



Effect of Mobile Learning Strategy on Interest and Academic Achievement of Secondary School Students in English Language in Abia State

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Abstract

This study determined the effect of mobile learning strategy on interest and academic achievement of secondary school students in English Language in Abia State. There were four specific purposes which were translated into four research questions and four null hypotheses accordingly. The study adopted pretest post test quasi-experimental design. The population size for the study was 2,498 students which consisted of 1,090 males and 1,408 females in public senior secondary two of 2024/2025 academic session in Abia State. The sample size was 75 students from two intact classes in the three education zones. A multi-stage sampling approach involving purposive and simple random sampling techniques was used for the study. The instruments for data collection were an achievement test titled: English Language Achievement Test (ELAT) and English Language Interest Scale (ELIS). The instruments were validated by three experts. Kuder Richardson formula twenty (K-R20) was used to determine the reliability coefficient of ELAT as 0.80, while Cronbach Alpha formula was used to determine the reliability coefficient of the English Language Interest Scale (ELIS) as 0.83. The research questions were answered using mean and standard deviation. To test the hypotheses, analysis of covariance (ANCOVA) was used at 0.05 level of significance. It was found out that the mobile learning strategy proved to be more effective, as it produced higher mean interest and achievement gains compared to conventional teaching method. The study also revealed that while gender significantly influenced students' interest under the mobile learning strategy (in favour of males), it did not significantly influence achievement under the same strategy. Based on the findings, it was recommended that English Language teachers should adopt mobile learning strategy more consistently in classroom instruction. Teachers should ensure equal participation of male and female students during collaborative learning activities to prevent gender imbalance in classroom engagement.

Key Words: Academic Achievement, Conventional Learning, English Language, Gender, Interest, Mobile Learning

Introduction

English Language as one of the core subjects taught in the secondary schools has become a vital tool for personal and professional growth. It serves as a global language, enhances communication, provides access to information and opens up career and educational opportunities. As such, this makes it very essential subject which challenges students to perform well in the subject. Contrary to this expectation, students have consistently performed poorly.

Good teaching in a subject like English Language 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' interest towards learning English Language may have been negatively impacted

by teachers' incapacity to alter their teaching tactics through the use of new teaching strategies. Mobile learning strategies have been widely embraced by male and female Senior Secondary Students, as they gained global attention and increasingly integrated into education systems, their specific effects on students' interest and achievement remain under explored and contended. The dynamic nature of mobile learning enriched by multi-media capabilities and interactive features have the potential to not only enhance learning outcome but also stimulate students' curiosity and interest.

Despite all these positive effects of mobile learning strategies on interest and achievement of male and female students in Abia State, mobile learning

strategies face challenges such as poor internet connectivity, digital divide, lack of mobile device and limited technological literacy. It is on this tasks that this study is carried out to ascertain the effects of mobile learning strategies on students' interest and achievement and to seek solution to the challenges.

Language is the most important tool that allows individuals to interact in the society. Today, one of the most widely used languages in the globalized world is English. According to Oxford Learner's Dictionary (2019), English refers to the language originating of England, now spoken globally and used for international communication. Shrishthy (2023) highlighted that English is the global language and one of the most dominating languages of the world which is having its impact on every field of work. The real situation is that in many countries in the world, the common and second language is English. English language plays a key role in global communication, access to information, career opportunities, cultural exchange and personal and intellectual development (Juan, *et al*, 2023). English Language is widely used as the language of internalized communication and it's a dominant language in many fields and research. As a result, knowledge of English is essential for effective communication with people from around the world. English has a phonological system involving remarkable complex consonant clusters and a large inventory of distinct vowel nuclei, a bad, confusing and hard to learn alphabetic orthography riddled with exceptions, ambiguities and failures of the spelling to correspond to the pronunciation, a morphology that is rather more complex than is generally appreciated with seven or eight paradigm patterns and a couple of hundred irregular verbs, a large multi layered lexicon containing roots of several quite distinct historical sources and a syntax. As the world becomes increasingly interconnected, fluency in English will become an increasingly variable skill. Hence researchers and teachers are urged to do their best to provide students with the right pedagogical tools to help them succeed in English Language Learning.

