EFFECT OF GUIDED DISCOVERY INSTRUCTIONAL METHOD ON ACADEMIC ACHIEVEMENT OF AGRICULTURAL SCIENCE STUDENTS' IN SENIOR SECONDARY SCHOOLS IN UMUAHIA NORTH, ABIA STATE

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ABSTRACT

This study investigated effect of guided discovery instructional method on academic achievement of Agricultural Science students' in senior secondary schools in Umuahia North, Abia State, Nigeria. The study adopted quasi-experimental research design. The population of the study is 1,841 students offering Agricultural Science. 424 students was randomly selected using intact class which served as sample for the study. The instrument used for data collection is Agricultural Science Achievement Test (ASAT) on ornamental plant, crop diseases, crop pests and weeds. The instrument was validated by three experts and reliability coefficient of 0.89 was obtained using test retest. Three research questions were answered using descriptive statistics of mean and standard deviation while three hypotheses were tested using ANCOVA at 0.05 level of significance. The results obtained from the analysis showed that students in experimental group performed better than the control group. The result also showed that the female students recorded a higher achievement mean score than the male students which indicated that there was a significant interaction effect of treatment using guided discovery instructional method and gender on the mean achievement scores in Agricultural Science. Based on this findings, it was concluded that guided discovery instructional method helps students to be responsible in self-learning contrary to conventional method and it is an appropriate method for teaching Agricultural Science. It was recommended that the Secondary Education Management Board (SEMB) should engage Agricultural Science teachers for an in service training to be exposed to the use of guided discovery method in teaching.

KEYWORDS: Guided discovery, crop diseases, crop pests, weeds.

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INTRODUCTION

During teaching and learning process, there is interaction between the instructor and the students. Lome (2018) explained that giving directions, conveying information, facts, skills, attitudes, interest and mastery of subject matter to promote learning in pupils is the main role of the teacher in teaching.

Teaching must be successful before students may acquire the necessary skills and attitudes. Effective teaching is the technique through which a teacher presents his/ her subject matter to the learners on certain specific instructional goals in order to enhance students' learning (Dorgu, 2015). Teaching is a method of communicating facts and dissipating information that leads to achievement of specific educational goals. In accomplishment of educational goals at the classroom level, there must be orderliness in planning and execution of teaching and proper integration of instructional resources (Asogwa et al., 2021). Lecture method, demonstration, activity, peer teaching, play-way and guided discovery are some of the teaching techniques that may be used in teaching and learning process. Guided discovery involves inquiry method that stimulates learners' interest in seeking information about ideas and concepts by asking questions (Sunday et al., 2019). Guided discovery drills learners and enables them to search for knowledge in a systematic and logical way. Guided discovery promotes independent reasoning and self-reliance while the teacher stimulates, guides, encourages, directs and re-directs which can lead the learner to the answers (Joko et al., 2019). Guided discovery is time consuming and expensive but helps learners to develop skills of observation, exploration and questioning. Guided discovery promotes active participation, team work cooperation and tolerance among learners (Modebelu & Duvie, 2012).

The term guided discovery refers to a teaching approach that allows students to design their own learning experience with the help of their instructor. This approach has just lately been proposed in contemporary classrooms (Adu & Galloway, 2015). The students are not instructed what they should learn; instead, the instructor assigns issues or asks them a series of leading questions; the students subsequently seek for potential answers using available resources to reach conclusions. Guided discovery is a technique of teaching and learning that allows students to personalize the subject being studied, resulting in a level of comprehension that cannot be equaled by any other form of instruction (Kibirige et al., 2021). The teacher's job is to lead the learners' along the path of discovery. This may be done by offering adequate resources, a welcoming atmosphere, and time for students to experiment. The reason for teaching changed from the traditional/lecture approach to the discovery method in the early 1970's, which was widely embraced (Dajal et al., 2019). This was due to the fact that under the traditional/lecture approach, students prefer to remember information and ideas that they do not fully comprehend. As a consequence, they were unable to remember and apply ideas. The approach is activity-based, and it includes demonstrations, discussions, and experiments. As a teaching method, guided discovery encourages students to take a more active part in their learning by asking them to answer a series of questions or solve puzzles that introduce a basic idea. Adeagbo et al. (2019) found out that guided discovery teaching strategy is more effective in the teaching and learning of financial accounting in secondary schools. It was also found that there was significant difference between the academic performance of male and female students using guided discovery teaching strategies. Also Kibirige and Maake (2021) provide teachers and stakeholders with empirical evidence that using guided

