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Mathematics Students' Retention Using Algebrator Software in Port Harcourt Metropolis, Nigeria

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Abstract

The study focused on improving students' retention in mathematics using Algebrator Softwares in Port Harcourt Metropolis, Nigeria. It examined the effect of Algebrator-based instruction, gender influence, and the interaction between instructional strategy and gender on retention in Algebra. A quasi-experimental research design was employed. Using a quasi-experimental design, 154 senior secondary students (94 experimental, 60 control) were selected through purposive sampling from a population of 21,079. The experimental group was taught using Algebrator software, while the control group received traditional lecture-based instruction. Data were collected via a validated Mathematics Retention Test on Algebra (MRTA) and analyzed using mean, standard deviation, and analysis of covariance. The findings of the study showed that students taught with Algebrator software showed significantly higher retention in Algebra than those taught through lectures. Gender had no significant effect on retention, and no interaction was found between instructional strategy and gender. It was recommended, among other suggestions, that Algebrator Software should be used to teach Mathematics especially Algebra to advance students' retention.

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INTRODUCTION

The current era, known as the "digital era," is defined by the widespread adoption of technological solutions to a wide range of societal issues. Teachers, students, and non-teaching staff all use technological tools in the classroom. Mathematical preparation for life and higher education, as well as the goals of mathematics teaching in schools, were defined in order to achieve Nigeria's primary school aims. Therefore, it makes sense that math curricula should reflect contemporary values and attitudes. Anyone working in the technology industry needs to be able to use computers, the internet, and other software and applications. The use of technology in the classroom has primarily focused on the teaching and learning environment (Ahumraeze & Nlewedim, 2024).

Scharaldi (2020) asserts that using electronic devices to teach mathematics enhances students' performance and retention in mathematics and other subjects. In order to make teaching and learning mathematics meaningful in general and algebra in particular because it allows students to explore concepts and form ideas, it is crucial to find an effective instructional delivery strategy that may spark students' interest in algebra and improve their overall performance in the subject. Algebrator uses hands-on activities with student participation as a key element in the teaching and learning process. As students work in the dynamic algebra environment, they develop and create more skills and knowledge at their own pace, yielding well-developed conceptual knowledge, procedural knowledge, and problem-solving abilities. This study was designed to investigate the impact of Algebrator software on senior secondary school students' academic retention in mathematics (algebra) in Port Harcourt, Rivers State. Learning algebra is a very complex cognitive task that can be very imposing on students, so it is important for math teachers to look at the opportunities of new technologies to improve their teaching styles, engage students in the classroom, and facilitate students' subsequent achievement. Additionally, if properly researched and integrated into the teaching pedagogy, the use of Computer Aided Instruction (CAI), especially Algebrator, may be a great relief to secondary school teachers looking for instructional methods for teaching the topics.

However, the researcher chose to look into the impact of Algebrator software as a potential solution to these issues. The study focused on the impact of Algebrator software on senior secondary school students' academic retention in mathematics in Port Harcourt, Rivers State.

Algebrator Software and Students' Retention

Few research findings support the positive effect of Algebrator software based instruction on student retention. Obafemi and Ahumaraeze (2025) looked on how senior secondary school students in Port Harcourt Metropolis, Rivers State, performed academically in algebra when using GeoGebra and Algebrator software. The findings of the study revealed that the students taught using the Algebrator software-based strategy performed significantly better than the students taught using the GeoGebra software-based strategy. The findings also revealed that though the female students outperformed their male counterparts, there was no significant difference between the performance scores of male and female students in Algebra. Given the reality that the of learning algebra involve a very complex cognitive task that often poses difficulties to students, it is therefore pertinent that Mathematics educators explore the opportunities offered by new technologies to enhance their teaching styles such as Algebrator software-based strategy. The study recommends that teachers should shift from conventional method of teaching and use Software-based instructional strategies such as Algebrator software-based-strategy and GeoGebra software-based strategy to enhance teaching and learning in Mathematics.

Elaigwu et al. (2023) revealed in their study that there is a significant difference in mean retention scores between the students taught quadratic equation using Algebrator approach and those taught using conventional method. The students taught quadratic equations using Algebrator approach retained higher scores than those taught using conventional teaching method.

