

Effects of Orientation Stimuli On Attitude of Senior Secondary School Students Towards Learning of Biology in Ekiti State

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Abstract

The study examined the effects of orientation stimuli on attitude of senior secondary school students towards learning of Biology in Ekiti State. The study adopted pre-test, post-test quasi-experimental design. The population of the study consisted of all SS2 students offering Biology in Ekiti state. The sample comprised 160 students offering Biology and was selected through multi-stage sampling procedure across the three senatorial districts of the state. Questionnaire on Students' Attitude towards the Learning of Biology (QSATLB) was used to generate data for the study. The validity of the instrument was ascertained by experienced Biology teacher and experts in tests and measurement and psychology. The reliability coefficient of 0.75 was obtained for SATLB using internal consistency method. The experimental procedure was in three stages namely pre-intervention, intervention and post-intervention stage. The data collected were analysed using descriptive and inferential statistics. Findings of the study revealed that attitude of students toward the learning of Biology before orientation was very poor but after the students were properly orientated, their attitude toward the learning of Biology changed positively. In addition, there was significant difference in the attitude of students towards the learning of Biology before and after orientation. It was recommended among others that school administrator should employ qualified biology teachers for orientation; they should not

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use teachers from other discipline in lieu of a qualified biology teacher in the delivery of orientation service.

Keywords: Orientation Stimuli, Attitude, Biology,

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Introduction

Many students seem to have developed negative attitude toward science subjects in secondary schools and it has become almost a general belief that science subjects are too abstract and difficult to learn. These assumptions have been traced to the state of high failures in science subjects in the Senior Secondary School examinations as observed by the researcher from years of teaching Biology in the Senior Secondary School. Also, it appears students usually opt for other disciplines such as commercial and Arts in order to avoid the assumed stress and difficulty associated with the study of science. The rate at which science students shifts to other discipline such as art and commercial subjects call for urgent attention.

Biology occupies a central position in the science world and it is the gateway to professions like; medicine, pharmacy, dentistry, nursing, sanitary inspection, agriculture and a host of others. In spite of the obvious importance and the fact that biology is an interesting subject that relates to human life, it is still a puzzle why the performance of secondary school students remains poor in the subject. Most parents, educators and professionals have expressed their deep concern over this existing problem. It has now become necessary therefore to consider that every individual is unique and differences exist among students with respect to readiness for reception of knowledge, readability and the rate of absorption of materials.

Interaction with the students had shown that students always complain about biology being too wide, voluminous and difficult. If there are ways and methods by which students can be made to see that the assumed wideness, volume and difficulty level is to their advantage, there may likely be the possibility of better and positive response from the students (Abubakar, Yakubu, Danjuma & Mario, 2012). The poor performance in Biology caused by irrational and negative attitude of students towards biology among secondary school students is attributed to inability of the students to identify prospects of studying biology (Taiwo, 2012).

Orientation gives better information that enhances students' energy and drives to learn effectively and achieve to their potential at school. The seemingly lack of interest and commitment to learning of biology can then be attributed to lack of proper orientation. No one has ever achieved anything without a dream attached to a burning desire (Maps, 2003). Learners must be taught how to learn because learning how to learn frees one's dependency on others for knowledge.

Orientation is a concept which has been used in several ways to give information on why people believe and or behave as they do. At times, it brings out something innate within the individual, a kind of driving force or energizer, a desire or an urge that causes the individual to perform. The type of orientation or conditioning factors an individual is exposed to, determines the motives for conduct and behavior, source of drives, urges, incentives or interest which are learnt in the environment (Afe & Egbochukwu, 2001). Orientation plays a large part in students' interest in and enjoyment of school and study; and underpins their achievement. Students' goal orientation, which is the purpose that they have for completing an academic task, seems to have received much attention due to its influential role on students' attitude towards learning Biology.

The purpose of the study was therefore to examine the effects of orientation stimuli on attitude of senior secondary school students towards learning of Biology in Ekiti State. The study specifically examined:

1. the attitude of students towards the learning of Biology before and after orientation;

- the difference in the attitude of students towards the learning of Biology before and after orientation; and
- the difference between the attitude of male and female students towards the learning of Biology after orientation.

Researcher Question

- What is the attitude of students towards the learning of Biology before orientation?
- What is the attitude of students towards the learning of Biology after orientation?

