



EFFECT OF MOBILE LEARNING METHODS ON STUDENTS' ACADEMIC ACHIEVEMENT AND RETENTION IN MARKETING IN SENIOR SECONDARY SCHOOLS IN RIVERS STATE

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Abstract

The study examined the effect of mobile learning methods on students' academic achievement and retention in marketing in senior secondary schools in Rivers State. The study was guided by four research questions and hypotheses. The design of the study was a pretest – posttest quasi experimental research design that involved two experimental and one control groups. The population was 2386 SS2 students from all the government owned secondary schools in Rivers State. A sample size of 100 SS2 students were selected based on purposive sampling. The instrument used for data collection was marketing achievement test (MAT). The instrument was face and content validated. A reliability index of 0.78 was established using Kuder Richerdson 20 (KR-20). The data collected were analyzed using mean and standard deviation to answer the research questions while analysis of covariance (ANCOVA) was used to test the null hypotheses at 0.05 level of significance. The study found that there was a significant difference among the mean achievement scores of students in MAT taught using zoom, google classroom and lecture methods among others. It then recommended that google classroom and zoom mobile learning methods should be used more in teaching marketing than lecture method among others.

Keywords: Mobile Learning Methods, Academic Achievement, Retention, Marketing

Introduction

Marketing is often seen as dynamic system; it is dynamic in the sense that marketing evolves. The evolution of marketing philosophy does not presuppose the history of marketing. One of the straightest forward says that marketing is getting the right product (services) in the right quantity to the right place with the right price and most essentially at the right time. The definition by American Marketing Association (AMA, 2013) is commonly referred to as the 5Rs (real, relevant, reach, receptivity and result) in marketing. It means that the right product (services) must be made available to the consumers at the right quantity, place and time most desirable to them and of course, the organization must make profit out of the operation. This definition clearly distinguishes marketing from those other disciplines with which it is often confused. It is concerned with every aspect of the product from its inception, design, pricing, distribution, selling and promotion unit until it finally reaches the hand of the consumer. Marketing must also ensure customer satisfaction by the provision of an after – sales service such as maintenance, repairs, instruction booklets, spare parts and quality guarantees.

Marketing is one of the trade or entrepreneurship subjects taught in senior secondary schools and it is compulsory that students register at least one entrepreneurship subject during their senior secondary school certificate examination (National Policy on Education, 2014). Marketing encompasses production, distribution, consumer behavior, merchandizing among others. It involves integrated analysis, planning



and controlling of the marketing mix variable (Product, price, promotion and distribution) to create exchanges and satisfy both individual and organization objectives (Iyang, 2015). It is the identification, establishment, maintenance and enhancement of relationships with customers and other stakeholders at a profit, so that the objectives of the parties are met. It is on the account of this, that Institute of Marketing (UK) defines marketing as the management process which identifies, anticipates and supplies customer requirements.

According to the National Policy on Education (2013), recognises the importance and functions of marketing both as a teaching subject in the secondary school and its importance in entrepreneurship and classified or recognized it as an entrepreneurship subject meant to inculcate self-reliance and offer job opportunities to the graduates. This is why one of the objectives of post – basic Education and career development include; provide entrepreneurial technical and vocational job – specific skills for self-reliance and for agricultural, industrial, commercial and economic development (NPE, 2014) among others. The extent to which the objectives of teaching marketing has been achieved leaves much to be desired within the context of poor enrolment of this subject in the school, poor academic achievement and poor retention noted over a long period of time. It is on account of this that Meenu (2016) asserted that the level of academic achievement of learners has drawn several attentions of scholars, policy makers, parent and school administrators.

Several efforts have been made to overcome the problem of poor academic achievement and retention in marketing yet the problem persists. For examples, many strategies have been employed by the teachers to teach marketing in schools. Some of these common strategies used by teachers includes; traditional method of teaching, project, lecture, play way, demonstration and among others. Basically, one of the challenges facing teaching of trade subject like marketing is how to produce independent learners using Information and Communication Technology (ICT) while maintaining students' interest and involvement. Mobile learning methods (MLM) in present day society functions as a remedy to the problem. Students in Secondary Schools may appear to have involved actively in responding to 21st century emerging technological gadgets used for instructional delivery in their various fields of study. This permits them to respond to face- paced dictation and repeated type questions that require them to stay in the classroom at certain period and get ready for rapid – five interactions with their teacher. Studies have shown that students are more committed and task-oriented when exposed to the use of emerging teaching and learning with technological gadgets for instructional activities such that teaching and learning are made student- centered and by implication involving problem solving approach together with mobile learning methods. Mobile learning methods help students learn how to be self- dependent and reliant with their academic activities, how to monitor one's own learning process, assess ones learning outcome and work cooperatively with other learners without the teachers' involvement which in turn results to collaborative learning.