discovery teaching strategy improve learners' performance. Guided discovery instructional strategy did not discriminate against gender, this suggest that it encourage girls to study science contributing to narrowing the existing gender gap between male and female in science. Besides, Yusuf (2020) explained that when teaching physic using guided discovery method gender or age is not significant factor of students overall achievement, but this method has a significant impact on students' interest in physics. It was recommended that policy makers and curriculum planners should not only educate those effective teaching methods or approaches to be used but they should monitor their implementation in schools. In addition Msuur et al. (2022) found out that there was a significant between mean academic performance scores of students taught biology using guided discovery method and lecture methods. Furthermore, Joko et al. (2019) on effect of guided discovery learning on students mathematical communication skill find out that there was effect of learning factor on students ability of mathematical communication between students who were taught with guided discovery learning and students who were taught with lecture method. Students' communication skills in experimental class were higher than the control class.

Therefore, guided discovery learning is one alternative to improve students communication skill in mathematics. Besides, Ernest et al (2020) researched on using guided discovery to improve students retention and academic attitudes to financial accounting concepts and the findings confirmed that the treatment improve students attitudes and retention of learners in financial accounting. Again Amiyani and Widjajanti (2020) in a study on mathematical knowledge-based, skill-based and attitude found that the guided discovery model has the advantages in improving mathematical knowledge, mathematical skills and mathematical attitude. Mathematical knowledge can be mathematics learning achievement, cognitive ability, conceptual understanding and mathematical reasoning. The examples of mathematical skills that can be improved by implementing this learning model include critical and creative thinking skills. Other advantages of this learning method can be seen from mathematical attitude such as self- confidence and interest in mathematics with the will to get the best in mathematics. Using various teaching techniques in teaching of Agricultural Science help students to learn effectively.

Agricultural Science is one of the vocational subjects taught in senior secondary schools. Ugo and Obiyai (2018) stated that Agricultural Science deals with teaching of the principles and knowledge of the cultivation of soil, production of crops and livestock for man's use. The concept of agriculture as a science extends beyond classroom as it may be conducted on the farm and laboratory and any other enabling environment in senior secondary and post-secondary school levels. The researchers perceive agricultural science as a programme designed to equip learners with attitudes, knowledge and necessary skills needed to be useful to them self and the society. The method use in teaching the students will help to improve their academic achievement.

Academic achievement refers to what students accomplish in their studies as well as how they deal with or complete various learning situation assigned by their instructor. Academic performance or how effectively a student fulfills the institutions criteria is how success is evaluated in educational institutions. However, there may be variations in performance of individuals which at times may be gender based.

Gender problems are presently a hot topic of debate and study throughout the globe, including Nigeria. Gender inequality is a major source of concern, particularly among academia's and policy makers. Women's roles in educational, political, social, economic, cultural, psychological, religious, scientific, and technological growth of the nation are causing concern among intellectuals. In the1970s, emphasis was focused on females as a group who were considered to be disadvantaged in schools, as shown by low numbers of girls offering certain courses and poor achievement levels in general. Women's involvement and success in the economic sector is too low in Africa, particularly in Nigeria, according to studies (Godspower, et al., 2017). To contribute to the realization of the millennium development goals on the promotion of gender equality, Adeagbo et al. (2019) reported the existence of significant gender achievement gap in favor of the males in schools.

All the above variables constitutes the background against which this study was conducted on the effect of guided discovery instructional method on academic achievement of Agricultural Science students' in senior secondary schools in Umuahia North, Abia State.

Purpose of the study

The purpose of this study was to find out the effect of guided discovery instructional method on academic achievement of agricultural science students' in senior secondary schools in Umuahia North, Abia State. Specifically, the study sought to:

1. find out the effect of guided discovery instructional method on students' academic achievement in Agricultural Science;
2. determine the effect of guided discovery instructional method on male and female students' academic achievement in Agricultural Science; and
3. find out the interaction effect of treatment and gender on students' academic achievement in Agricultural Science.

Research Questions
The following research questions were answered in the study:
1. What is the effect of guided discovery instructional method on students' academic achievement in Agricultural Science?
2. What is the effect of guided discovery instructional method on male and female students' academic achievement in Agricultural Science?
3. What is the interaction effect of treatment and gender on students' academic achievement in Agricultural Science?