Research Hypotheses

The following null hypotheses were generated for this study.

- There is no significant difference in the attitude of students towards the learning of Biology before and after orientation.
- There is no significant difference between the attitude of male and female students towards the learning of Biology after orientation.

Methodology

The study adopted pre-test, post-test quasi-experimental design. The population of the study consisted of all SS2 students offering Biology in Ekiti state. The sample comprised 160 students offering Biology and was selected through multi-stage sampling procedure across the three senatorial districts of the state.

Questionnaire on Students' Attitude towards the Learning of Biology (QSATLB) was used to generate data for the study. The validity of the instrument was ascertained by experienced Biology teacher and experts in tests and measurement and psychology. The reliability coefficient of 0.75 was obtained for SATLB using internal consistency method. The experimental procedure was in three stages namely pre-intervention, intervention and post-intervention stage.

The data collected were analysed using descriptive and inferential statistics. Frequency count and percentage was used to answer the two research questions raised while the hypotheses were tested using t-test statistics at 0.05 level of significance.

Results

The research question raised was subjected to descriptive analysis using mean scores.

Question 1: What are the attitudes of secondary school students towards the learning of Biology before orientation?

Responses of secondary school students indicating their attitude towards the learning of Biology before orientation were collated. The result is presented in table 1 below.

Table 1: Attitude of students towards the learning of Biology before Orientation

S/N	Items	SA	A	D	SD
1.	I believe Biology is only necessary for science students alone	61 (38.1%)	67 (41.9%)	16 (10%)	16 (10%)
2.	The study of Biology promote immorality	69 (43.1%)	39 (24.4%)	30 (18.8%)	22 (13.8%)
3.	Biology does not contribute in any way to my future achievement	110 (68.8%)	36 (22.5%)	9 (5.6%)	5 (3.1%)
4.	Biology concepts are too abstract for me to understand	48 (30%)	85 (53.1%)	18 (11.3%)	9 (5.6%)
5.	I don't easily understand the terminologies used in Biology classes	51 (31.9%)	84 (52.5%)	16 (10%)	9 (5.6%)
6.	I hate my Biology teachers	121 (75.6%)	35 (21.9%)	4 (2.5%)	-

7.	I don't like Biology because it is always boring	102 (63.8%)	48 (30%)	6 (3.8%)	4 (2.5%)
8.	Biology content area coverage is too wide	19 (11.9%)	63 (39.4%)	46 (28.8%)	32 (20%)
9.	Biology note my teacher gives is always too voluminous	29 (18.1%)	98 (61.3%)	20 (12.5%)	13 (8.1%)
10.	I only offer Biology because my friends are doing it	129 (80.6%)	22 (13.8%)	8 (5.0%)	1 (0.6%)
11.	I feel uncomfortable in Biology class	89 (55.6%)	51 (31.9%)	7 (4.4%)	13 (8.1%)
12.	Cramming of Biological names and terminologies is too difficult for me	68 (42.5%)	71 (44.4%)	12 (7.5%)	9 (5.6%)
13.	I don't like Biology because I don't like drawing	85 (53.1%)	64 (40%)	11 (6.9%)	-
14.	I don't like biology because it does not contribute to technological advancement	90 (56.3%)	63 (39.4%)	5 (3.1%)	2 (1.3%)
15.	Biology is not interesting	111 (69.4%)	44 (27.5%)	3 (1.9%)	2 (1.3%)
16.	I only offer biology because it is compulsory	76 (47.5%)	58 (36.3%)	14 (8.8%)	12 (7.5%)
17.	Biology relates to day to day human activities	20 (12.5%)	12 (7.5%)	33 (20.6%)	95 (59.4%)
18.	I will like to avoid biology in my choice of future career	100 (62.5%)	33 (20.6%)	8 (5.0%)	19 (11.9%)
19.	Biology knowledge can help me live healthy	7 (4.4%)	5 (3.1%)	28 (17.5%)	120 (75%)
20.	I will like to study biology further if I know how to pass it easily	6 (3.8%)	20 (12.5%)	48 (30%)	86 (53.8%)