The 21st century proliferation of digital technology has not only affected human ways of life it has also created a new paradigm in education. Teaching and learning in various educational classrooms around the world are progressively keeping pace with this technology revolution (El-Abbouri *et al.*, 2014). Learners of the 21st century, being more of digital natives, are no longer comfortable with the traditional system of education, where learning is restricted to the four walls of the classroom. The gap of accessibility to learning has been bridged through mobile learning which is an anytime-and-anywhere-mode of learning that involves instantaneous access to personalized content with tools and resources such as i-pads, smartphones and tablet in order to create new knowledge, satisfy learners' curiosities, promote collaborate learning with others and enhance learning experiences. Initially, mobile phones were mainly used exclusively for communication purpose; but recently, they have become a vital tool of core pedagogical activities in educational institutions.

Mobile learning is an instructional strategy that is conducted and delivered through portable devices such as tablets, personal digital assistants (PDAs) and smartphones. It is the ability to obtain or provide digital learning assets which include any form of media or content made available on a personal device such as smartphone and tablets. Mobile learning is also known as m-learning, u-learning, learning while mobile, handled learning, anytime learning, anywhere learning, ubiquitous learning and personalized learning (Bahera, 2013).

Furthermore, Vanikaloo and Permananel (2012) submitted that mobile learning refers to the exploitation of ubiquitous handheld device, together with mobile phone and wireless networks to expedite, enhance, support as well as extend the reach of teaching and learning. The sub- variables of mobile learning methods that support effective educational teaching and learning includes WhattsApp, Zoom, Facebook, Google Classroom, Google Meet, Video Conferencing, Telegram, Instagram and Twitter



amongst others. With mobile learning method, students are able to interact anytime from wherever with different instructional materials (Text, Sound, Pictures, Video and so on) with the help of internet service. In using mobile learning methods, students control their own learning and they feel that making mistakes is part of learning and free to interact with their instructors as well as ask questions freely during and after instructional exercise. It also helps them in achieving eventful mastery. Mobile learning methods has become a new building block in education because of its ability to provide a more flexible content and access to instructional materials without considering time and distance. One of the 21st century electronic classroom supported learning is mobile learning methods.

Imperatively, mobile learning methods (MLM) is among the electronic means of sourcing for quality educational information that supports effective teaching that has the tendency of result to students' academic achievement. Furthermore, mobile learning offers a great potential as a learning tool to be used in learning situations where the students are geographically dispersed, to foster collaborative learning, engaged the students with adequate content and can be used as an alternative to computers or books. Moreover, with the aid of mobile technology, we can pull and push information and provide learning to any student or person at any place at any given time. As opposed to the conventional kind of learning, mobile learning methods is arguably cheaper. With special reference to the National Policy on Education (FRN, 2014) which emphasizes that teaching shall be practical, activity based, experiential and ICT supported; teachers of marketing should be in dire need to find appropriate teaching environment/ method that can enhance students' achievement.

As such Zoom and Google classroom are considered in this study in order to examine their effectiveness over the traditional method of teaching. Zoom application is mobile handle software that supports effective teaching in the educational sector. It permits both the instructor (teacher) and the learner to use mobile phone to carry out instructional exercise. Zoom as a mobile learning method help teachers and learners to work together. Zoom also combines video conferencing, online meetings and in-conference group chat. Such instructional delivery is made easy and comprehensive for online class and group work (Learning Technology Center, 2018). The zoom platform is an app that makes the teaching process easier and gives the opportunity to teachers and learners to expand their knowledge better. Many schools in different countries use zoom in order to increase students' motivation and interest. (Tanti as cited in Ayoub, 2019) opined that zoom app is a solution for educational researchers who are constantly trying to develop innovative means to enhance the interactivity of the learning process in order to stimulate students' motivation and engagement in discussions for knowledge exchange. Zoom is a very useful platform and effective for both teachers and learners because learners work together.

On the other hand, Google classroom is also an emerging digital technology tool an instructor (teacher) can use to engage students in the classroom. According to Nagele (2019), Google classroom is a digital industry that provides numerous benefits which facilitate virtual teaching and learning. Google classroom is a learning strategy that has evolved into a platform for promoting critical thinking, collaboration and social interactions with peers and teachers on academic activities. Google classroom is an interface portal created by Google companies as an online educational platform.