Hypothesis
The following null hypotheses was formulated and tested at 0.05 level of significance.
H_{01}:   There is no significant effect of guided discovery instructional method on students' academic achievement in Agricultural Science.

H₀₂: There is no significant effect of guided discovery instructional method on male and female students' academic achievement in Agricultural Science.

H₀₃: There is no significant interaction effect of treatment and gender on students' academic achievement in Agricultural Science.

METHODOLOGY

The design employed in this study is quasi-experimental design. This design was chosen among other designs because according to (Ezenwosu & Nworgu, 2013) it is an experiment where randomization or assignment of subjects to experimental and control groups is not possible, therefore, pre-existing groups are used. This design is used where true experimental design is not feasible. In this study, one intact class was used as experimental group while another intact class was used as control group. The experimental group was taught agricultural science using the guided discovery method while the control group was taught agricultural science using the conventional/lecture method for six weeks, after which Agricultural Science Achievement Test (ASAT) was administered to both groups. The study involves pre-test and post-test.

CG ⟶ LM ⟶ ASAT

EG ⟶ GD ⟶ ASAT

Where CG represents Control group, EG represents Experimental group, LM represents Lecture method, GD represents Guided Discovery method and ASAT represents Agricultural Science Achievement test.

Population of the study

The population of the study is one thousand eight hundred and forty-one (1841) students from the twelve (12) co-educational public senior secondary school two (SSS2) students offering Agricultural Science in Umuahia North Local Government Area of Abia State (Education Development Centre, 2021).

Sample and sampling techniques

From the twelve (12) co-educational public secondary schools, Williams memorial secondary school, Afugiri and Ibeku high school, Umuahia are the two (2) public co-educational secondary schools which were selected using simple random sampling technique. Therefore, four hundred and twenty-four (424) students from the two schools served as total sample size of the study. In order to satisfy the condition of intact class, the researchers used 10% of sample size four hundred and twenty-four (424) students which lead to twenty-one (21) students for experimental group and twenty-one (21) students for control group making it a total of forty-two (42) students. Simple random sampling technique was used to select students for each intact class.

Instrument for data collection

The instrument used for this study was Agricultural Science Achievement Test (ASAT) on ornamental plant, crop diseases, crop pests and weeds. Agricultural Science Achievement Test is a researcher adapted test. The achievement test contains 40 multiple choice questions covering part of senior secondary school 2

agricultural science syllabus on ornamental plant, crop diseases, crop pests and weeds. Each item contains four (4) options, one of which provides the correct answer. The remaining three responses are distractors. Teaching module or scheme of work contains units of contents to be covered within the period of teaching. Lesson plan was developed by the researcher to guide instruction throughout the study. The experimental group was taught Agricultural Science on ornamental plant, crop diseases, crop pests and weeds using six (6) guided discovery lesson plans while the control group was taught Agricultural Science using six (6) lecture method lesson plans making it twelve (12) lesson plans for both groups. After which the Agricultural Science Achievement test (ASAT) was administered to both groups.

Validation of the instrument

The research instruments were validated by three experts. One from Agricultural Education in the Department of Agricultural and Vocational Education, one from Measurement and Evaluation unit in the Department of Science Education and one from the University Secondary School. All from Michael Okpara University of Agriculture Umudike, Abia State.

Reliability of the instrument

For trial testing, Agricultural Science Achievement Test was administered to thirty (30) SSS 2 students from Federal Government College Ubakala in Umuahia South Local Government Area which was not part of the population and sample size and two weeks later, the same instrument was re-administered to the same set of students and the two set of scores were correlated using Pearson Product Moment Correlation Co-efficient formula (Pr) and a reliability coefficient of 0.89 was obtained which showed that the instrument was reliable enough for the research since Alexandrea et al. (2022) explained that any reliability coefficient from 0.80 and above is highly accepted in science.