Learners of the 21st Century being more of digital natives are no longer comfortable with the conventional or traditional system of education where learning is restricted to the four walls of the classroom. Conventional method of learning relies on students spending a lot of time reading texts, translating them, doing exercises and tests. In this learning, a long elaborate explanations of the complexities of grammar are given (grammar provides the set of rules for

joining words together) and instruction focus on the form of inflection of words, little attention is paid to the content of texts, which are treated as grammar meant for analysis (Alexandru – Florin, 2023). In addition, Brown, (2015) stated, "In the case of using this method, long and detailed explanations of the intricacies of grammatical rules and forms are supplied for students to memorize and apply the syntactic rules to other examples". In conventional or traditional learning, the teacher is the one and the only controller of the learning environment. As the teacher holds the supreme powers, they play the role of decision makers. Students are considered as mere objects to fill in with information. This does not help learners. Thus, the gap to be filled

Contrarily, in a student centered learning atmosphere, the students are in control of their learning and their learning environment will be collaborative, independent and competitive. On the other hand, mobile devices have shown to help present information in multiple formats, helping learners acquire the four skills (Listening, reading, speaking and writing) when learning English as a second Language (Juan, *et al*, 2023). This means that mobile devices allow students to actively construct knowledge, using multiple means in ways hardly possibly with other pedagogical alternatives. Using mobile learning devices as part of a well-structured academic intervention enhances students' chance of mastering English as a second language. 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 contents with tools and resources such as smartphone, I-pads and tablets in order to create new knowledge, satisfy learners' curiosities, promote collaborative learning with others and enhance experience. The 21st century proliferation of digital technology has not only affected human ways of life, it has created a new paradigm in education. 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 on and delivered through portable devices such as tablets, personal digital assistants (PDAs) and smart phones. It is the ability to obtain or provide digital learning assets which include any form of media or contents made available on a personal devices such as smart phones and tablet (Juan, *et al*, (2023) According to Behera,

(2022), Mobile Learning is also known as M. Learning, U-Learning, Learning while mobile handled learning, anytime learning, anywhere learning, ubiquitous learning and personalized learning. Mobile Learning can be conceptualized from two major perspectives; Learning delivered and supported by mobile computing devices and Learning that is both formal and informal (Gikas, & Grant, 2020). Mobile Learning utilizes mobile computing devices such as wifi, short message system (SMS), global positioning system (GPS) and so on, in the delivering of instruction and also a viable tool in or outside the classroom learning activities (Lai, et al., 2021). Mobile learning strategies encompass a wide range of activities including the use of educational applications, interactive video lessons, real-time quizzes and collaborative platforms. These strategies aim to make learning more accessible engaging and effective by utilizing the unique features of mobile devices. Mobile learning strategies are: Social learning, Personalized learning and so on.

Social learning is the process by which individuals learn from others through observation, imitation and interaction. Social learning strategy is a set of approaches to get students to become active participants in class through interaction with others and sharing of knowledge they have. Social learning makes the students feel more connected to their peers and teachers, this helps increase their engagement in learning. Students who deserve successful problem-solving by peers or teachers are more likely to replicate those strategies themselves (Schunk, 2017). Social Learning strategy emphasizes interaction and collaboration among students to facilitate language acquisition. These strategies involves activities like group work, peer teaching and discussion, allowing learners to benefits from each other's knowledge and communication skills. Teachers can assign students to work in small groups to discuss, debate (on topics) and solve problems together. By collaborating or working in groups, students can engage ideas, clarify the understanding and learn from the perspective of others. Social learning encourages students to give and receive feedbacks.

Social learning as a mobile learning strategy hold great promise for transforming education. With the proliferation of smart phones, tablets and other mobile devices, mobile learning strategies have become an integral part of modern education, offering diverse opportunities for fostering students' interest and achievement. Students' interest is a critical factor

in the learning process as it determines the level of engagement and motivation learners bring to educational activities. Interest refers to a student's tendency to be engaged and motivated by learning and academic pursuits. Interest is a powerful motivation and process that energizes learning and guides academic and career trajectories (Renninger & Hidi, (2016). When students find learning materials and methods relevant, enjoyable and stimulating, their interest is naturally heightened. On the other hand, when students are interested in an academic topic, they are more likely to go to class, pay attention, become engaged, take more course as well as process information effectively and ultimately well. Mobile learning strategies have the potential to tap into this interest by offering visually rich and interactive resources that captivate attention and sustain curiosity. A study was carried out by Ogunmakin (2018), on the effects of mobile learning on students' academic performance, students' attitudes and interest about the use of mobile devices for learning. It was found that mobile learning had quite significant effect on students' academic performance, students' attitudes and interest of those using mobile phone for learning were moderately positive with a pooled full of 89.48%. Hussain (2017) carried out a research on mobile electronic technology and interest, and found out that mobile electronic learning positively affects students' interest in learning. In another submission, Ezeugwu & Ezeudu, (2022) found out in their study on mobile technology learning and interest, that there is no relationship between the two. This discrepancy in the findings of previous researchers makes it necessary for the present study.