In another study by Ahumaraeze and Nlewedim (2024) which investigated the use of Excel spreadsheet software to improve students' retention in Mathematics in Port Harcourt. It aimed to compare the retention of students taught measures of central tendency using Excel with those taught using the deductive method and to determine if retention differed between male and female students taught with Excel. A quasi-experimental research design was employed. The findings of the study revealed that the Excel spreadsheet package significantly enhances students' retention. Additionally, male students taught with the Excel spreadsheet package demonstrated higher retention than their female counterparts, though the difference was not statistically significant. It was recommended, among other suggestions, that Excel spreadsheets be used to teach measures of central tendency to improve students' retention.

Gender and Algebrator Software

Elaigwu et al. (2023) in their study revealed that the mean difference is 1.77 and 3.57 in favour of female students. The findings also showed that $F_{(1,44)}$=1.11 with *p*-value=0.30 which is greater than α=0.05. We therefore conclude that there is no significant difference in retention scores between the male and the female students taught quadratic equation using Algebrator approach. The study therefore recommended amongst others that training of Mathematics teachers on the use of Algebrator instructional strategy in their daily lessons especially in quadratic equation with a view to making learning meaningful, relevant and interesting.

In a research conducted by Ehiwario et al. (2021), the study examined the effect of Computer Assisted Instruction software known as Frizbi Mathematics 4 software on senior secondary school students' achievement and retention in geometry in delta state. The result shows that there is no significant difference between the mean retention scores of male and female students who were exposed to CAI software irrespective of genders. This implies that CAI is not gender bias. The study therefore concludes that CAI-Frizbi Mathematics 4 software has positive significant effects on senior school students' achievement and retention in geometry. The period of the instruction lasted for four weeks. Thereafter the research instrument tagged geometry achievement retention test, was administered on both groups. The scores obtained were analyzed using mean, standard deviation and *t*-test at 0.05 level of significance.

Walter (2020) carried out a study on the effect of computer-based instruction on students' performance and retention in geometry. Two research questions and two hypotheses were formulated to guide the study. The study adopted the quasi-experimental research design. A sample of one hundred and twelve junior secondary two students was selected using the random sampling technique. Two co-educational public junior secondary schools were used from Nsukka Local Government Area of Enugu State. One school was randomly assigned as control group and the other group as experimental group. The instrument used for data collection was geometry performance test. The instrument was validated and the test-retest method was used to obtain a reliability index of 0.82. The data collected was analysed using mean, standard deviation, and independent sample *t*-test. The result showed that use of computer-based instruction neither sustained the retention of the male nor the female students in geometry and there was no statistically differential effect on the two groups.

Chimnedum and Njoku (2019) investigated the impact of computer tutor mathematics lessons on retention senior secondary school students in Ekeremor. Two research questions and two null hypotheses were employed for the study. A sample of eighty-eight senior secondary school two students was used. The study employed the 2×2 factorial pretest-posttest research design, where one experimental and one control group were presented. The two groups were taught content from geometry and spatial skills theme. Students in the control group were taught strictly using traditional textbook-based instruction while the students in the experimental group were taught same concepts using online mathematics tutor instruction. The treatment consisted of five online lessons taught by the computer tutor over one-month geometry unit. Independent variables were gender and method of instruction while the dependent variables were mathematics retention. A two-part validated instrument which consisted of 50 multiple-choice questions was formed. The two instrument measured a weighted alpha reliability of 0.87. The mean, standard deviation, and analysis of covariance were used for analysis. The result showed that the male students who were taught using online mathematics instruction had a higher retention in spatial visualization than their female counterpart in the same group with no statistically significant difference.

Statement of the Problem

Students' deteriorating mathematical performance The rate at which students fail mathematics in both internal and external exams these days is concerning; according to WAEC chief examiners, the failure rate is getting worse every year. Education has been a major problem in the mathematics educational system. This has been ascribed to math teachers' incapacity to use cutting-edge teaching resources when instructing and mastering the subject. Researchers have found that, despite numerous advancements in scientific education in general and mathematics education in particular during the past 20 years, secondary school students' academic performance has remained low. This is buttressed by the poor academic achievement of secondary school students in the West African Senior School Certificate Examinations (WASSCE) Chief Examiners' Report (2014-2024) on Mathematics for Senior Secondary School Certificate Examinations (SSSCE). According to the WAEC Chief Examiners' 2018 report, low academic achievement among secondary school students has been more prevalent in certain areas of mathematics than in others. Students appear to have had an extremely hard time understanding subjects like algebra (inequality). Educationalists and researchers have been worried and concerned on how this poor Mathematics performance can be remedied.