Experimental procedure

The Agricultural Science Achievement Test formed the instrument for data collection. The mean achievement test scores before and after experiment was collected, calculated and recorded. Also, the mean achievement test scores of male and female students before and after experiment was also collected, calculated and recorded. The teaching period lasted for six weeks comprising of single periods which lasted for 40 minutes per week. The 40 minutes was used for instructional activities on the selected topics; ornamental plant, crop diseases, crop pests and weeds in Agricultural Science. All the students in both groups were subjected to pre-test on the first day using ASAT and marked by the researchers using the marking scheme for pre-test developed by the researchers. The pre-test scores served as a basis for comparing students' achievement and level of their understanding in Agricultural Science before treatment began. Familiarization, creation of conducive environment and establishment of rapport and trust with the students was done. The experimental group was taught Agricultural Science with guided discovery instructional method using the guided discovery lesson plan and iconic representations was employed to guide students' cognitive process and mental road maps on important points. Relevant questions were carefully matched with the relevant concepts. The concepts were organized logically to facilitate easy information processing and as stimuli to elicit students'

response to relevant questions. Practical works on Agricultural Science in ornamental plant, crop diseases, crop pests and weeds were given to the students after each classroom instruction session. While the control group was taught ornamental plant, crop diseases, crop pests and weeds in Agricultural Science with lecture method using the lecture method lesson plan with chalkboard and the recommended Agricultural Science textbooks. There was no time for students' interaction in this group. There was no extra connection because the researcher used intact class and teaching was done based on the school time-table. After six weeks of teaching, the students were subjected to the same achievement test administered in the pre-test as this was also used as the post-test which was a restructured ASAT. It was marked by the researcher using the marking scheme.

Control of extraneous variables

The regular agricultural science teachers of the selected schools were used as research assistants since the students are already familiar with them. A pre-experimental briefing session was organized for the agricultural science teachers for a day so as to train them and also highlight the procedures for the experiment. Each teacher was given a copy of the validated instrument for the study, this guided them throughout the treatment period. Students were picked at random for each intact class. Their age and gender was also put into consideration while they were being picked. A single period of 40 minutes was used so as to prevent the students from getting bored, tired or fatigued. Since the Agricultural Science Achievement Test (ASAT) was used for the pre-test and post-test, the test questions were reshuffled after the pre-test have been administered and treatment has taken place. ANCOVA was also used as a statistical tool to control extraneous variables

After the scripts were marked by the researchers, the students' mean achievement scores of the pre-test and post-test were obtained as well as male and female scores in each group. Descriptive statistics of mean and standard deviation was used to answer all the research questions while ANCOVA was used to test all the null hypotheses at 0.05 level of significance.

RESULTS AND DISCUSSION

Research Question One: What is the effect of guided discovery instructional method on students' academic achievement in Agricultural Science?

Table 1: Pre-test and Post-test Mean Achievement and Standard Deviation Scores of Students in Agricultural Science Achievement Score.

Teaching Method	Number of Students	Pre test		Post test		Achievement Mean Gain
		$\overline{X}$	SD	$\overline{X}$	SD	
Guided Discovery Method	21	32.24	15.67	53.38	19.848	21.14
Lecture Method	21	31.43	14.07	32.14	11.94	0.67

The data presented in Table 1 indicated that students taught Agricultural Science using Guided Discovery instructional method had a mean achievement score of 32.24 and a standard deviation of 15.67 in the pre-test and a mean score of 53.38 with a standard deviation of 19.848 in the post-test with an achievement mean gain of 21.14. The data also showed that students taught Agricultural Science using lecture method had a mean score of 31.43 and a standard deviation of 14.07 at pre-test and a mean score of 32.14 and standard deviation of 11.94 at post-test with an achievement mean gain of 0.67. The findings revealed that discovery instructional method had higher effect on all the students taught Agricultural Science using guided discovery instructional method.

Hypothesis One: H_{01}: There is no significant effect of guided discovery instructional method on students' academic achievement in Agricultural Science.

Table 2: Analysis of Covariance (ANCOVA) of the Effect of Guided Discovery Instructional Method on Students' Academic Achievement in Agricultural Science

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1562.666[a]	2	781.333	164.416	.000	.117
Intercept	501.855	1	501.855	105.605	.000	.003
Pretest	483.661	1	483.661	101.777	.000	.113
Group	717.672	1	717.672	151.019	.000	.001
Error	622.536	39	15.962			

| Total | 25963.000 | 42 |
| Corrected Total | 2185.201 | 41 |

The data in Table 2 indicates an f-value of 151.019 and significant p-value of .000. Since the p-value of .000 is less than 0.05 level of significant, the null hypothesis is therefore rejected. Hence, there is a significant difference in academic achievement of students' using guided discovery method and lecture method of instruction in Agricultural Science in favor of guided discovery instructional method. Consequently, guided discovery instructional method has higher effect on students' academic achievement in Agricultural Science.