Statement of the Problem

Marketing as one of the entrepreneurship subjects taught in the secondary school aimed at making students acquire skills in order to be self-reliant. As such, this makes it very important subject which challenges students to perform well in the subject. Contrary to this expectation students have consistently performed poorly.

The Nigerian education system has been more intense by endemic twin of examination malpractice and poor academic achievement. The failure to address and find lasting solution to these abysmal failures has put the country in a bad light. While the standard of the output (graduates) of educational institutions keeps deteriorating even as the government and stakeholders in education continues to place responsibility elsewhere. This has significantly slowed the nation's development and expansion.

The emphasis on creative teaching strategies is rapidly replacing traditional teaching strategies in the process of teaching and learning. Good teaching in a subject like marketing is anticipated to result in students learning what they want to learn, but this cannot be accomplished without finding different ways to motivate them. Students' attitudes toward learning in general and marketing in particular may have been negatively impacted by teachers' incapacity to alter their teaching tactics through the use of new teaching strategies. Poor academic achievement by students in both internal and external exams is the outcome of this, and it has further caused the country significant economic and social losses. A paradigm



shift in instructional methodologies is necessary given that all corrective actions taken to increase the students' leaning interest and academic achievement appeared to have failed. Hence, the researcher embarked on the study, effect of mobile learning methods on students' academic achievement and retention in marketing in senior secondary schools in Rivers State.

Research Question

The following research questions posed guided the study.

1. What are the mean achievement scores of students in marketing when taught using Zoom, Google classroom and the lecture methods?
2. What are the mean retention scores of students in marketing when taught using Zoom, Google classroom and the lecture methods?
3. What is the interaction effect of gender and teaching methods on students' achievement in marketing?
4. What is the interaction effect of gender and teaching methods on students' retention in marketing?

Hypotheses

The following null hypotheses were formulated to guide the study and were tested at .05 level of significance:

1. There is no significant difference in the mean achievement scores of students in marketing test when taught using Zoom, Google classroom and lecture methods.
2. There is no significant difference in the mean retention scores of students in marketing test when taught using Zoom, Google classroom and lecture methods.
3. There is no significant interaction effect between gender and teaching methods on students' mean achievement scores in marketing.
4. There is no significant interaction effect between gender and teaching methods on students' mean retention scores in marketing.

Methods

The study adopted quasi-experimental design. The population was 2386 students in all the government owned senior secondary school two (SSS 11) in Rivers State in 2021/2022 academic session. The study was carried out in Senior Secondary Schools in Rivers State. The sample size was 100 senior secondary school two (SS11) students that offered marketing. This was determined using purposive sampling technique. The instrument for data collection was an achievement test titled: Marketing Achievement Test (MAT). The instrument was face and content re-validated by five (5) experts. The reliability of the instrument (MAT) was established using Kuder Richardson (K-R20) formula. A reliability coefficient of .78 was obtained which was high enough for the study. In answering the research questions, mean and standard deviation was used while Analysis of covariance was used to answer the hypotheses at .05 level of significance. The decision rule was if the calculated p-value was greater than the level of significance, accept the null hypothesis and if the p-value is less than the level of significance, reject the null hypothesis.

Results:

Research Question 1: What are the mean achievement scores of students in marketing, when taught using zoom, google classroom and the lecture methods?

Table 1: Pre-test and post-test mean achievement scores of students in marketing taught using zoom, google classroom and lecture methods.

Methods	N	Pretest		Post test		Mean Gain
		SD ₁	X ₁	X ₂	SD ₂	
Zoom	30	6.77	1.91	20.17	2.64	13.40
Google classroom	34	5.79	2.06	21.56	3.28	15.76
Lecture method	36	6.28	1.75	12.94	1.55	6.67

Source: Field Survey, 2023.



Data in Table 1 indicate that students taught marketing using zoom method had a mean achievement score of 6.77 and a standard deviation of 1.91 in the pre-test and a mean score of 20.17 and a standard deviation of 2.64 in the post-test. Students taught using Google classroom had mean score of 5.79 and standard deviation of 2.06 on pre-test while they obtained mean score of 21.56 and standard deviation of 3.28 in the post-test. Students taught using the Lecture method had a mean achievement score of 6.28 and standard deviation of 1.75 in the pre-test while they obtained mean score of 12.94 and standard deviation of 1.55 in the post-test.