Aim and Objectives of the Study

The aim of this study is to improved students' retention in mathematics using Algebrator Software in Port Harcourt Metropolis, Nigeria. The objectives are to: (1) investigate the effect of instructional strategies (Algebrator Software Based-Strategy [ASBS] vs Lecture Teaching Method [LTM]) on students' retention in Algebra, (2) determine the influence of gender on students' retention in Algebra, (3) investigate the joint effect of instructional strategies and gender on students' retention in Algebra.

Research Questions

The following research questions are raised and answered in this study: (RQ1) What is the effect of instrucional strategy on students' retention in Algebra?; (RQ2) What is the influence of gender on students' retention in Algebra?; (RQ3) What is the joint effect of instructional strategy and gender on students' performance in Algebra?

Hypotheses

The following hypotheses were formulated to guide the study and were tested at 0.05 level of significance: (H01) There is no significant difference among students' taught using different instructional strategies (ASBS vs LTM) in their retention in Algebra; (H02) There is no significant difference between the performance of male and female students in Algebra; (H03) There is no significant joint effect of instructional strategy and gender on students' retention in Algebra.

RESEARCH METHODS

In other to achieve the three objectives of the study which are to investigate the effect of ASBS on students' retention in Algebra; determine the influence of gender on students' retention in Algebra; investigate the joint effect of instructional strategies and gender on students' retention in Algebra, the following methods were used to achieve the objectives.

Research Design

With a pre-test (O_1), posttest (O_2), post-posttest (O_3), non-randomized, and non-equivalent control group, the study used a quasi-experimental design. To avoid interfering with regular school activities, intact classes were utilized for the experiment. A quasi-experimental study, according to Nwankwo (2013), is one in which some validity risks cannot be adequately managed since human subjects are being used in the experimental investigation. Human subjects were used in the study, and their experiences were impacted by both internal and external factors beyond the researcher's control, such as starting group differences and teacher variables. This approach was selected for a second reason: rather than dividing students into groups at random, it keeps classrooms together. Two groups—an experimental group (X_{ASBS}: Treatment using ASBS) and a control group (X_{LTM}: Treatment using LTM)—were compared using this approach. Our study methodology is described in Table 1.

Table 1. Study Design

Groups	Pretest	Treatment	Posttest	Post-Posttest
Experimental Group	O_1	X_{ASBS}	O_2	O_3
Control Group	O_1	X_{LTM}	O_2	O_3

Study Area

The study was conducted in the Port Harcourt Metropolis of Rivers State, which has the geographic coordinates of latitude 4° 40' E and longitude 7° 10' E. Etche, Eleme, and Oyibo L.G.As border it on the east, Asari-toru and Abual/Odual L.G.As border it on the west, Ikwerre and Emuoha L.G.As border it on the north, and

Bonny, Okrika, and Ogu/Bolo L.G.As border it on the south. Most of the residents are businesspeople, academicians, and landlords. Many tertiary institutions in Rivers State, including the University of Port Harcourt with three campuses, Rivers State University, Ignatius Ajuru University of Education with two campuses, Captain Elechi Amadi Polytechnic, School of Health, School of Nursing, Law School, Institute of West Africa, and Eastern Polytechnic, as well as numerous primary and secondary schools (both government and private) are located in the area, contributing to the high level of educational activities in the area.

Numerous businesses, financial institutions, schools, hotels, restaurants, leisure areas, and government-owned establishments can be found in the Port Harcourt Metropolis, all of which support the local economy. They also have tourism attractions, such as the pleasure park along Aba Road, which is owned by the government and by private organizations. The Ikwerre, Ijaw, Obulom, and Okirika peoples are among the diverse ethnic groups that call Port Harcourt Metropolis home, with an estimated 3,637,000 residents. In addition to the widespread practice of Christianity, the Ikwerre, Okirika, Pidgin, and English languages are spoken in the region. Its overall size is 360 km^2 (140 mi^2) of land, 9 km^2 (3 mi^2) of water, 158 km^2 (61 mi^2) of urban space, and 1,900 km^2 (700 mi^2) of metro space. Its typical temperature is between 25 and 28 degrees Celsius (77.0 and 82.4 ^0F). The region has an average humidity of 73% and is located inside the mangrove forest zone. Given this, the study's findings can be readily generalized throughout the state, maintaining its relevance.