Research Question Two: What is the effect of guided discovery method on male and female students' academic achievement in Agricultural Science?

Table 3: Pre-test and Post-test mean Achievement and Standard Deviation Scores of male and female students in Agricultural Science Achievement Test

Gender	Teaching Method	Number of Students	Tests				Achievement Mean Gain
			Pre test		Post test		
			$\overline{X}$	SD	$\overline{X}$	SD	
Male	Guided	11	31.82	14.95	51.00	18.12	19.18
Female	Discovery	10	32.70	17.21	56.00	22.28	23.3
Male	Lecture	10	21.60	4.22	23.00	2.87	1.40
Female	Method	11	40.36	10.95	40.45	10.87	0.09

The data presented in Table 3 revealed that male students in guided discovery instructional method had a mean achievement score of 31.82 and a standard deviation of 14.95 at pre-test. In the post-test, the male had a mean score of 51.00 and a standard deviation of 18.12 with achievement gain score of 19.18. The data also showed that the female students in guided discovery instructional method group had a mean score of 32.70 and standard deviation of 17.21 at pre-test while in the post-test the females had 56.00 and standard deviation of 22.28 with achievement gain score of 23.3 which is higher than the males in Guided discovery instructional group. The data also revealed that male students in control group (lecture method) had a mean score of 21.60 and standard deviation of 4.22 at pre-test. In the post-test, the males had a mean score of 23.00 and standard deviation of 2.87 with achievement gain score of 1.40. The result went further to reveal that female students in the control group had a mean score of 40.36 and a standard deviation of 10.95 at pre-test and a mean score of 40.45 and standard deviation of 10.87 at post-test with an achievement gain score of 0.09 which is lower than the male students in the control group.

This inferred that the Female students taught using Guided discovery instructional method recorded a higher mean achievement than their male counterparts did. In addition, female students taught using lecture method had a mean achievement slightly lower than their male counterparts.

Hypothesis Two: H_{02}: There is no significant effect of guided discovery instructional method on male and female students' academic achievement in Agricultural Science.

Table 4: Analysis of Covariance (ANCOVA) of the Effect of Guided Discovery Instructional Method on Male and Female Students' Academic Achievement in Agricultural Science

Source	Type 111 Sum of Squares	DF	Mean Square	F	Sig.	Partial Eta Square
Corrected Model	9691.345	2	4845.627	32.728	.000	.627
Intercept	361.938	1	361.938	2.445	.126	.059
PRETEST	8600.964	1	8600.964	58.092	.000	.598
GENDER	**2.723**	**1**	**2.723**	**.018**	**.893**	**.000**
Error	5774.274	39	148.058			
Total	92266.000	42				
Corrected Total	15465.619	41				

The data in Table 4 indicates an f-value of .018 and the significant p-value of .893. Since the p-value of .893 is greater than .005 level of significant; the null hypothesis is therefore accepted. Hence there is no significant difference in the mean achievement scores of male and female students in agricultural science when taught using guided instructional method. Consequently, Gender has no significant effect on students taught using guided discovery instructional method.

Research Question Three: What is the interaction effect of treatment and gender on students' academic achievement in Agricultural Science?

Table 5: Pre-test and Post-test mean Achievement and Standard Deviation Scores of Students in Agricultural Science Achievement Test.

Gender	Teaching Method	Number of Students	Tests				Achievement Mean Gain
			Pre test		Post test		
			$\overline{X}$	SD	$\overline{X}$	SD	
Male	Guided Discovery	11	32.82	14.95	51.00	18.17	18.18
Female	Inst. Method	10	32.70	17.21	56.00	22.28	23.3

The data presented in Table 5 revealed that male students in guided discovery instructional treatment group had a mean achievement score of 32.82 and a standard deviation of 14.95 at pre-test while in the post test, the male had a mean score of 51.00 and a standard deviation of 18.17 with achievement gain score of 18.18. The data also showed that the female students in guided discovery instructional treatment group had a mean score of 32.70 and standard deviation of 17.21 at pre-test while in the post-test the females had 56.00 and standard deviation of 22.28 with achievement gain score of 23.3 which is higher than the males in treatment group.

