



Effects of Assignment Activities on Attitude and Self-Efficacy in ... Ilah, H. G., Et. al. (2026)

Effects of Assignment Activities on Attitude and Self-Efficacy in Biological Drawings among Secondary School Students in Sokoto State, Nigeria

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Abstract

This study intends to investigate the effects of School Assignments activities on students' attitude and self-efficacy towards biological drawings in Sokoto State. A pretest post-test quasi-experimental design involving experimental and control group was used to carry out the research. The population of the study was 15, 301 senior secondary school two students in Sokoto State, Nigeria. Multi stage and purposive sampling technique was used to select four schools and 380 students that participated in the study. The treatment lasted for 6 weeks focusing on developing a positive attitude and higher self-efficacy of students through home assignment activities. Biological Drawing Attitude Questionnaire (BDAQ) and Biological Drawing Self-Efficacy Questionnaire (BDSEQ) were administered as instruments. Data obtained from the instruments were analysed using descriptive statistics to answer research questions and Mann Whitney U-test to test hypotheses with the aid of SPSS software. The findings showed that home assignment activities improve students' attitude and self-efficacy among the experimental group. The researcher, recommended among others that teachers should explore the use home assignment as a tool for building students' self-efficacy by allowing repeated practice and independent learning.

Keywords: Classroom activities, home assignment activities, attitude, self-efficacy and practicing.

Introduction

Biology is a natural science that studies life and living organisms, it's a subject taught in Senior Secondary Schools in Nigeria and other West African countries across the globe. Biology, the study of life, requires careful observation and description. One excellent way to describe an object is to draw it because drawing encourages careful observation and attention to detail (Flannery, 2017). Drawing is considered to be an important aspect of biology which guides students' understanding of content and processes. It has also become an important tool for many teachers to assess student's understanding about specific biological concepts. Despite its importance, many secondary school students struggle with biological drawing due to limited practice opportunities, lack of confidence and insufficient engagement during lessons. This can reduce students' interest and self-efficacy in drawing and ultimately lead to their failure in answering questions that require drawing skills (Kamar & Bello, 2018). There is a unique need of drawing and labelling skills in students of biology because of the variety, complexity and intricacy of the diagram (Debarati & Gowramma, 2017). Drawing in biology is a skill that requires persistent practice in order for learners to perfect in it (Quillin & Thomas, 2015). However, when this practice is neglected in classrooms, students often struggle to develop the required skills in drawing. Although, biological drawing does not require artistic talent,



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many students grapple and lack basic drawing skills, which is a major weakness among Nigerian Secondary School Students as indicated in WAEC chief examiner's report (WAEC, 2023). Sokoto State, like many others across Nigeria, has been faced with decline in students' performance in biology as a result of poor drawing skills (Kamar & Bello, 2018). Conventionally, biological drawings are taught in senior secondary schools in Nigeria using classroom activities where teachers typically draw diagrams on the board or present them from textbooks while students observe and reproduce the drawings in their notebooks during the lesson. Emphasis is often placed on copying the diagrams correctly with little attention given to the drawing process or skill development. As a result, students have minimal opportunities for repeated practice, individualized guidance and corrective feedback. Over time, this may result in poor mastery of biological drawing skills. Furthermore, classroom activities tend to promote passive learning, where students rely heavily on the teacher for instruction and correction. This dependency may limit students' autonomy and reduce their confidence in practicing biological drawings independently. Students who struggle to complete drawings accurately within classroom time may develop anxiety, disinterest, or negative attitudes toward biological drawing tasks. Such experiences can weaken students' belief in their ability to perform drawing tasks successfully, thereby lowering their self-efficacy (Florence, 2019).