Furthermore, social learning allow educators to tailor contents to individual interference and competence, making the learning experience more meaningful, engaging and promote academic achievement. Academic achievement is one of the primary goals of any educational initiatives and it is often used as a benchmark to evaluate the effectiveness of teaching, methods and tools, Academic achievement refers to success in the area of academic usually assessed with achievement test. Achievement is the degree of success reached or attained in some specific area (Ishaku, 2015). The academic achievement of an individual could be defined as the learning outcome of the individual, this includes the knowledge, skills and ideas acquired and trained through the course of study within and outside the classroom situation. Researches were carried out

on mobile learning and academic achievement. For example, Denir & Akpinar (2018) conducted a study on effects of mobile learning applications on students' academic achievement and attitude in Turkey. It was found out that mobile learning promotes academic achievement. Bello and Aliyu (2022) investigated the relationship between using smart phones for learning and academic achievement of secondary school students in Nigeria. The result of the study shows that using smart phones for learning improves general knowledge and has a good impact on secondary school students' academic achievement. A research was carried out by Olumide (2023) on the influence of smart phone interaction on academic achievement in Nigerian higher learning institutions. Result shows that among students who use tablets for both academic and social purposes, 6% achieved a CGPA of 4.5 and above. Furthermore, those who solely use tablet for academic purposes have none with a CGPA of 4.5 and above, but 33.33% were within the range of 2.0 – 4.49. From the reviewed studies, there are variations among previous researchers on the effect of mobile learning on academic achievement. Therefore, the present study sought to find out the effect of mobile learning on interest and academic achievement of secondary school students in English in Abia State.

More so, students' interest and academic achievement in English Language may be influenced by gender. This is because male and female are biologically different, though all cultures interpret and elaborate their inherent biological difference into a set of social expectation about what behaviour and activities are appropriate for them and what right, resources and even power they possess. Also, many people speculate that the sex of a student whether male or female is a determinant to academic achievement in a particular subject. Studies suggest that while mobile learning can benefits both male and female students in English Language Learning, there may be nuanced differences in their engagement and preferences. Bekx, et al (2019) found out in the research they carried out that females use various language learning strategies more often than males; as a result, they perform better academically than males. Hong, et al, (2022), stated that previous studies indicate that females are more likely to develop mobile phone involvement, however, no difference in how males and females used mobile phones were found in many studies. Despite all these positive effects of mobile learning strategies such as social learning on interest and achievement of male and female students, mobile learning strategies face

challenges such as poor internet connectivity, digital divide, lack of mobile device and limited technological literacy. It is on this tasks that this study is carried out to ascertain the effects of mobile learning strategies on students' interest and achievement and to sought solution to the challenges.

Research Questions

The following research questions guided the study:

1. What are the mean interest scores of students in English Language when taught using social learning strategy and conventional method of learning in Abia State?
2. What are the mean interest scores of male and female students in English Language when taught using social learning strategy in Abia State?
3. What are the mean achievement scores of students in English Language when taught using social learning strategy and conventional method of learning in Abia State?
4. What are the mean achievement scores of male and female students in English Language when taught using social learning strategy in Abia State?

Hypotheses

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

- HO1: There is no significance difference in mean interest scores of students in English Language test when taught using social learning strategy and conventional method of learning in Abia State.
- HO2: There is no significance difference in the mean interest scores of male and female students in English Language test when taught using social learning strategy in Abia State.
- HO3: There is no significance difference in the mean achievement scores of students in English Language test when taught using social learning strategy, personalized learning strategy and conventional methods of learning in Abia State.
- HO4: There is no significance difference in the mean achievement scores of male and female students in English Language test when taught using social learning strategy in Abia State.