Hypothesis Three: **H$_{03}$:** There is no significant interaction effect of treatment and gender on students' academic achievement in Agricultural Science.

Table 6: Analysis of Covariance (ANCOVA) of Interaction Effect of Treatment and Gender on Students' Academic Achievement in Agricultural Science

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	14174.314[a]	4	3543.578	101.535	.000	.917
Intercept	307.545	1	307.545	8.812	.005	.192
GENDER	.947	1	.947	.027	.870	.001
PRETEST	7711.422	1	7711.422	220.957	.000	.857
GENDER * METHOD	**4482.969**	**2**	**2241.484**	**64.226**	**.000**	**.776**
Error	1291.306	37	34.900			
Total	92266.000	42				
Corrected Total	15465.619	41				

The data in Table 6 indicates an f-value of 2241.484and significant p-value of.**000**. Since the p-value of.000 is lesser than 0.05 level of significant, the null hypothesis is therefore rejected. Hence, there is a significant interaction effect of treatment using guided discovery instructional method and gender on the mean achievement scores in Agricultural Science. Consequently, gender has a significant interaction effect on male and female students taught using guided discovery instructional method

DISCUSSION OF FINDINGS

The findings of the study showed that there is effect of guided discovery instructional method and lecture method on students' academic achievement in Agricultural Science as presented in table one. The result indicated that students taught Agricultural Science using guided discovery instruction method achieved better than those taught using lecture method. This is indicative of the fact that the mean achievement score for guided discovery instructional method is higher than the lecture method as indicated in Table 1. Table 4 also showed that there was a significant difference in the mean achievement scores of students taught Agricultural Science with guided discovery method and those taught with conventional/lecture method. Owing to the fact that guided discovery instructional method group and conventional/lecture group have a p-value of .000 which is lower than 0.05 level of significance, the null hypothesis was rejected. This study is in agreement with the findings of Kibirige and Maake (2021) that provide teachers and stakeholders with empirical evidence that using guided discovery teaching strategy improve learner's performance. Furthermore, on the effect of guided discovery instructional method and lecture method on male and female students' academic achievement in Agricultural Science as indicated in table 2, the result revealed that female students taught Agricultural Science using guided discovery instructional methods recorded a higher achievement mean score of 56.00 than the male students. This is in disagreement with Adeagbo et al. (2019) that reported existence of significant gender achievement gap in favor of the males in schools.

The study further revealed that female students taught Agricultural Sciences using lecture method recorded a higher achievement mean score of 40.45 than the male students. The test of the hypothesis showed that there was no significant difference in the mean achievement scores of male and female students in agricultural science when taught using guided discovery instructional method. Again Amiyani and Widjajanti (2020) researched on the excellence of guided discovery learning on mathematical knowledge- based, skill-based and attitude. The result of the study shows that the guided discovery method has the advantages in improving mathematical knowledge, mathematical skills and mathematical attitude. Mathematical knowledge can be mathematics learning achievement, cognitive ability, conceptual understanding and mathematical reasoning. The result showed that male and female students in both groups performed better in the post-test than pre-test.

Finally, on the interaction effect of gender and method on students' academic achievement in Agricultural Science as indicated in table 3, the result showed that female students recorded a higher achievement mean score of 56.00 than male students. The test of null hypothesis indicated in table 4 showed that there was a significant interaction effect of treatment using guided discovery instructional method and gender on the

mean achievement scores in Agricultural Sciences. This finding is in agreement with study of Msuur et al. (2022) find out that there was a significant between mean academic performance scores of students taught biology using guided discovery method and lecture methods, the effects of guided-inquiry and expository teaching methods on students' achievement and interest in Biology in Imo state. Major finding of the study included the following: Teaching methods had statistically significant effect on students' achievement in Biology. Students taught with guided-inquiry teaching method performed better than students taught with expository teaching method in Biology. The female students performed better than the males in the RMBT. The female students had higher interest levels in the AIS than the male.

RECOMMENDATIONS

Based on this findings, the following recommendations were made:

1. The Secondary Education Management Board (SEMB) should engage Agricultural Science teachers for an in service training to be exposed to the use of guided discovery method in teaching.
2. Agricultural Science teachers should also encourage male students to be active participants in the classroom like their female counterparts.

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