Home assignment provides the opportunity to get students to practice and strengthen their drawing skills. It gives the students more time to practice biological drawings compared to classroom activities where time is often limited due to time table schedule, large class size and the need for teachers to cover many topics within a short period of time. It is an expectation for students who complete their home assignment to perform better and to develop higher drawing skills (Williams, Swift, Williams & Van Daal, 2017). This is particularly important in biology, where consistent practice of biological drawings is essential and may lead to improved understanding and growing confidence in the subject. It will also add positive learning habits and attitudes and motivate students to learn on their own, which can produce optimal learning achievement in biology (Utama, Puspasari & Indasari, 2023). The attitude of students towards learning biological drawings plays a major role in engaging in home assignment activities. A student who regularly completes home assignment activities would develop a more positive attitude toward learning biological drawings and this attitude influences the effectiveness of learning as well as student's perceived ability in drawing abilities (Odabas, 2022). The negative attitude often reflected by a student usually results in a lack of interest in drawing biological diagrams. This may make students unable to participate well in any activity that involves drawing in biology. It is generally believed that the attitude of a student towards drawing has a direct bearing on what he/she is able to do or achieve (Florence, 2019). From this, one would infer that students' positive attitude towards learning biological drawing is very essential for positive results. Similarly, students' results based on their positive or negative attitude to home assignment activities, may affect their self-efficacy level. Self-efficacy is particularly important as it directly influences students' attitude towards home assignment. Students with high levels of self-efficacy are more likely to engage in drawing activities by being more diligent in completing their home assignment to achieve higher levels of drawing skills (Cagay, Angelada, Devera & Abelgas, 2024). Unfortunately, students who have low self-efficacy are less likely to enhance their drawing skills or be motivated to engage in learning biological drawings (Sokmen, 2021).

Objectives of the Study

The main objective of this study is to find out whether classroom and home assignment activities can improve students' attitude and self-efficacy towards practicing biological drawings. The specific objectives are to:



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1. Determine the difference in the level of attitude towards biology drawings between secondary school two students exposed to school activities and those taught without school assignment activities in Sokoto State, Nigeria.
2. Find out the difference in the level of self-efficacy towards biology drawings between secondary school two students exposed to school activities and those taught without school assignment activities in Sokoto State, Nigeria.

Research Questions

Based on the objectives of the study, the following research questions were raised for answering:

1. What is the mean difference in the level of attitude towards biology drawings between secondary school two students exposed to school activities and those taught without school assignment activities in Sokoto State, Nigeria?
2. What is the mean difference in the level of self-efficacy towards biology drawings between secondary school two students exposed to school activities and those taught without school assignment activities in Sokoto State, Nigeria?

Null Hypotheses

Based on the research questions in this study, the following null hypotheses were tested:

- Ho₁: There is no significant difference in the level of attitude towards biology drawings between secondary school two students exposed to school activities and those taught without school assignment activities in Sokoto State, Nigeria.
- Ho₂: There is no significant difference in the level of self-efficacy towards biology drawings between secondary school two students exposed to school activities and those taught without school assignment activities in Sokoto State, Nigeria.

Research Methodology

The research design adopted for this study is pretest post-test quasi-experimental due to the researchers lack of control over the random selection of students from the various secondary schools within the study area. The principals of the four selected secondary schools assigned one intact classroom each to the researcher. Consequently, two classrooms were chosen as the control group, while the remaining two served as the experimental groups. Both groups were taught using the same instructional methods including lecture and demonstration methods. The difference between the groups is in the approach to biological drawing, students in the control group practiced drawing diagrams during the lessons as part of classroom activities whereas students in the experimental group were required to observe diagrams during the lesson and reproduce them at home using textbooks as home assignment activities, the treatment lasted for six weeks and topics taught were cell (plant and animal cells), respiratory system (human and tilapia), reproductive system (human female and reproductive system of plants).

Population of the Study

The population of this study comprises 15, 301 senior secondary school two students from all the senior secondary schools within the six (6) educational zones in Sokoto State during the 2025/2026 academic session. In all, there are one hundred and sixty-eight (168) senior secondary schools in the state.

Sample and Sampling Technique

The sample size from this study consisted of 380 students estimated using Krejcie and Morgan table for sample size estimation. The study adopts multi stage sampling to select four (4) education zones out of six (6) in the state due to insecurity challenges faced in the excluded two (2) zones. Initially, purposive sampling was used to identify four Local Government Areas (LGAs) based on them having



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a relatively stable security. Subsequently four schools were randomly selected from these LGAs providing a representative sample from each zone. Furthermore, one intact class was selected from each of the four (4) schools and the members of these schools constitute the subjects of the study.