Population of the Study

All 21,079 Senior Secondary Students 2 (SS2) in the thirty-eight (38) public senior secondary schools in Rivers State's Port Harcourt Metropolis made up the study's population (Source: Planning, Research & Statistics (PRS) Department (2022).

Sample and Sampling Technique

One hundred fifty-four (154) public senior secondary one (SS2) students from Rivers State's Port Harcourt Metropolis made up the study's sample. Two coeducational schools were selected from the 38 senior secondary schools in Rivers State's Port Harcourt Metropolis using purposive sampling. Purposive sampling, also known as judgmental or selective sampling, is a non-probability sampling technique where researchers intentionally select participants based on specific characteristics or attributes that are relevant to the study's objectives. Coeducational public senior secondary schools with a working computer lab (which accounts for both gender and computer availability) and a presentation of candidates for the Senior Secondary School Certificate Examinations for at least five (5) consecutive years served as the basis for the purposive sampling criterion. Thereafter, a simple random assignment technique was used to categorize each of the two drawn schools into experimental and control group. A further random sampling was used to draw one intact class of SS2 from each of the two sampled schools. Table 2 shows the sample distribution for the study.

Research Instrument

The MRTA is the tool used to collect data. With regard to gender, measure the retention of students in Mathematics (Algebra). There were twenty-five (25)

multiple-choice questions on surd and linear inequality in the MRTA instrument. Students were required to check only one of the four possible answers for each MRTA test item. The test items were distracted by the other three choices. The topics covered in the treatment session served as the basis for the MRTA items. Every MRTA exam item was given four marks. This suggests that students received four marks for each right response and zero for each wrong response. MRTA received a % grade. The researcher created four sets of lesson plans to teach the experimental and control groups the two identified mathematical concepts of surd and linear inequality. Both the experimental and control groups' lesson plans included the same subject and particular learning goals. Lesson plans for the two groups differed in that the experimental group used a technique based on the Algebrator software, while the control group used a lecture-based approach without the use of the Algebrator software.

Table 2. Sample distribution

Group	Male	Female	Total
Experimental	56	38	94
Control	28	32	60
Total	84	70	154

Face, content, and construct validation were applied to the MRTA instrument. Two specialists in mathematics education conducted the validation. Before the final instrument was given to the sample, the anomalies that the experts had noticed and pointed out were fixed.

The instrument's dependability was assessed using the Kuder-Richardson 21 formula (KR-21), which assigns a right or wrong score to its items. The goal is to assess the MRTA internal consistency. Given the Kuder-Richardson estimates (K-21), 40 students were given the test, and the results were examined. They acquired a dependability index of 0.71. The study found the MRTA to be a reliable instrument.

Method of Data Analysis

The mean and standard deviations were used to answer the research questions while the analysis of covariance (ANCOVA) was employed to test the null hypotheses (H0) at the 0.05 significant level using SPSS (Statistical Package for Social Sciences version 25).

RESULTS AND DISCUSSION

Descriptive statistics were computed to compare the Mean (M) and Standard Deviations (SD) of students retention scores in algebra in ASBS and LTS group. Table 3 displays the posttest, post-posttest, and mean gain scores, for both groups.

Table 3. Retention scores by teaching method

Group	N	Posttest		Post-Posttest		Mean Gain
		M	SD	M	SD	
ASBS	94	72.15	10.46	74.06	10.23	1.91
LTM	60	48.07	12.53	47.07	11.46	-1.00

Students taught with ASBS achieved a retention gain significantly higher (M=1.91) than those taught via LTM (M= -1.00). The data analyzed on Table 3 showed that students taught Algebra with ASBS had a retention mean gain than the students taught with LTM.

Descriptive statistics were calculated to examine the differences in retention between male and female students. Table 4 presents the posttest and post-posttest mean scores, standard deviations, and mean gain scores for each gender group.

