Students' Attitude and Interest as Correlates of Students' Academic Performance in Biology in Senior Secondary School

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Abstract

The study examined the relationship in the students' attitude to Biology and students' interest and academic performance of student in Biology in Ekiti State, Nigeria. Students for the study were two hundred (200) SS II Biology students randomly drawn from five secondary schools in Ado Local Government Area of Ekiti State. The research design adopted was a descriptive survey research which was questionnaire based and past terminal continuous assessment results of the students involved in the study. The instruments used to collect relevant data from the students were Biology Attitudinal Scale (BAS), Biology Interest Scale (BIS) and terminal continuous assessment results. The instruments were subjected to validity and reliability mechanism. Pearson Product Moment correlation(r) statistical analysis was used to analysed the two null hypotheses formulated for the study. The findings showed that there is significant relationship in the students' attitude to Biology and students' academic performance in Biology, and the findings also revealed that there is significant relationship in the students' interest in Biology and students' academic performance in Biology. Conclusion and recommendations were also made in this paper.

Key words: Attitude; student's attitude; Interest; student's interest and academic performance.

1. Introduction

Biology is a natural science subject consisting of contents from microscopic organisms to the biosphere general, encompassing the earth's surface and all living things [15]. Considering its characteristics and importance, Biology is a standard subject of instruction at all levels of our educational system, from primary to tertiary levels. It is one of the core subjects at Secondary School Certificate Examination (SSCE) whose study is very relevant to man's successful living [3].

[5] opined that, exposure to Biology education offers the learners a wide range of relevance to all aspects of life. Most of the students in the senior secondary schools in Nigeria opt for Biology in their senior secondary schools. Biology is quite popular at all levels of Nigerian education. It also has a large students' enrolment than any other science subject especially at the tertiary levels of the Nigerian education [14]. In

spite of the importance of Biology, it is pertinent to note that most students still see and learn Biology as an abstract subject. In particular, reports on WAEC results of Senior School Certificate Examination in Ekiti State over the years often revealed low performance of students in biology. A fluctuation trend was recorded in the performance of students in biology in the past six years (between 2008-2013) in May/June WASSCE (Table 1).

Table 1: Summary of trends of performance in Biology in the West African Senior Secondary School Certificate Examination, Ekiti State (between 2008-2013)

Year	No. Registered			A1 to C6				D7 to E8				Failure			
	M	F	Total	M	F	Total	%	M	F	Total	%	M	F	Total	%
2008	6627	6217	12844	1376	1395	2771	21.57	2065	1956	4021	31.30	3186	2866	6052	47.10
2009	6490	5855	12345	2430	1421	3851	31.20	1829	1788	4144	33.60	2210	1934	4350	35.20
2010	7726	6862	14588	4280	3412	7692	52.70	3520	3241	3762	25.80	2042	1720	3134	21.50
2011	8883	8249	17132	3889	3564	7453	42.50	3327	3417	6126	35.80	3264	2862	3553	20.70
2012	3358	3317	11527	919	1542	2461	21.35	1664	1691	4175	36.20	1459	1432	4891	42.40
2013	3647	3692	7339	175	210	385	5.25	2272	2364	4636	63.17	1145	1173	2318	31.60

Source: [8] .

A look at table 1 revealed that: in 2008, out of 12,844 candidates examined for Biology in MAY/JUNE WASSCE, only 2,771 (21.57%) scored A1 to C6 grade, 4,021 (31.30%) got pass and 6,052 (47.10%) candidates failed. In 2009, 12,345 candidates were examined for Biology, only 3,851(31.20%) recorded A1 to C6 grade, 4,144 (33.60%) scored pass and 4350 (35.20%) failed. Also, in 2010, out of 14,588 candidates that were examined for Biology, only 7,692 (52.70%) had A1 to C6 grade, 3,762 (25.80%) scored pass and 3,134 (21.50%) failed. In 2011, out of 17,132 candidates that were examined for Biology, only 7453 (42.50%) had A1 to C6 grade, 6,126 (35.80%) scored pass and 3553 (20.70%) failed. In 2012, 11,527candidates were examined, 2461 (21.35%) recorded A1 to C6 grade, 4,175 (36.20%) scored pass and 4891 (42.40%) failed. Finally, in 2013, 7,339candidates were examined, 385 (5.25%) recorded A1 to C6 grade, 4,636 (63.17%) scored pass and 2318 (31.60%) failed.

The analysis further revealed that not very many of the candidates had credit pass in Biology over the period of observation. In addition, over 40% of the candidates that were examined over the period of observation scored below passes level (i.e. A1 to C6) grade required for admission purpose to read Biology based courses in the tertiary institutions. This situation is disturbing and not in the best interest of the science and technological growth and development of the country.

This poor result calls for serious concern and this concern has been expressed by parents, teachers, employers of labour and the entire society. Several researchers have also pointed out different reasons for students' poor performance, some of which are due to the abstractness of certain aspects of Biology, lack of understanding on the students' part of certain biological concepts such as ecology (Nzelum, 2010) as cited by [16]. As a result of failure experiences, some students begin to doubt their intellectual abilities and come

to believe that their efforts to achieve are futile. Hence, there is a great need for students to be motivated to develop positive attitude which is crucial to performance in any subject most importantly Biology.