Instrumentations

The instruments used in this study were questionnaires titled Biological Drawing Attitude Questionnaire (BDAQ) and Biological Drawing Self-Efficacy Questionnaire (BDSEQ). The BDAQ is divided into two sections. Section A comprises students' bio data while section B has 15 items and is further divided into three (3) parts. Part A, B and C with five (5) items each seeking for the affective, behavioural and cognitive component of attitude in line with the components of attitude. BDSEQ is divided into two parts. Part A is made up of participants demographic data while part B has 13 items with statements that assess participants perceived ability towards biological drawings. Both instruments were validated by experts in the field of biology. Data obtained was analysed using descriptive and inferential statistics. The descriptive statistics involve the mean and standard deviation and they will be presented using tables to answer research questions 1 and 2 to provide a clear and concise summary of the data. Inferential statistics involving Mann Whitney U test was used to answer research hypotheses 1 and 2 to determine whether there is a statistically significant difference between the two groups. Both descriptive and inferential statistics were computed with the aid of SPSS version 21.

Presentation of Results

Data obtained from the BDAQ and BDSEQ were analysed using descriptive statistics and Mann-Whitney U test to test the research questions and null hypotheses at the 0.05 level of significance. The results are presented in line with the study objectives.

Research Question One: What is the mean difference in the level of attitude towards biology drawings between secondary school two students exposed to school activities and those taught without school assignment activities in Sokoto State, Nigeria?

Table 1: Difference in Attitude Between Experimental and Control Group After the Intervention

S/N	Group	N	Median
1	Experimental	188	3.00
2	Control	192	2.00

Table 1 shows the post-intervention attitude scores of the experimental and control groups. The experimental group had a median score of 3.00, while the control group had a median score of 2.00. This shows that the experimental group had a higher attitude toward drawing compared to the control group after the intervention.

Research Question Two: What is the mean difference in the level of self-efficacy towards biology drawings between secondary school two students exposed to school activities and those taught without school assignment activities in Sokoto State, Nigeria?

Table 2: Difference in Self Efficacy Between Experimental and Control Group after the Intervention

S/N	Group	N	Median
1	Experimental	188	3.0000
2	Control	192	1.5385

Table 2 presents the post-intervention self-efficacy scores of the experimental and control groups. The experimental group had a median score of 3.0000, while the control group had a median score



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of 1.5385. This shows that the experimental group had a higher level of self-efficacy compared to the control group after the intervention.

Null hypothesis one (H₀₁): There is no significant difference in the level of attitude towards biology drawings between secondary school two students exposed to school activities and those taught without school assignment activities in Sokoto State, Nigeria.

Table 3: U-test Result of the Attitude of Experimental and Control Group

S/N	Group	N	Z	Mann-Whitney U	P- Value	Decision
1	Experimental	188	-16.87	5.00	0.000	H ₀₁ Rejected
2	Control	192				

Table 3 presents the Mann–Whitney U test results comparing students’ attitude toward biological drawing in the experimental and control groups. The U-test analysis revealed that u-calculated is 5.00 while p-value is 0.000 which is less than significant value (0.05). The Z-value of -16.87 suggests a strong and statistically meaningful difference between the groups. Since P-value is less than significant value, hypothesis 1 is rejected. Therefore, it indicated there is significant difference between the attitude to drawing of experimental and control groups towards biological diagrams.

Null hypothesis two (H₀₂): There is no significant difference in the level of self-efficacy towards biology drawings between secondary school two students exposed to school activities and those taught without school assignment activities in Sokoto State, Nigeria.

Table 4: U-test Result of Self-Efficacy of Experimental and Control Group

S/N	Group	N	Z	Mann-Whitney U	P- Value	Decision
1	Experimental	188	-16.90	0.00	0.000	H ₀₂
2	Control	192				Rejected

Table 4 presents the Mann–Whitney U test results comparing students’ self-efficacy toward biological drawing in both groups. The U-test analysis revealed that the U-calculated value is 0.00 while P-value is 0.00 which is less than significance or alpha-value (0.05). The Z-value of -16.90 indicates a strong effect of the intervention and a clear separation between the two groups’ rankings. Therefore, the null hypothesis (H₀₂) is rejected indicating a significant difference between the self-efficacy level of experimental and control group towards biological drawing.