Table 4. Retention scores by gender

Gender	N	Posttest		Post-Posttest		Mean Gain
		M	SD	M	SD	
Male	84	65.38	15.16	66.29	14.81	0.91
Female	70	59.63	17.17	60.26	18.87	0.63

Male students had a retention gain (M=0.91) higher than the female counterpart (M=0.63). It is evident from Table 4 that the male and female students who were taught Algebra retained equally.

To examine the interaction effect of instructional strategy and gender on students' retention in algebra, descriptive statistics were computed for both experimental and control groups, disaggregated by gender. Table 5 displays the mean scores and standard deviations of students' posttest and post-posttest results, along with the calculated mean gain scores.

Table 5. Retention scores by the teaching strategy and gender

Group	Gender	N	Posttest		Post-Posttest		Mean Gain
			M	SD	M	SD	
Experimental	Male	56	72.29	10.12	73.86	10.57	1.57
	Female	38	71.95	11.09	74.37	9.84	2.42
	Total	94	72.15	10.46	74.06	10.23	1.91
Control	Male	28	51.57	14.21	51.14	9.51	-0.43
	Female	32	45.00	10.11	43.50	11.97	-1.50
	Total	60	48.07	12.53	47.07	11.46	-1.00
Total	Male	84	65.38	15.16	66.29	14.81	0.91
	Female	70	59.63	17.17	60.26	18.87	0.63
	Total	154	62.77	16.31	63.55	16.99	0.78

Based on Table 5, it revealed that the experimental group has a retention mean gain of 1.91 while the male and female in the group has its gain as 1.57 and 2.42 respectively. The control group also had a retention mean gain -1.00 (male had -0.43, female had -1.50). In all (both experimental and control groups) had a retention mean gain of 0.78. This shows that there is no interaction between the teaching strategy and Gender on students' retention.

To answer RQ1 and H01, and to determine the effect of instructional strategies on students' retention in algebra while controlling for posttest scores, ANCOVA was conducted. Table 6 presents the summary of the ANCOVA results.

Table 6. ANCOVA result on students' retention (ASBS vs. LTM)

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*Sig.*	Partial Eta Squared
Corrected Model	37256.389*	2	18628.194	406.260	.000	.843
Intercept	1372.044	1	1372.044	29.923	.000	.165
Posttest	10563.557	1	10563.557	230.379	.000	.604
Strategies	1496.119	1	1496.119	32.629	.000	.178
Error	6923.793	151	45.853			
Total	666036.000	154				
Corrected Total	44180.182	153				

*R Squared = .843 (Adjusted R Squared = .841)

The results indicate a significant difference in retention between the ASBS and LTM groups ($F_{(1,151)}$=32.629, *Sig.*=0.000<0.05=α), with students in the ASBS group showing higher retention.

Following the significant main effect of instructional strategies on students' retention found in the ANCOVA, a pairwise comparison was conducted to determine the direction and magnitude of the differences between groups. Table 6 presents the results

Table 6. Summary of Post Hoc test on the difference in students' retention

Instructional Strategies		Mean Difference (I-J)	Std. Error	*Sig.*	Confidence Interval	
(I)	(J)				Lower	Upper
ASBS	LTM	9.246*	1.619	.000	6.048	12.444

*The mean difference is significant at the .05 level.

Based on Table 6, the results indicate that the test between ASBS and LTM was statistically significant (9.246, *Sig.*=.000<0.05=α) and in favour of ASBS.

To answer RQ2 and H02, and to determine the effect of gender on students' retention in algebra while controlling for posttest scores, ANCOVA was conducted. Table 7 presents the summary of the ANCOVA results.

Table 7. ANCOVA results on students' retention (male vs. female)

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*Sig.*	Partial Eta Squared
Corrected Model	35776.176*	2	17888.088	321.406	.000	.810
Intercept	226.349	1	226.349	4.067	.046	.026
Posttest	34388.508	1	34388.508	617.880	.000	.804
Gender	15.906	1	15.906	.286	.594	.002
Error	8404.006	151	55.656			
Total	666036.000	154				
Corrected Total	44180.182	153				

*R Squared = .810 (Adjusted R Squared = .807)

In Table 7, the result showed that there is no significant difference in the retention between the male and the female students taught algebra ($F_{(1,151)}$=0.286, *Sig.*=0.594>0.05=α).

To answer RQ3 and H03, and to determine the interaction effect (instructional strategies and gender) on students' retention in algebra while controlling for posttest scores, ANCOVA was conducted. Table 8 presents the summary of the ANCOVA results.