Methodology

The study adopted pretest, post-test quasi-experimental design. The population for the study was all the senior secondary school two (SS II) students in Abia State. The population size for the study was made up of 2,498 students which consisted of 1,090 males and 1,408 females in public senior secondary two of 2024/2025 academic session in Abia State (Ministry of Education, Abia State; Statistics Office, July, 2025). The sample size was 75 students from two intact classes in the three education zones. A multi-stage sampling approach involving purposive and simple random sampling techniques was used for the study. In the first stage, purposive sampling technique was used in selecting one education zone from the three zones of Abia State (ie. Aba zone). Aba education zone was selected due to poor performance of students in English Language. Next was the selection of one Local Government from Aba Education zone. Aba South was selected using Simple Random sampling technique. Furthermore, purposive technique was used to select three co-educational public schools namely: Ndiegoro Comprehensive Secondary School, Umuogele Mbanu Secondary school and Etiti Ohazu Secondary School. This was to ensure that male and female students that were involved in the study were represented since gender is an important variable in the study. Also, simple random sampling technique was used to assign the schools into three groups : two experimental groups and one control group.

The instruments for data collection were an achievement test titled: English Achievement Test (ELAT) and English Language Interest Scale (ELIS). The English Achievement Test (ELAT) was made up of 30 item multiple choice questions which was adapted from WAEC Examination past question papers 2023-2025. The ELAT comprised of items based on topics in SS11 English Language curriculum namely; grammar, test of oral, lexis and comprehension. The English Language Interest Scale (ELIS) was a twenty items rating scale of modified 4-point Likert scale adapted from Devellis (2017). The instruments were subjected to face validation in order to ascertain its relevance to the present study. To do this, the draft copies of the instrument were vetted by three experts; one from Department of Languages and Literary Studies, Clifford University, Ihie, Abia State, one from Department of Measurement and Evaluation and one from Department of Psychology and Counselling both from Michael Okpara University of

Agriculture, Umudike. Kuder Richardson formula twenty (K-R20) was used to determine the reliability co-efficient of ELAT as 0.80 while Cronbach Alpha formula was used to determine the reliability coefficient of English Language Interest Scale (ELIS) as 0.83. The research questions were answered using mean and standard deviation. To test the hypotheses, analysis of covariance (ANCOVA) was used at 0.05 level of significance. The null hypotheses will be accepted if the calculated P-value is greater than level of significance (i.e. $P\text{-value} > .05 = \text{accept null hypotheses}$) and rejected, if the P-value is less than the level of significance (i.e. $P\text{-value} < .05 = \text{reject null hypotheses}$).

Experimental Procedure

Prior to the study, the researcher visited the schools to obtain permission from principals of the three schools which enabled the researcher got acquainted with the English Language teachers who served as the research assistants. The researcher guided the research assistants on how to go about the teaching of the students using mobile learning strategies. The teachers (research assistants) were given the lesson plan for each teaching method prepared by the researcher. Before the experiment, pre-test Achievement Test was administered in the schools by the teachers while the researcher moved from one school to the other to ensure that teaching methods were strictly applied. After the treatment of the groups for the period of 4 weeks, the Post-test was administered alongside the English Language Interest Scale. Hence, the treatment and test lasted for six weeks.

Mobile learning strategy was used to teach the experimental group, while the control group was taught using conventional teaching method. The mobile learning involved the teacher(s) introducing topics via a mobile platform or WhatsApp. The students accessed e-book, comprehension passages and lexis on words associated with spots on their phones and vocabulary drills conducted through Quizlet flashcards, Grammar lessons were reinforced with short video clips and practice quizzes. The students collaborated with in WhatsApp groups for peer discussions. The teacher monitored progress using real-time feedback and mobile-based assessments. After which the post-test was administered alongside the English Language Interest Scale. The control group was taught using conventional method, which involved the teacher to

introduce topics using textbook and chalkboard. Vocabulary was taught via dictionary and class repetition. Grammar was explained using chalk board illustrations and written exercises. After the intervention, the post-test was administered to the two groups alongside the Interest scale.

Control of Extraneous Variables

The following extraneous variables were controlled in the study:

Students' variable: The students in the two groups received the same instruction using the same length of time.

Experimental Bias: Students were taught by their regular English Language teachers in the schools that were used for the study. The researcher was not personally involved in administering the research conditions in order to prevent the students from knowing that something new was happening.