The result presented in table 1 show that 80% of the respondents agreed that Biology is only necessary for science students alone while 20% disagreed. 67.5% agreed that Biology promote immorality while 32.6% disagreed. It was agreed by 91.3% of the respondents that Biology does not contribute in any way to students' future achievement while 8.7% disagreed. 83.1% agreed that Biology concepts are too abstract for students to understand while 16.9% disagreed. The respondents agreed that students don't easily understand the terminologies used in Biology classes, they hate their Biology teachers and the subject because it is always boring, content area coverage is too wide and teacher gives too voluminous note. The result in the table also revealed that students only offer Biology because their friends are doing it. This is because they feel uncomfortable in Biology class and cramming of Biological names and terminologies are too difficult for them. They dislike Biology because they do not like drawing; it is not interesting and it has not contribute to technological advancement. These responses indicated that the attitude of students before orientation towards the learning of Biology in secondary school was very poor.

Question 2: What are the attitudes of students towards the learning of Biology in secondary school after orientation?

Responses of secondary school students indicating their attitude towards the learning of Biology after orientation were collated. The result is presented in table 2 below.

Table 2: Attitude of students towards the learning of Biology after Orientation

S/N	Items	SA	A	D	SD
1.	I believe Biology is only necessary for science students alone	14 (8.8%)	29 (18.1%)	67 (41.9%)	50 (31.3%)
2.	The study of Biology promote immorality	20 (12.5%)	47 (29.4%)	38 (23.8%)	55 (34.4%)
3.	Biology does not contribute in any way to my future achievement	4 (2.5%)	16 (10.0%)	38 (23.8%)	102 (63.8%)
4.	Biology concepts are too abstract for me to understand	8 (5%)	20 (12.5%)	81 (50.6%)	51 (31.9%)
5.	I don't easily understand the terminologies used in Biology classes	8 (5%)	18 (11.3%)	82 (51.3%)	52 (32.5%)
6.	I hate my Biology teachers	-	6 (3.8%)	39 (24.4%)	115 (71.9%)
7.	I don't like Biology because it is always boring	3 (1.9%)	9 (5.6%)	56 (35.0%)	92 (57.5%)
8.	Biology content area coverage is too wide	24 (15.0%)	51 (31.9%)	69 (43.1%)	16 (10.0%)
9.	Biology note my teacher gives is always too voluminous	10 (6.3%)	29 (18.1%)	86 (53.8%)	35 (21.9%)
10.	I only offer Biology because my friends are doing it	3 (1.9%)	11 (6.9%)	31 (19.4%)	115 (71.9%)
11.	I feel uncomfortable in Biology class	18 (11.3%)	6 (3.8%)	45 (28.1%)	91 (56.9%)
12.	Cramming of Biological names and terminologies is too difficult for me	7 (4.4%)	9 (5.6%)	84 (52.5%)	60 (37.5%)
13.	I don't like Biology because I don't like drawing	2 (1.3%)	14 (8.8%)	64 (40.0%)	80 (50.0%)
14.	I don't like biology because it does not contribute to technological advancement	2 (1.3%)	13 (8.1%)	60 (37.5%)	85 (53.1%)
15.	Biology is not interesting	5 (3.1%)	6 (3.8%)	49 (30.6%)	100 (62.5%)
16.	I only offer biology because it is compulsory	19 (11.9%)	15 (9.4%)	57 (35.6%)	69 (43.1%)
17.	Biology relates to day to day human activities	89 (55.6%)	36 (22.5%)	18 (11.3%)	17 (10.6%)
18.	I will like to avoid biology in my choice of future career	26 (16.3%)	14 (8.8%)	30 (18.8%)	90 (56.3%)
19.	Biology knowledge can help me live healthy	118 (73.8%)	29 (18.1%)	5 (3.1%)	8 (5.0%)
20.	I will like to study biology further if I know how to pass it easily	87 (54.4%)	55 (34.4%)	9 (5.6%)	9 (5.6%)

The result presented in table 2 shows that 73.2% of the respondents disagreed that Biology is only necessary for science students alone while 26.9% agreed. 58.2% disagreed that Biology promotes immorality while 41.9% agreed. It was disagreed by 87.6% of the



respondents that Biology does not contribute in any way to students' future achievement while 12.5% agreed. 82.5% disagreed that Biology concepts are too abstract for students to understand. The respondents agreed that; students do easily understand the terminologies used in Biology classes, they like their Biology teachers and the subject because it is always interesting. Though the content area coverage of Biology is wide but teacher teaches with a concise note. The result in the table also revealed that students do not offer Biology because their friends are doing it. They feel comfortable in Biology class and cramming of Biological names and terminologies are not difficult to learn. Students now show interest in Biology because they like drawing and it has contributed to technological advancement. Also, the knowledge of Biology can help them live healthy lives. The students' attitude towards the learning of Biology changed positively after orientation. They now like to study biology further and choose it as their future career.