Table 8. ANCOVA result on students' retention (interaction effect: instructional strategy and gender)

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*Sig.*	Partial Eta Squared
Corrected Model	37390.321*	4	9347.580	205.128	.000	.846
Intercept	1481.296	1	1481.296	32.506	.000	.179
Posttest	9819.267	1	9819.267	215.479	.000	.591
Strategies	1577.704	1	1577.704	34.622	.000	.189
Gender	40.176	1	40.176	.882	.349	.006
Strategies*Gender	117.606	1	117.606	2.581	.110	.017
Error	6789.861	149	45.570			
Total	666036.000	154				
Corrected Total	44180.182	153				

*R Squared = .846 (Adjusted R Squared = .842)

The result showed that there is no significant joint effect between instructional strategy and gender on students' retention in Algebra ($F_{(1,149)}$=2.581, *Sig.*=0.110>0.05=α).

Algebrator Software Package and Students' Retention in Algebra

Table 3 showed that students who were taught Mathematics concepts (surd and linear inequality) with Algebrator software package in experimental group had a retention mean gain of 1.91, and those taught using LTM in the control group had a retention mean gain of -1.00. The data analyzed on Table 3 showed that students taught taught Mathematics concepts (surd and linear inequality) with ASBS had a retention mean gain than the students taught with LTM. This is in supports with Elaigwu et al. (2023) study, which similarly found that the students taught quadratic equations using Algebrator approach retained higher scores than those taught using conventional teaching method.

These findings are further supported by the hypothesis testing results, as shown in Table 6 which the results indicate a significant difference in retention between the ASBS and LTM groups, with students in the ASBS group showing higher retention. This finding agrees with the result of Elaigwu et al. (2023) study, which similarly found that there is a significant difference in mean retention scores between the students taught quadratic equation using Algebrator approach and those taught using conventional method.

Retention of Male and Female Students

It is evident from Table 4 that the male and female students who were taught Algebra retained equally. This result is in consonance with the finding of Walter (2020), which revealed that use of computer-based instruction neither sustained the retention of the male nor the female students in geometry while this result is in disagreement with the finding of Elaigwu et al. (2023) study, which revealed that

the students' retention scores favour the female students than the male students; Ahumaraeze and Nlewedim (2024) who shows that male students who were taught measures of central tendency using the Excel Spreadsheet Software Package had higher retention than their female counterparts. These findings are further supported by the hypothesis testing results, as shown in Table 7 which the result showed that there is no significant difference in the retention between the male and the female students taught algebra. This aligns with Elaigwu et al. (2023) study, which conclude that there is no significant difference in retention scores between the male and the female students taught quadratic equation using Algebrator approach; Iji et al. (2022) study showed among others, that SS2 students taught quadratic function graphs using MS-Excel spreadsheet technology improved more on their retention with no gender difference; Walter (2020) result showed no statistically differential effect on the two groups.

Interaction Effect on Students' Retention

The data analyzed on Table 5 showed that there is no interaction between the teaching strategy and gender on students' retention. These findings are further supported by the hypothesis testing results, as shown in Table 8 which the results showed that there is no significant joint effect between instructional strategy and gender on students' retention in Algebra. This finding agrees with the result of Ramon et al. (2020) which conclusion drawn was that there is no significant interaction effect of method and gender on students` retention in Economics; Bupo and Ibeneme (2020) revealed that there is no significant interaction effect of blended learning approach, face-to-face approach and gender on the retention scores of business education students in financial accounting.

CONCLUSION

Based on the findings of the study, it was concluded that the use of algebrator software package significantly enhanced the students' retention in algebra more than the LTM. However, the result showed that there is no significant difference in the retention between the male and the female students taught algebra, although both Algebra retained equally. The result also showed that there is no significant interaction between the teaching strategy and Gender on students' retention in Algebra.

The following recommendations were made based on the findings of the study: (1) Students should accept and embrace the use of Algebrator software to improve their retention in Mathematics concepts; (2) Mathematics teachers should embrace the use of Algebrator Software Package, since it has been empirically proven to be more effective in improving students' retention; (3) All students are encouraged, regardless of gender, to use Algebrator Software Package since there is no indication showing a significant difference in the retention between male and female students.

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