Teacher variable: to control the error that may arise as a result of teacher difference, the researcher prepared the lesson plans and briefed the regular English Language teachers of selected schools on how to use

the teaching methods effectively and to ensure the uniformity of standard.

Pre-test, post-test effect: An interval of six (6) weeks was allowed to minimize the influence of the pre-test over the post-test. After the pre-test was administered, the English Language Achievement Test (ELAT) was reshuffled and later used for post-test.

Subject Interaction: To avoid interaction between students in the various groups, schools that were a bit far from each other were used.

Inter group variable: This was controlled by using Analysis of Covariance (ANCOVA) in analyzing the items.

Testing effect: This was controlled by reshuffling the position of items of the questions before administering it again as the post-test. The researcher ensured that the students' scripts after pre-test were properly kept and not given to them.

Initial group differences: The initial group differences were controlled by using Analysis of Covariance (ANCOVA). The ANCOVA enabled the researcher to eliminate any further imbalances between the students and provide a base line from which the effects of the treatment was measured.

Results and Findings

The results for the study are presented in the tables below.

Table 1: Mean and standard deviation interest scores of students in English Language when taught using mobile learning strategy and conventional method

Variable Learning Strategies	n	Pre-test		Post-test		Interest Mean Gain
		$\bar{X}$	SD	$\bar{X}$	SD	
Mobile	35	36.68	6.13	55.62	5.07	18.94
Conventional method	40	37.42	5.68	43.87	4.51	6.45

Where n= Number of respondents, $\bar{X}$ = mean, SD= Standard deviation

Table 1 showed that English language students exposed to mobile learning strategy had an interest pre-test mean score of 36.68 with a standard deviation of 6.13 and an interest post-test mean of 55.62 with a standard deviation of 5.07 and mean gain of 18.94. For students taught with conventional method had interest pre-test mean score of 37.42 with a standard deviation of 5.68 and post-test mean score of 43.87 with a standard deviation of 4.51 and mean gain of 6.45. Overall, the two teaching strategies resulted in improved posttest performance, as evidenced by higher mean scores and lower standard deviations.

However, mobile learning produced the higher mean gain, compared to conventional strategy. The consistent reduction in standard deviations across the strategies indicates that instruction not only improved achievement but also reduced disparities in students' performance, with the greater consistency observed under mobile learning strategy. This also means that learning strategy may have some effects on students' interest in English language.

A corresponding hypothesis formulated to further address the research question is:

Table 2: Analysis of covariance (ANCOVA) of mean interest scores of students in English Language test when taught using mobile learning strategy and conventional method

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2711.651 ^a	2	903.884	44.855	.000
Intercept	4477.597	1	4477.597	222.201	.000
PRE-TEST	110.925	1	110.925	5.505	.021
Strategies*	2661.584	2	1330.792	66.041	.000
Error	2136.021	72	20.151		
TOTAL	269546.000	75			
Corrected Total	4847.673	74			

a. R Squared = .559 (Adjusted R Squared = .547)

The result in Table 2 shows that with respect to the interest mean scores of students exposed to mobile learning strategy and conventional method, an F-ratio of 66.041 was obtained with associated exact probability value of .000. Since the associated probability (.000) was less than 0.05 set as level of

significance, the null hypothesis (H_{01}) which stated that there is no significance difference in mean interest scores of students in English Language test when taught using mobile learning strategy and conventional method of learning in Abia State is rejected.

Table 3: Mean and standard deviation of interest scores of male and female students exposed to mobile learning strategy

Learning Strategy	Gender	Pre-test			Post-test		Interest Mean gain
		n	$\bar{X}$	SD	$\bar{X}$	SD	
Mobile learning strategy	Male	16	34.56	5.97	57.06	5.20	22.5
	Female	19	38.47	5.82	54.42	4.76	15.95

Where N= Number of respondents, $\bar{X}$ = mean, SD= Standard deviation

Table 3 shows the mean and standard deviation of interest scores of male and female students exposed to the mobile learning strategy. Before the intervention, female students had a slightly higher interest ($M = 38.47$, $SD = 5.82$) compared to male students ($M = 34.56$, $SD = 5.97$). After the intervention, both male and female students demonstrated an increase in interest, with males scoring a post-test mean of 57.06 ($SD = 5.20$) and females 54.42 ($SD = 4.76$). The interest gain was

higher for male students (22.50) than for female students (15.95), indicating that the mobile learning strategy had a greater effect on males. The reduction in standard deviations from pre-test to post-test suggests that students' interest scores became more consistent following the intervention. Overall, the results indicate that the mobile learning strategy positively influenced students' interest in the subject, with a more pronounced effect on male students.