Discussion of Findings

This study examined the effectiveness of classroom and home assignment activities on secondary school students’ attitude and self-efficacy toward practicing biological drawings in Sokoto State, Nigeria. The findings revealed that students exposed to home assignment activities demonstrated significantly better attitude and higher self-efficacy toward biological drawing compared to those exposed to conventional classroom activities. The significant positive shift in attitude toward drawing among students in the experimental group suggests that engaging in drawing tasks outside the classroom not only builds competence but also improves students’ intrinsic motivation and emotional connection. This finding aligns closely with prior empirical research of Florence (2019), emphasizing the influence of structured and supportive learning tasks on student attitudes. The finding suggests that home assignment activities had a positive influence on students’ attitude toward practicing biological drawings. The improvement in attitude among students in the experimental group may be due to increased opportunities for independent practice, reduced classroom pressure, and the flexibility to engage with drawing tasks at their own pace. These conditions likely enhanced students’ interest, motivation, and willingness to engage in biological drawing activities. This finding is consistent with the study of Odabas (2022), who observed that high school students with greater self-efficacy displayed more positive attitudes toward home



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assignments, highlighting the interconnection between confidence in one's abilities and the willingness to engage positively with learning tasks. This suggests that interventions like structured drawing assignments can simultaneously bolster self-efficacy and cultivate favourable learning attitudes. Furthermore, the higher median attitude score observed among students in the experimental group supports the notion that repeated exposure and continuous practice through home assignments promote a more positive attitude toward learning tasks that require skill development, such as biological drawing. When students are given adequate time and independence to practice, they are more likely to develop confidence and a positive mindset toward the drawing task, which enhances their overall learning in biology. The observed increase in self-efficacy among experimental group students after the intervention indicates that home drawing assignments strongly supported students' belief in their ability to draw. This finding implies that home assignment activities contributed meaningfully to strengthening students' belief in their ability to successfully carry out biological drawing tasks. The increased self-efficacy observed among the experimental group may be explained by the mastery experiences gained through repeated practice at home, which is a key source of self-efficacy development. By practicing drawings independently, students were able to monitor their progress, correct errors, and gradually improve their drawing skills, thereby reinforcing their confidence. This finding aligns with Cagay, Angelada, Devera and Abelgas, (2024), who reported that students with higher self-efficacy demonstrate stronger beliefs in their capabilities to handle complex learning tasks. Specifically, empirical work on online homework performance revealed that students who consistently engage with homework demonstrate stronger self-efficacy beliefs as they develop planning, time-management, and reflective learning behaviours, which contribute to increased confidence in their academic abilities (Sokmen, 2021). Overall, the findings of this study highlight the importance of home assignment activities in learning biological drawings. By promoting repeated practice, independent learning and self-regulated learning, home assignments not only improve students' drawing skills but also positively influence their attitude and self-efficacy, ultimately reinforcing their confidence in mastering complex biological concepts.

Conclusion

The results of this study informed the researcher of drawing conclusions that home assignment activities significantly improved secondary school students' attitude and self-efficacy towards practicing biological drawings compared with in-class activities. This suggests that repeated practice through home assignment enhances students' interest, engagement, belief and confidence in their ability to practice biological drawings.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. Biology teachers should consistently give students structured home assignment activities to provide them with opportunities for practice, which can foster positive attitudes toward biological drawing and strengthen students' confidence in their drawing abilities.
2. Biology teachers should design home assignment tasks progressively from simple to complex drawings so that students can experience gradual development of drawing skill, thereby promoting favourable attitudes toward drawing tasks and enhancing self-efficacy through repeated mastery experiences.
3. Teachers should deliberately use home assignment activities as a tool for developing both positive learning attitudes and self-efficacy by encouraging independent practice and persistence for learning biological drawings.



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4. Teachers should ensure constructive and timely feedback on students' home assignment drawings should be provided to reinforce correct practices, reduce anxiety, and help students develop positive perceptions of their competence in biological drawing.

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