From the result, those taught using google classroom had the highest mean achievement score of 15.76, while those taught using zoom had mean achievement score of 13.40 and those taught using lecture method had the least mean achievement score of 6.67.

Hypotheses 1: There is no significant difference in the mean achievement scores of students in marketing test when taught using zoom, google classroom, and lecture methods.

Table 2: Analysis of Covariance (ANCOVA) for Mean Achievement of students in marketing taught using zoom, google classroom and lecture methods.

Source	Type III sum of squares	df	Mean square	F	Sig
Corrected Model	1513.007	3	504.359	78.250	.000
Intercept	3206.435	1	3206.435	497.473	.000
Pre-test	21.765	1	21.675	3.363	.070
Methods	1477.664	2	738.832	114.629	.000
Error	618.763	96	6.445		
Total	34676.000	100			
Corrected Total	2131.840	99			

Source: Field Survey, 2023

The result in Table 2 shows the analysis of Covariance (ANCOVA) of mean achievement scores of MAT when taught using zoom, google classroom and lecture methods. The results showed that the Fcal of 114.629 was found to be significant at .000 ($p < 0.05$) which is less than the 0.05 significant level set for the study. The null hypothesis is therefore rejected indicating that a significant difference existed among the mean achievement scores of students in MAT when taught using zoom, google classroom and lecture methods.

Research Question 2: What are the mean retention scores of students in marketing when taught using Zoom, Google classroom and lecture methods?

Table 3: Post-test and retention mean scores of students in marketing taught using Zoom, Google classroom and the lecture methods

METHODS	N	Post Test		RETENTION		MEAN DIFF
		X	SD	X	SD	
Zoom	30	20.17	2.64	17.57	2.43	2.60
Google Classroom	34	21.56	3.28	16.97	3.69	4.59
Lecture Method	36	12.94	1.55	10.56	1.48	2.39

Source: Field Survey, 2023.



Data in Table 3 indicate that students taught marketing using zoom had a mean post-test achievement score of 20.17 and standard deviation of 2.64 and a mean retention score of 17.57 and standard deviation of 2.43.

Students taught using Google classroom had a mean post-test achievement score of 21.56 and a standard deviation of 3.28 and a mean retention score of 16.97 and standard deviation of 3.69. Those taught using lecture Method had a mean post-test achievement score of 12.94 and a standard deviation of 1.55 and a mean retention score of 10.56 and standard deviation of 1.48.

From the result in Table 3 students taught using Google had the highest- mean difference retention score of 4.59, those taught using zoom had a mean difference retention score of 2.60 and students taught using lecture method had mean difference retention score of 2.39.

Hypothesis 2: There is no significant difference in the mean retention scores of students in marketing test when taught using zoom, google classroom and lecture methods.

Table 4: Analysis of Covariance (ANCOVA) for the mean Retention Scores of Students in marketing using zoom, google classroom and lecture methods.

SOURCE	Type III Sum of Squares	Df	Mean Square	F	Sig
Corrected Model	1050.507	3	350.169	49.080	.000
Intercept	2151.646	1	2151.646	301.574	.000
Pre-test	12.293	1	12.293	1.723	.192
Methods	1040.428	2	520.214	72.913	.000
Error	684.933	96	7.135		
Total	23758.000	100			
Corrected Total	1735.440	99			

Source: Field Survey, 2023.

Data in Table 4 show the analysis of Covariance (ANCOVA) of mean retention scores of MAT taught using zoom, google classroom and lecture methods. The result showed that the F-cal of 72.913 was found to be significant, at .000(P<0.05) which is less than 0.05 significant level set for the study. The null hypothesis is therefore rejected indicating that a significant difference existed among the mean retention scores of students in MAT when taught using zoom, google classroom and lecture methods.

Research Question 3: What is the interaction effect of gender and teaching methods on students' achievement in marketing?

Table 5: Mean achievement scores of students in marketing test based on gender and teaching methods.

METHOD	GENDER	N	PRE-TEST	SD	POST-TEST
Zoom	Male	14	6.86	1.96	19.50
	Female	16	6.69	1.92	20.75
Google	Male	16	6.13	1.96	21.44
	Female	18	.50	2.15	21.67

Source: Field Survey, 2023.

Data in Table 5 show the achievement mean retention scores of students in marketing test based on gender and teaching methods. Data in Table 5 revealed that male students in the zoom group had a



mean of 6.86 and standard deviation of 1.96 in the pre-test while in the post-test, the male students had a mean of 19.50 and standard deviation of 1.96. Data in Table 5 also revealed that the female students in the zoom group had a mean of 6.69 and standard deviation of 1.92 in the pre-test while in the post-test, the female students had a mean of 20.75 and a standard deviation of 1.92.