Table 4: Analysis of covariance of mean interest scores of male and female students in English Language test when taught using mobile learning strategy

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	61.774	2	30.887	1.214	.310
Intercept	2499.127	1	2499.127	98.198	.000
Pre-test	1.171	1	1.171	.046	.831
Gender*	59.571	1	59.571	12.341	.005
Error	814.398	32	25.450		
TOTAL	109185.000	35			
Corrected Total	876.171	34			

a. R Squared = .071 (Adjusted R Squared = .012)

The result in Table 4 shows that with respect to the interest mean scores of male and female students in English language exposed to mobile learning strategy, an F-ratio of 12.341 was obtained with associated exact probability value of .005, since the associated probability (.005) was less than 0.05 set as level of significance, the null hypothesis (H_{03}) which stated that there is no significant difference in the mean interest scores of male and female students in

English Language test when taught using mobile learning strategy was rejected. Thus, inference drawn is that there was significant difference in the mean interest scores of male and female students in English Language test when taught using mobile learning strategy. This indicated that gender is a significant factor affecting students' interest toward English language when taught using mobile learning strategy.

Table 5: Mean and standard deviation achievement scores of students in English Language when taught using mobile learning strategy and conventional method in Abia State

Variable	Pre-test			Post-test		Mean Achievement Gain
	N	$\bar{X}$	SD	$\bar{X}$	SD	
Mobile	35	43.57	8.12	68.85	10.52	25.28
Conventional	40	33.45	7.64	54.15	10.92	20.7

Where N= Number of respondents, $\bar{X}$ = mean, SD= Standard deviation

Table 5 shows the mean achievement scores of students in English Language taught using mobile learning and conventional teaching method in Abia State. At the pre-test stage, students in the mobile learning group had a higher mean score ($\bar{X}$ =43.57,SD=8.12) than those in conventional group ($\bar{X}$ =33.45,SD=7.64). At post-test, the two groups improved, with the mobile learning group recording

higher mean achievement score ($\bar{X}$ =68.85,SD=10.52) than conventional method which had the lower mean score ($\bar{X}$ =54.15,SD=10.92). The mean achievement gains further show that mobile learning (25.28) was more effective than the conventional method (20.70). This also means that learning strategy may have some effects on students' achievement in English language.

Table 6: Analysis of covariance of students' achievement scores in English Language test when taught using mobile learning strategy and conventional method

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5138.088 ^a	2	1712.696	19.970	.000
Intercept	9058.556	1	9058.556	105.624	.000
PRE-TEST	1054.727	1	1054.727	12.298	.001
Strategies*	1629.132	2	814.566	9.498	.000
Error	9090.830	72	85.763		
TOTAL	417825.000	75			
Corrected Total	14228.918	74			

a. R Squared = .361 (Adjusted R Squared = .343)

The result in Table 6 shows that with respect to the achievement mean scores of students exposed to mobile learning strategy and conventional method, an F-ratio of 9.498 was obtained with associated exact probability value of .000. Since the associated probability (.000) was less than 0.05 set as level of

significance, the null hypothesis (H_{06}) which stated that there is no significance difference in mean achievement scores of students in English Language test when taught using mobile learning strategy and conventional method in Abia State is rejected.

Table 7: Mean and standard deviation of achievement scores of male and female students exposed to mobile learning strategy

Learning Strategy	Gender	Pre-test			Post-test		Achievement Mean gain
		N	$\bar{X}$	SD	$\bar{X}$	SD	
Mobile learning strategy	Male	16	40.50	8.47	68.75	11.09	28.25
	Female	19	46.15	7.01	68.94	10.33	22.79

Where N= Number of respondents, $\bar{X}$ = mean, SD= Standard deviation

Table 7 indicates that both male and female students exposed to the mobile learning strategy showed marked improvement in achievement scores in English Language. Male students recorded a pre-test mean of 40.50 (SD = 8.47) and a post-test mean of 68.75 (SD = 11.09), resulting in a mean gain of 28.25. Female students had a higher pre-test mean of 46.15 (SD = 7.01) and a post-test mean of 68.94 (SD = 10.33), with a mean gain of 22.79. Overall, the results indicate that both male and female students benefited

from the mobile learning strategy, as evidenced by notable increases in post-test mean scores. However, male students recorded a higher mean achievement gain than their female counterparts, despite females having a slightly higher post-test mean score. The standard deviation values suggest that achievement scores in both groups were moderately dispersed, indicating individual differences in learning outcomes under the mobile learning strategy.