Attitude is an opinion or general feeling about something [10]. Also, [2] defined attitude as cognitive, emotional, and action tendency to a particular behavioural intent. He ascertained that attitude is an important factor that determined achievement of students in sciences. [4] stated that attitude are required through learning and can be changed through persuasion using variety of techniques. Attitude, once established, helps to shape the experiences the individual has with an object, subject or person. Although attitude changes gradually, people constantly form new attitudes and modify old ones when they are exposed to new information and new experiences [1]. Students' attitude towards science is more likely to influence achievement in science courses than achievement influencing attitude [13]. Also, [4] in his study affirmed that improved students' attitude in Physics will enhance students' performance in the subject.

According to [10] "interest is a feeling of curiosity or concern about something that makes attention turn towards it". As opined by [11], personal interest develops slowly and tends to have long-lasting effects on a person's knowledge and values, whereas situational interest is an emotional state that is evoked suddenly by something in the immediate environment and that may have only a short term effect on an individual's knowledge and values. Situation interest is aroused as a function of the interestingness of the content and context and partially under the regulation of teachers [17]. Various researches have indicated positive relationships between student's interest and learning [18]; [9] and [12]. However, there are also many findings that show that interest declines as students pass through the secondary school years [7] and [6].

It is against this background that this study therefore intends to examine the student's attitude and interest as correlates of student academic performance in Biology in Secondary Schools in Ado Local Government Area, Ekiti State, Nigeria.

2. Research Hypotheses
The following null hypotheses were formulated and tested at $p < 0.05$.:
1. There is no significant relationship in the student's attitude to Biology and student's academic performance in Biology.
2. There is no significant relationship in the student's interest in Biology and student's academic performance in Biology.

3. Methodology
This was a descriptive survey research which was questionnaire based and past terminal continuous assessment results of the students involved in the study. The population of the study was all Senior Secondary class two (SS II) Biology students in all the public senior secondary schools in Ado Local Government Area of Ekiti State.
A total of two hundred (200) SS II Biology students, which were randomly selected from five (5) public secondary schools in Ado Local Government Area of Ekiti State, formed the sample (i.e. 40 Biology Students from each school). The sample comprises of one hundred and seven (107) male and ninety-three (93) female. The researchers made personal contact with all the selected schools and collected the following:
(1) Terminal continuous assessment scores of SS II Biology students, and

(2) The responses of the students involved in the study to the: Biology Attitudinal Scale (BAS) and Biology Interest Scale (BIS).

The instruments were subjected to validity and reliability mechanism and they were found appropriate for the study. The researchers administered BAS and BIS on the respondents and the terminal continuous assessment scores of the respondent were also collected from their school authorities. Pearson Product Moment correlation(r) statistical analysis was used to analysed the two null hypotheses formulated for the study.

4. Results and Discussion
Hypothesis 1

There is no significant relationship in the students' attitude to Biology and students' academic performance in Biology.

Table 2: Pearson Product Moment Correlation of Students' Attitude to Biology and Students' Academic Performance in Biology

VARIABLE	N	$\overline{X}$	SD	df	r-cal	r-tab	Remark
Students' Attitude to Biology	200	12.55	0.325				
				118	0.542	0.195	*
Students' Academic Performance	200	10.20	0.533				

P < 0.05 (* = Result is Significant at 0.05 level)

The result in table 2 showed that 'r' value, r-cal (0.542) with a P value < 0.05 alpha level is greater than the critical r-tab (0.195). The null hypothesis is therefore rejected, which means that there is significant relationship in the students' attitude to Biology and students' academic performance in Biology. The study also revealed that students' attitude to Biology (X = 12.55) have higher disposition towards academic performance in Biology.

Hypothesis 2
There is no significant relationship in the student's interest in Biology and student's academic performance in Biology.

Table 3: Pearson Product Moment Correlation of Students' Interest in Biology and Students' Academic Performance in Biology

VARIABLE	N	X	SD	df	r-cal	r-tab	Remark
Students' Interest in Biology	200	11.24	0.532				
				118	0.622	0.195	*
Students' Academic Performance	200	10.30	0.432				

P < 0.05 (* = Result is Significant at 0.05 level)

The result in table 3 showed that 'r' value, r_{cal} (0.622) with a P value < 0.05 alpha level is greater than the critical r_{tab} (0.195). The null hypothesis is therefore rejected, which means that there is significant relationship in the students' interest in Biology and students' academic performance in Biology. The study also revealed that students' interest in Biology (X = 11.24) have higher disposition towards academic performance in Biology.

5. Discussion

As shown in table 2, there is significant relationship in the students' attitude to Biology and students' academic performance in Biology. The findings agreed with that of [13] that students' attitude towards science is more likely to influence achievement in science courses than achievement influencing attitude. It also agreed with the finding of [4] that improved students' attitude toward Biology will enhance students' performance in the subject.

Similarly, as shown in table 3, there is significant relationship in the student's interest in Biology and student's academic performance in Biology. The findings agreed with that of [18] and [9] that indicated positive relationships between students' interest and learning in their various findings. However, there are also many findings that show that interest declines as students pass through the secondary school years [7] and [6].

6. Conclusion

Based on the results of this study, the findings revealed that there was statistical significant relationship in the students' attitude to Biology and students' academic performance in Biology. Findings also revealed that there was statistical significant relationship in the students' interest in Biology and students' academic performance in Biology.

7. Recommendations

Based on the findings of this study, the following recommendations were made:
- Science educators (in particular, Biology educators), should encourage the use of better teaching method that would stimulate students' positive attitude towards Biology.
- Science educators (in particular, Biology educators), should encourage the use of better teaching method that would stimulate students' interest in Biology.

8. References

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