On the other hand, result in Table 5 also revealed that male students in the google group had a mean of 6.13 and standard deviation of 1.96 in the pre-test while in the post-test, the male students had a mean of 21.44 and a standard deviation of 1.96. In the same Table, the female students in the google group had a mean of 5.50 and standard deviation of 2.15 in the pre-test while in the post-test, the female students had a mean of 21.67 and a standard deviation of 2.15.

Research Question 3: What is the interaction effect of gender and teaching methods on students' achievement in marketing

Table 6: Mean achievement scores of students in marketing test based on gender and teaching methods.

METHOD	GENDER	N	PRE-TEST	SD	POST-TEST
Zoom	Male	14	6.86	1.96	19.50
	Female	16	6.69	1.92	20.75
Google	Male	16	6.13	1.96	21.44
	Female	18	5.50	2.15	21.67

Source: Field Survey, 2023.

Data in Table 6 show the achievement mean retention scores of students in marketing test based on gender and teaching methods. Data in Table 6 revealed that male students in the zoom group had a mean of 6.86 and standard deviation of 1.96 in the pre-test while in the post-test, the male students had a mean of 19.50 and standard deviation of 1.96. Data in Table 6 also revealed that the female students in the zoom group had a mean of 6.69 and standard deviation of 1.92 in the pre-test while in the post-test, the female students had a mean of 20.75 and a standard deviation of 1.92.

On the other hand, result in Table 6 also revealed that male students in the google group had a mean of 6.13 and standard deviation of 1.96 in the pre-test while in the post-test, the male students had a mean of 21.44 and a standard deviation of 1.96. In the same Table, the female students in the google group had a mean of 5.50 and standard deviation of 2.15 in the pre-test while in the post-test, the female students had a mean of 21.67 and a standard deviation of 2.15.

Hypothesis 3: There is no significant interaction effect between gender and teaching methods on students' mean achievement score in marketing.

Table 7: Mean achievement scores of students in marketing test based on gender and teaching methods.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig
Corrected model	1524.883	6	254.147	39.941	.000
Intercept	3152.789	1	3152.789	3.126	.00
Pre-test	20.403	1	20.403	3.126	.080
Gender	2.622	1	2.622	.402	.528
Methods	1464.248	2	732.124	112.179	.000
Gender *Methods	9.898	2	4.949	.758	.471



Error	606.957	93	6.526
Total	34676.000	100	
Corrected Total	2131.840	99	

Source: Field Survey, 2023.

Data in Table 7 revealed that Fcal value of .758 was not significant at 0.05 (P>0.05). since it is greater than 0.05 level set for the study, the null hypothesis is therefore accepted indicating that there was no significant interaction effect between gender and teaching strategies on students' mean achievement scores in marketing test.

Research Question 4: What is the interaction effect of gender and teaching methods on students' retention in marketing?

Table 7: Mean retention interaction of students in marketing test based on gender and teaching methods.

METHOD	GENDER	N	POST- TEST	SD	RETENTION	SD
Zoom	Male	14	19.50	2.79	17.64	2.52
	Female	16	20.75	2.44	17.50	2.42
Google	Male	16	21.44	3.69	16.56	3.79
	Female	18	21.67	2.97	17.33	3.66

Source: Field Survey, 2023.

Data in Table 7 revealed mean interaction retention scores of students in marketing test based on gender and teaching methods. The result showed that male students in the zoom group had a mean of 19.50 and standard deviation of 2.79 in the post-test, while in the retention test, the male students had a mean of 17.64 and standard deviation of 2.52. Result in Table 7 also indicated that the female students in zoom group had a mean of 20.75 and standard deviation of 2.44 in the post-test, while in the retention test, the female had the mean of 17.50 and standard deviation of 2.42.

Data in Table 7 revealed that male students in the google group had a mean of 21.44 and standard deviation of 3.69 in the post-test while in the retention test, the male students had a mean of 16.56 and standard deviation of 3.79. On the other hand, the female students in the google group had a mean of 21.67 and standard deviation of 2.97 in the post-test, while in the retention test, the female students had the mean of 17.33 and standard deviation of 3.66.

Hypothesis 4: There is no significant interaction effect between gender and teaching methods on students' mean retention scores in marketing test.