Table 8: Analysis of covariance of mean achievement scores of male and female students in English Language test when taught using mobile learning strategy

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.588	2	.294	.002	.998
Intercept	4746.988	1	4746.988	40.317	.000
Pre-test	.250	1	.250	.002	.964
Gender*	.136	1	.136	.001	.973
Error	3767.697	32	117.741		
TOTAL	169714.000	35			
Corrected Total	3768.286	34			

a. R Squared = .000 (Adjusted R Squared = .062)

The result in Table 8 shows that with respect to the achievement mean scores of male and female students in English language exposed to mobile learning strategy, an F-ratio of .001 was obtained with associated exact probability value of .973. Since the associated probability (.973) was greater than 0.05 set as level of significance, the null hypothesis (H_{08}) which stated that there is no significant difference in the mean achievement scores of male and female students in English Language test when taught using mobile learning strategy was not rejected

Discussion of Findings

The finding of the study showed that there was a significant difference in students' interest scores across instructional strategies, with students exposed to the mobile learning strategy recording higher interest mean gain. This could be because learning environments that emphasize interaction, collaboration, and peer engagement as demonstrated using mobile learning are more effective in stimulating students' interest in English Language. This supports Ogunmakin (2018), who investigated the effects of mobile learning on students' academic performance, students' attitudes and interest about the use of mobile devices for learning and found that mobile learning had quite significant effect on students' academic performance. Attitudes and interest of those using mobile phone for learning were moderately positive with a pooled full of 89.48%.

The result also showed that there was a significant difference in interest between male and female students taught using the mobile learning strategy. This may be that gender plays a role in how students respond effectively to socially interactive learning environments. Mobile learning contexts may provide opportunities that differentially motivate male

and female students, thereby influencing their interest levels. This finding was in contrary to Bekx, et al (2019) who found out in the research he carried out that females use various language learning strategies more often than males; as a result, they perform better academically than males.

The finding that there was no significant difference in achievement across the two instructional strategies, despite the mobile learning strategy yielding a higher mean gain, suggests that all strategies were generally effective in improving students' achievement. However, the superior mean gain recorded under the mobile learning strategy indicates its comparative advantage in promoting learning outcomes, even if the difference did not reach statistical significance. This finding may be as a result of mobile learning being collaborative, interactive, and learners can learn anywhere and anytime as he goes about with the mobile gadget. This finding is in support to Denir & Akpınar (2018) that conducted a study on effects of mobile learning applications on students' academic achievement and attitude in Turkey and reported that mobile learning promotes students' academic achievement than conventional method.

The finding that gender did not significantly influence achievement under the mobile learning strategy indicates that this instructional approach is equally effective for both male and female students. This suggests that mobile learning provides balanced opportunities for participation, feedback, and cognitive support that benefit all learners, irrespective of gender. Similar findings have been reported by Hong, et al, (2022), who stated that no difference in how males and females used mobile phones were found in many studies.

Conclusion

Based on the findings of this study, it can be concluded that instructional strategy plays a significant role in enhancing students' interest and achievement in English Language. Among the strategies examined, the social learning strategy proved to be more effective, as it produced higher mean interest and achievement gains compared to conventional teaching method. This indicates that collaborative and interactive learning environments promote better engagement and improved academic performance in English Language.

The study also revealed that while gender significantly influenced students' interest under the social learning strategy (in favour of males), it did not significantly influence achievement under the same strategy. This suggests that the effectiveness of instructional strategies in improving learning outcomes is largely independent of gender.

Recommendations

1. English Language teachers should adopt social learning strategy more consistently in classroom instruction, as it was found to significantly improve students' interest and achievement compared to conventional methods..
2. Ministries of Education and school administrators should organize regular workshops, seminars, and in-service training programmes to equip teachers with the skills and competencies required to effectively implement social learning strategy.
3. Teachers should ensure equal participation of male and female students during collaborative learning activities to prevent gender imbalance in classroom engagement, particularly where interest differences were observed.

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