

Attitudes of Secondary School Students towards Biology as a School Subject in Birninkebbi Metropolis, Nigeria

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ABSTRACT

The present study examined the attitudes of Kebbi state secondary school students towards biology as a school subject. Three Hundred and Thirty-Five (335) SSII Secondary School Student constituted the samples of the study. They were selected by a proportionate sampling technique. A structured questionnaire titled Students' Attitude towards Biology Questionnaire on a 5-point scale was used to collect the data. Overall results of the study revealed that the mean score of students was 85. Differences between the attitudes of male and female students were significantly insignificant. The results also showed that there was a significant difference between the attitude of science and art students. The results also showed that there was a significant difference between the attitude of public and private students. The study also shows that majority of pupils in Kebbi have positive attitudes towards Biology. Since the majority of the students indicated that provision of adequate teaching aids influences their attitudes, it is recommended that educational material should be provided in the schools. Students should be engaged in practical work, and extra lessons should be organized for students with negative attitudes towards Biology.

Keywords: Attitudes; Public school; Private school; Biology; Male and Female students.

1. INTRODUCTION

Attitude plays an important role towards the future of science students. Students attitude towards science affects their science academic performance. Identifying as well as influencing their attitudes is significant in educational research studies. ^[1] The study of Biology in Nigeria is vital towards the success of students, it is a compulsory subject for both art and science students. It is offered in private as well as public schools. Biology as a discipline tends to study all living things

and their interactions in the biosphere. Biology is also the study of plants and animals including human beings like ourselves. As a science subject, Biology helps students to develop such practical skills in experimental work as observation, accurate recording, logical reasoning and effective manipulation of equipment's.

Attitude could be positive, negative or neutral. Any concept that specifies an individual's feeling of likeness or dislike to anything is termed his/her attitude towards that item. Attitude can be a method,

disposition, feeling or condition in respect of an individual or object, particularly of the mind. [2] Attitudes are like academic achievement because they are significant factors in ensuring students success. It is important for science teachers to ensure that students have positive attitudes in science subjects, but studies shows that the way students are taught in science classrooms is not interesting to them. Student's success in science is affected by their attitudes. To enhance their achievement, it is good to identify what type of attitudes they have so as to help them in a certain discipline students success in science is affected by their attitudes. To enhance their achievement, it is good to identify what type attitudes they have so as to help them in a certain discipline. [4] Little is known about students attitudes towards Biology in Kebbi state, it is hoped that this study will identify how students perceived Biology to be and it will help to improve their interest to study Biology with will help to increase their academic achievement.

Different studies show the outcome on student's attitudes towards different subject. A study conducted by, [3] has found out that students attitudes towards Biology is neutral, he concluded that improving their interest in studying Biology will lead to better learning outcome in Biology. But contrary to this, gender difference was found between students attitudes towards studying science. Boys show more positive attitudes than girl's students. [4, 5] found no significant difference between the attitudes of male and female towards biology. In another study conducted by, [6] they found girls to have more interest towards biology than girls. Likewise interest was reported to be decreasing as student's age increases. Thang et al [7] found out that science students have significantly higher interest towards studying English than art students. Khaliq Khan et al [8] found a slight difference in

student's attitudes towards mathematics between public and private school students in favor of private school students. Similarly, [9] established a high difference in students' attitudes towards environmental issues in favor of private school students. But, [10] discovered in a study they conducted in Nigeria, no any significant difference was found in Ekiti state students interest towards studying mathematics between private and public schools but a significant difference exist in the attitudes of male and female students.

Students attitude towards learning affect their achievement. When attitudes are positive students tends to have a better learning outcome. A significant relation was discovered between students' interest towards learning and their academic achievement. [11] It is vital to identify what type of perceptions students have towards biology in Nigeria; this will improve their academic performance. To know the attitudes of students towards biology in Kebbi state, the following questions were answered and hypotheses were tested:

Research Questions

RQ1: Does private/public School type of the Students makes them to like\dislike biology?

RQ2: Do student's gender differences affect their attitudes towards biology?

RQ3: Do Science/Art Students have positive attitudes towards Biology?

Hypotheses

HO1: There is no significant difference between the attitudes of public and private school students.

HO2: There is no significant difference between the attitudes of male and female school students.

HO3: There is no significant difference between the attitudes of science and art school students.

2. METHODOLOGY

This quantitative study employed a survey research design in collecting data. The procedure was carried out in a private, public, science and art secondary schools in Kebbi, Nigeria.

SAMPLE and POPULATION

The population of the study consists all second year senior secondary school students (SS2) in Birnin Kebbi metropolis. It also consists of boys and girls, aged between 17-18 years. Nine (9) schools were involved in the study; The population of the students in the school was two thousand six hundred and eighty students (2680). Using Krejcie and Morgan (1970) table, 335 students were selected proportionately as samples to represent the population for the study.

RESEARCH TOOL

There is only one (1) student attitude questionnaire instrument in this study. The instrument is consisting of two parts. The first part contain of students individual information. The second aspect contains items on the questionnaire with information about the opinions of students regarding the several issues which may be related with their attitudes.

3. RESULT AND DISCUSSION

The responses of the students were analyzed and a mean score of 85 was obtained. Any student with a score of 85 or above is considered to have positive attitude towards biology while any student with a mean score below 85 is considered to have a negative attitude. A chi square test was conducted to find out how the observed and expected values differ, the chance that they differ will be measured at 0.05 level of significance. The calculated chi square from the result will be equated with the values in the table aligned with precise degrees of freedom from a chi square distribution table. Students were grouped into two according to

their school, their mean score will determine which group they fall in the table.