Table 8: Analysis of interaction effect between gender and teaching methods on students' mean retention scores in marketing test.

Source	Type III Sum of Squares	Df	Mean Squares	F	Sig
Corrected Model	1055.811	6	175.969	24.079	.000
Intercept	2110.286	1	2110.286	288.770	.000
Pre-test	11.089	1	11.089	1.517	.221
Gender	2.144	1	2.144	.293	.589
Methods	1038.283	2	519.141	71.039	.000
Gender*Methods	2.842	2	1.421	.194	.824
Error	679.629	93	7.308		
Total	23758.000	100			
Corrected Total	1735.440	99			

Source: Field Survey, 2023.



Data in table 8 revealed Fcal. Value of .194 was not significant at 0.05($P > 0.05$). Since it is greater than 0.05 level set for the study. The null hypothesis is therefore accepted indicating that no significant interaction effect between gender and teaching strategies on students' mean retention scores marketing test.

Discussion of findings

From the findings of the study, the result showed that students taught marketing using google classroom had the highest mean gain achievement score. As such, the mean achievement score of students taught using google classroom significantly differed from those taught using lecture method. This implies that the use of the google classroom method/medium is very important when teaching marketing and can conveniently replace the use of lecture method. The present finding therefore agreed with Shahinaz (2017) who found a statistical significant difference between the use of google classroom and the lecture method in increasing teaching efficiency of educational college students of its levels and academic achievement in computer in favour of the use of google classroom. It is on the account of these results that Wang et al (2012) opined that google classroom like many other web 2.0 tools have the potential of carrying out instructional activities as a result of its unique built in functions that offer new pedagogical, social and technological affordances. This is why Ogedi (2021) asserted that innovative classroom involving the use of google classroom facilitates the lecturer 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.

The study also revealed that the mean achievement scores of students taught marketing using zoom method or application also differ significantly from those taught using lecture method. These findings have highlighted the importance of using mobile learning methods in teaching students over the use of lecture method especially in technology marketing. These present findings agreed with Ogedi (2021) whose study revealed that availability of mobile application technologies to a positive low/weak extent correlates with lecturers' instructional effectiveness in public universities in South East Nigeria. It is on this basis that he recommended amongst others that there is need for training and retraining of lecturers to acquaint them with the development of new technologies for instructional delivery.

On the other hand, these present findings disagree with Sana (2011) whose findings indicated that the extensive use of Facebook which is an aspect of mobile learning methods could cause students with extraverted personalities perform poorly in academics. However, they observed that students who are more self-regulated control their presence on these platforms more effectively. They explained further that students' cognitive absorption with Facebook is regulated only by their self-control and personality traits which determine how much time they spend on Facebook.

The findings of the present study revealed that there was no significant interaction effect between gender and teaching strategies on students' mean achievement scores in marketing test. Similarly, it was found that there was no significant interaction effect between gender and teaching strategies on students' mean retention scores in marketing test. The present findings are in agreement with Mwangi et al (2019) who found no statistically significant effect of gender interaction on academic relationship between gender interactions and academic achievement of learners in chemistry.

Similarly, the present findings agreed with Simiku and Patricia (2016) who found that gender of the students has no significant ($P < 0.05$) interaction effects with the treatment. The present finding also agreed with Umoru and Olawafemi (2019) whose finding revealed that the interaction effects of teaching methods and gender was not significant on students' academic achievement and retention in business studies.

Conclusion

Based on the findings obtained, the authors concluded that all the students in the three groups were relatively at the same achievement level before the treatment. After the treatment, the achievement of those in google classroom and zoom groups achieved higher than those exposed to lecture method. Also, the achievement of male and female students in the experimental groups-zoom and google classroom application did not differ. More so, there was no difference in their retention. The use of zoom and google classroom media can be conveniently used in teaching both sexes and should be adopted over the use of lecture method in teaching marketing to the students by the teachers. Moreover, the zoom and google classroom applications encourage high retention ability among students.



Recommendations

Based on the findings and conclusion of the study, the following recommendations were made;

1. Google classroom and zoom mobile learning methods or media should be used more in teaching marketing than lecture method since they promote achievement and retention of materials learned.
2. Teachers of marketing should be trained and retrained on the job to adopt the use of google classroom and zoom in the teaching and learning of marketing. Training of these teachers could be done by the government, stakeholders and relevant professional bodies through seminars, workshops and conferences.
3. The curriculum planners should plan the nation's marketing curriculum to accommodate the use of google classroom and zoom for the students especially during the time of emergencies.

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