Hypotheses Testing

Hypothesis 1: There is no significant difference in the attitude of students towards the learning of Biology before and after orientation.

Table 3: t-test analysis for difference in the attitude of students towards the learning of Biology before and after orientation

Variables	N	Mean	SD	Df	t-cal	p-value	Decision
Before Orientation	160	49.68	3.63	318	56.070	0.000	Significant
After Orientation	160	73.20	3.87				

*P < 0.05

Table 3 above shows that the t-calculated (56.070) is significant at 0.05 level of significance because p-value (0.000) < 0.05. Thus, the null hypothesis is rejected, which implies that there is significant difference in the attitude of students towards the learning of Biology before and after orientation. The mean score in the students' attitude towards learning Biology after orientation (73.20) was higher than the mean score before orientation (49.68).

Hypothesis 2: There is no significant difference between the attitude of male and female students towards the learning of Biology after orientation.

Table 4: t-test analysis for difference in the attitude of students towards the learning of Biology before and after orientation

Variables	N	Mean	SD	df	t-cal	p-value	Decision
Male	91	74.02	3.81	158	1.810	0.094	Not Significant
Female	69	72.95	3.62				

P > 0.05

Table 4 above shows that the t-calculated (1.810) is not significant at 0.05 level of significance because p-value (0.094) > 0.05. Thus, the null hypothesis is not rejected, which

implies that there is no significant difference between the attitude of male and female students towards the learning of Biology after orientation

Discussion

It was revealed in the study that the attitude of students toward the learning of Biology before orientation in secondary school was very poor. However, students' attitude changed positively towards the learning of Biology when they were properly orientated on the prospects of choosing Biology as future career in life and the easy way to pass Biology. Attitude is described by Mboto and Bassey (2004) as a learned orientation or disposition towards an object or situation which predicts a tendency to respond either favourably or unfavourably to a confronting situation. The finding is in relation with the finding of Durojaye and Mary (2004) that the problem of students' performance in science is not with the subjects as it were but a lack of proper orientation and interest in Biology. Interest in a subject will critically influence a student's attentiveness, degree of commitment and concentration on learning. Interest determines attitude and it can be changed through the type of orientation given to students.

It was also revealed from the findings of the study that orientation stimuli have effects on the attitude of senior secondary school students towards learning Biology. Students' attitude is better enhanced when teacher gives proper orientation to students. The finding corroborated the findings of Ames (2002) that orientation has influential role on students' attitude. The finding is also in consonance with the findings of Marilla (2012), that orientation is important because it provides an opportunity to answer questions, define roles, assess skill level and experience, set expectation, anticipate and head off problems.

The study further revealed no significant difference between the attitude of male and female students towards the learning of Biology after orientation. The attitude of male students was slightly higher than their female counterparts towards the learning of Biology after orientation but the difference was not significant. Anderson (2004) in one of his studies found that the brain of the female and male sometimes respond differently to the same experience, apparently through the action of sex hormones.

Findings of Study

1. Attitude of students toward the learning of Biology before orientation was very poor.
2. After the students were properly orientated, their attitude toward the learning of Biology changed positively.
3. There was significant difference in the attitude of students towards the learning of Biology before and after orientation.
4. There was no significant difference between the attitude of male and female students towards the learning of Biology after orientation.

Conclusion

Based on the findings of this study, it was concluded that the use of orientation before and after the teaching of Biology is a virile strategy to enhance attitude of secondary school students towards learning of Biology.

Recommendations

Based on the findings of this study, it was recommended that:

1. Orientation in Biology classroom should be broadly conceived and involve a coordinated team approach in order to meet the needs of a diverse population of students.

2. School administrator should employ qualified biology teachers for orientation; they should not use teachers from other discipline in lieu of a qualified biology teacher in the delivery of orientation service.

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