Interpreting the Results

RQ1: Does private/public School type of the Students makes them to like\dislike biology?

TABLE 1: The χ^2 contingency table for the observe frequency

| | Public School Students | Private School Student | Total |
|-------------------|------------------------|------------------------|-------|
| Positive Attitude | 160 | 13 | 173 |
| Negative Attitude | 161 | 1 | 162 |
| Total | 321 | 14 | 335 |

TABLE 2: The χ^2 contingency table for the expected frequency

| | Public School Students | Private School Student | Total |
|-------------------|------------------------|------------------------|-------|
| Positive Attitude | 160 (165.7) | 13(7.2) | 173 |
| Negative Attitude | 161(155.2) | 1(6.7) | 162 |
| Total | 321 | 14 | 335 |

$$\chi^2 = \frac{\sum(O-E)^2}{E}$$

$$\begin{aligned} \text{Number of degree of freedom} &= (\text{No of Columns} - 1) \\ &= (2-1) (2-1) = 1 \end{aligned}$$

Referring to the table of X values, critical value for 1 degree of freedom and level of significance of 0.05 is 3.841. The calculated value is greater than X value. Therefore, the hypothesis that there is no significant difference between the attitudes of public and private school students was rejected.

RQ2: Do student's gender differences affect their attitudes towards biology?

TABLE 3: The χ^2 contingency table for the observe frequencies

| | Male | Female | Total |
|----------|------|--------|-------|
| Positive | 103 | 70 | 173 |
| Negative | 104 | 58 | 162 |
| Total | 207 | 128 | 335 |

TABLE 4: Expected Frequencies for male and female students

| | Male | Female | Total |
|----------|-------------|----------|-------|
| Positive | 103(106.8) | 70(66.1) | 173 |
| Negative | 104 (100.1) | 52(61.8) | 162 |
| Total | 207 | 128 | 335 |

$$\chi^2 = \frac{\sum(O-E)^2}{E}$$

$$\begin{aligned} \text{Number of degree of freedom} &= (\text{No of Columns} - 1) \\ &= (2-1) (2-1) = 1 \end{aligned}$$

Referring to the table of X values, critical value for 1 degree of freedom and level of significance of 0.05 is 3.841. The calculated value is less than X value. Therefore, the hypothesis that there is no significant difference between the attitude of male and female school students was accepted.

RQ3: Do Science/Art Students have positive attitudes towards Biology?

TABLE 5: The χ^2 contingency table for observed frequencies

| | Science | Art | Total |
|----------|---------|-----|-------|
| Positive | 109 | 64 | 173 |
| Negative | 33 | 129 | 162 |
| Total | 142 | 193 | 335 |

TABLE 6: Expected Frequencies for Science and Art students

| | Science | Art | Total |
|----------|-----------|-----------|-------|
| Positive | 109(73.3) | 64(99.6) | 173 |
| Negative | 33(68.6) | 129(93.3) | 162 |
| Total | 142 | 193 | 335 |

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

Number of degree of freedom = (No of Columns – 1)
(No of Rows – 1)
= (2-1) (2-1) = 1

Referring to the table of X values, critical value for 1 degree of freedom and level of significance of 0.05 is 3.841. The calculated value is greater than X value. Therefore, the hypothesis that there is no significant difference between the attitude of science and art school students was rejected.

The findings in this work show that there was significant difference between the attitude of public and private school students towards biology at 0.05 level of significance, students in private schools have more positive attitudes than students in public schools. This corroborated with the findings of [9] who found out that private school students have higher positive attitudes towards environmental issues compared to public school students. The findings also show that there was no

significant difference between the attitude of male and female students. This supported the result of, [5] who also found no gender difference towards studying biology but the study contradicts the study of, [4] who found out that boys have higher positive attitudes towards science than girls. The study also shows that there was significant difference between the attitude of science and art student towards biology at 0.05 level of significance, science school students have higher positive attitudes than students in art Schools. This agreed with the findings of, [7] who found out that science students have significantly higher interest towards studying English than art students but disagree with, [8] who found a slight difference in students' attitudes towards mathematics between public and private school students in favor of private school students.

4. CONCLUSION

School type affects student's attitudes towards biology as a school subject. Student in private school have more positive attitudes than students in public schools. In public Schools, Govt. Day School has the highest number of students with negative attitudes with about 54 students having negative attitudes. In public Schools, Girls Unity Schools have the highest number of students with positive attitudes with about 55 students having positive attitudes. In private Schools Basaura Institute has the highest number of students with positive attitudes; out of 8 students 5 students have positive attitudes. Private schools have the highest mean score of 101. Art students have the lowest mean score of 80. The only student in Brilliance School had a negative attitude.

5. RECOMMENDATIONS

1. Majority of the students indicates in the questionnaire that provision of adequate

teaching aids makes them to like biology; therefore, there is a need for the provision of adequate teaching aids so as to develop positive attitudes towards biology in the students.

2. Majority of the students also indicates in the questionnaire that the practical work in biology is interesting and makes them to like biology, therefore teaches should provide enough specimens to generate positive attitudes in biology.

3. Art schools should organize extra lessons for their students so as to make them develop positive attitude towards biology.

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