig. (2-tailed)		.000
	N	259	259
LIE	Pearson Correlation	.242 ^{**}	1
	Sig. (2-tailed)	.000	
	R ²	.059	
	N	259	259

^{**}. Correlation is significant at the 0.5 level (2-tailed).

Data in table 3 indicated a correlation coefficient (r) of .242 which is a positive correlation and is within the coefficient limit of +/-0.00 to 0.39 indicating no correlation/ weak/Low Extent relationship. This indicates that use of Goggle classroom mobile application technology to a positive low extent correlate with lecturers instructional effectiveness in public universities in south east Nigeria. The coefficient determination (R²) .059 indicates that 5.9% of the variance observed in the use of goggle classroom mobile application technology is explained by variation in lecturers instructional effectiveness. It implies that use of goggle



classroom mobile application technology to a positive low extent correlate with lecturers instructional effectiveness in public universities in south east, Nigeria. **Hypothesis Two**
There is no significant relationship between goggle classroom mobile application technology and of lecturers instructional effectiveness.

Table 4: Regression Analysis of Relationship Between Goggle Classroom Mobile Application Technologies and Lecturers Instructional Effectiveness

	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.704	1	10.704	16.020	.000 ^a
	Residual	171.721	258	.668		
	Total	182.425	259			

a. Predictors: (Constant), GMAT

b. Dependent Variable: LIE

Df = degree of freedom, F = F-calculated, correlation is significant at 0.05 level (2 tailed)

Data in table 4 revealed that F-calculated value of 16.020 at 0.05 level of significance. The table also shows that the P-value of .000^a which is less than the alpha value at 0.05; thus, null hypothesis which states that There is no significant relationship between goggle classroom mobile application technology and lecturers instructional effectiveness in public universities in South East, Nigeria was rejected. This mean that use of goggle classroom mobile application technology significantly relate with lecturers instructional effectiveness in public universities in south east, Nigeria.

Findings of the Study

The study made the following findings:

4. That use of zoom mobile application technologies to positive low extent correlate with lecturers instructional effectiveness in public universities in south east, Nigeria. That use of zoom mobile application technologies significantly relate with lecturers instructional effectiveness in public universities in south east, Nigeria.
5. Use of goggle classroom mobile application technology to a positive low extent correlate with lecturers' instructional effectiveness in public universities. That use of goggle classroom mobile application technology significantly relate with lecturers instructional effectiveness in public universities in south east, Nigeria.

Extent zoom mobile application technology relate to lecturers instructional effectiveness in public universities in South East, Nigeria

Data on table 1 and 2 indicated a correlation coefficient (r) of .267 and F-calculated value of 19.652 at 0.05 level of significance which is a positive correlation and is within the coefficient limit of +/-0.00 to 0.39 no correlation/ weak/Low Extent relationship. This indicates that zoom mobile application to a positive low extent relates with lecturers instructional effectiveness in public universities in South East Nigeria. The coefficient determination (R^2) .071 indicates that 7.1% of the variance observed in the zoom mobile application technology is explained by the variation in lecturers instructional effectiveness. It implies that use of zoom mobile application technology to a negative high extent correlate with lecturers instructional effectiveness in public universities in South East Nigeria. The P-value of .000^a which is less than the alpha value at 0.05; thus, null hypothesis was rejected. This mean that use of zoom mobile application technology significantly relate with lecturers instructional effectiveness in public universities in South East Nigeria.

In line with the findings of this study, Rumanyika and Mashenen (2015) in their study that majority of students switch on their mobile phones in silent mode with the intention to use them for calling or receiving calls, for texting SMS, for interacting with social media like facebook, twitter, WhatsApp, youtube and for surfing information while the classroom lectures are in progress. Agreeing to this view, Jackie in Udo (2019)



proposed that since the students now own mobile devices, it would be of immense benefits if students should bring along their own devices to school for teaching and learning purpose. This simply means that most students have access to mobile app technologies but do not apply them for their academic activities.

Extent of the use of google classroom mobile application technology and lecturers instructional effectiveness

Data on table 3 and 4 indicated a correlation coefficient (r) of .242 and F-calculated value of 16.020 at 0.05 level of significance which is a positive correlation and is within the coefficient limit of ± 0.00 to 0.39 indicating no correlation/ weak/low extent relationship. This indicates that use of goggle classroom mobile application to a positive low extent relates with lecturers instructional effectiveness in public universities in south east, Nigeria. The coefficient determination (R^2) .059 indicates that 5.9% of the variance observed in the use of goggle classroom mobile application technology is explained by the variation in lecturers instructional effectiveness. It implies that use of goggle classroom mobile application technology to a negative high extent correlate with lecturers instructional effectiveness in public universities in South East Nigeria. Since the P-value of .000^a is less than the alpha value at 0.05; the null was rejected. This mean that use of goggle classroom mobile application technologies significantly relate with lecturers instructional effectiveness in public universities in south east, Nigeria. The finding of the study supports the work of Inije, Utoware and Kren-Ikidi (2013) which finds out that e-learning technology resources were not extensively utilized in teaching business education in the colleges of education due to many challenges which include shortage of qualified staff with e-learning application, lack of e-learning facilities and infrastructure in the colleges of education. Owusu-Acheaw and Agatha (2015) in their study revealed that most of the respondents visit their social media sites using their phones and spend between thirty minutes to three hours per day. In addition, the study revealed that the use of social media sites had affected academic performance of the respondents negatively and that there was direct relationship between the use of social media sites and academic performance. In essence, the use of mobile application technology tends to correlates with lectures instructional effectiveness in weak positivity.

Recommendations

4. Google classroom, zoom technological software and other internet sites that supports educational activities should be incorporated into the university curriculum as means of instructional delivery.
5. The university management, educational policy makers and NUC should introduce measures such as strict laws and provision of education during orientation week to new students on how to manage their mobile phones during classroom lectures; an approach that may possibly help in increasing the quality of instructional delivery in the university system.

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