LEARNERS' INTEREST AS DETERMINANT OF ACADEMIC ACHIEVEMENT IN SCIENCE SUBJECTS: CASE STUDY OF SOME SELECTED SENIOR SECONDARY SCHOOLS WITHIN OYO METROPOLIS

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Abstract

This study investigated learner's interest as determinant factor of academic achievement in science subjects. The study adopted a descriptive survey research method with a correlational approach. One hundred (100) Senior Secondary School class two (SSS II) students from five randomly selected Public Secondary Schools within Oyo metropolis in Oyo State, Nigeria participated. Science Interest Inventory Scale (SIIS) were used for the study in data gathering. Mean and standard deviation were used analysis of pooled data. Analyzed result showed that significant relationships exists between classroom learner interest and their academic achievement in basic science. Composite contribution of interest of learner and learning outcomes was found to be significant. However, classroom environment is predicted to enhance better achievement than students' academic interest in the analysis. Conclusively, predictor variables are active correlates of achievement in science subjects. Therefore it was recommended that students should seek counseling on science so as to increase their interest in studying the subject. Teachers and parents should as well create activities and opportunities that will help in developing and sustaining interest of students in science.

Keyword: Interest, Science, Academic Achievement and Subject

Introduction

Generally, education is averred to be a continuous process of human enlightenment and empowerment for the achievement of a better quality of life that leads to develop harmonious personality and involves all aspects of intellectual, religious, moral and physical personality of an individual which is carried out in schools, colleges and other institutions. These institutions prepare pupils for education or for occupation or for family life and so on (Mohamed & Aron, 2017). Secondary school education system in Nigeria is the link between the primary school and tertiary institutions as it receives its pupils from the primary schools and prepares them for entry into universities be it public or private. According to Suleman, Aslam and Hussain (2014) in determining the effectiveness of a nation's educational system, secondary education is a factor in that it is universally acknowledged as a fundamental stage. Quality of higher education depends upon the quality achieved at this level, many countries of the world focus their attention on exploring better solutions to the escalating and emerging problems encountered by adolescents at this level of education. It is therefore imperative to study academic achievement at the level of secondary school and pieces of factors affecting and militating against it.

Academic achievement represents performance outcomes that indicate the extent to which a person has accomplished specific goals that were the focus of activities in instructional environments (Steinmay et al, 2014) specifically in schools, colleges and at university level. Essentially, field of academic achievement depends on divers indicators used to measure it, in this discourse, more

curricular-based criteria such as grades or performance on an educational achievement test are the main focus. Because of the importance attached to achievement at the secondary school level of education, Suleman, Aslam and Hussain (2014), Kpolovie, Joe & Okoto (2014) concluded that secondary education is the foundation stone for further studies and by extension for the development of a nation. This assertion is very true of Nigeria where academic achievement in secondary school certificate examination determines who proceeds to higher institutions. Many prospective grandaunts of secondary education have been frustrated out in furthering their education for the simple reason of not being able to acquire the much needed grades to qualify them for the almighty Unified Tertiary Matriculation Examination (UTME). One therefore begins to wonder why the desire to attain optimum academic achievement has become very elusive.

This has led many educators and academic researchers to investigate into what has been responsible for this and through these, several factors were identified as decisive causes laden with multiple variables. Crosnoe, Johnson and Elder (2004) classified factors of achievement into student factors, family factors, school factors and peer factors. Thinking along the line of this classification, this study is focused on school and students' factors but specifically on classroom environment and students' academic interest. As noted earlier, unfavorable classroom environment can discourage learners and they become less willing to learn invariably affecting their interest in classroom activities. Interest as a psychological construct plays a major role in various life activities including academic. The decision to engage or not to engage in an activity, desire to persist or even to re-engage after disengagement and the level of one's effort and input time into an activity are mainly dictated by the level of interest in an individual. In an academic activity, interest is a driving force behind students' participation. In this light, interest is referred to as an intrinsic motivation, that is, when individuals are intrinsically motivated, they engage in activities for their own sake and out of interest in the activity. This implies that there would be no need for a teacher to force or compel learners into engaging in an activity and participation therefore becomes a natural thing for the learners because right within them there is a self-conviction to engage themselves in curricular and extra-curricular activities.

One common challenge facing teachers is how to introduce and teach in a manner that would generate interest in their students. Dewey much earlier in 1913 argued that if interest can be secured in a given set of facts or ideas, it will be perfectly sure that the pupils will direct their attention or energies towards mastering them. He further claimed that a strong interest will sustain learner's attention and lead to sustain every efforts in accomplishing an academic goal. Kpolovie et al (2014) defined interest as a psychological state of having an affective reaction to and focus attention for particular content and or the relatively enduring predisposition to engage repeatedly in particular classes of objects, events or ideas. According to Adeyemi and Adeyemi (2014) interest has to do with a learner's predisposition to react positively in certain ways towards certain aspects of the environment and is usually developed in relation to and remain sallied to more basic motives. Kpolovie et. al. (2014) reported that situational interest which could be generated by the classroom environment is a potent medium that can be harnessed by teachers to motivate students' interest in learning even by the disengaged and unmotivated students to more effectively learn for probable better performance. Eberly Centre (2014) saddled with teaching excellence and educational motivation wrote that, regardless of the objective value of an activity or topic, if students do not recognize its value, they may not be motivated to expend effort. However, if students clearly see how course work connects to their goals, interest and concerns, they will be more likely to value it and thus, more motivated to invest time and effort. To achieve this, the Centre proposed seven strategies which if adopted by the teacher might capture and sustain students' interest in any given class activity and lead to excellent achievement. The strategies are:

- Clearly articulate learning goals,
- Show relevance to students' academic lives,
- Demonstrate relevance to students' professional lives,
- Highlight real-world applications of knowledge and skills,
- Connects to students' personal interest,
- Allow students' some degree of choice and
- Show your own passion and enthusiasm.

Lack of interest in a subject discourages students from staying in class and working hard to achieve a good grade and prevents them from being enthusiastic and taking the class seriously. Adeyemi & Adeyemi (2014) noted that when students lose interest in their studies, failure rate will be higher. Adding anti-social dimension to it, they wrote that students may engage in very many unlawful activities like cultism, robbery, prostitution and tyranny among other vices. Teachers are therefore enjoined to apply the suggested strategies in order to achieve the goal of generating interest in learners.

Relationship between interest and academic achievement has been studied empirically but according to Silvia (2006) in Kpolovie et al (2014), psychologists have characteristically disregarded close examination of interest as an overwhelming construct in the determination of human learning, motivation and emotion. This implies that much attention have not been paid to the effect of interest on students' academic achievement until very recently. In the same vein, Tella, Tella and Adeniyi (2011) in their study which comprised of 500 Junior Secondary School (JSS) students on locus of control, interest in schooling and self-efficacy as predictors of academic achievement in Osun State Nigeria, found that interest jointly and independently significantly predicted achievement.

Statement of the Problem

Nothing important happens without a cause or in total isolation of associated factors. The level of academic achievement of students is dependent upon or associated with a number of psychological, sociological and environmental factors. The psychological factors could include attitude of students toward schooling, interest in learning, study habit, attribution or locus of control, self-efficacy, personality, motivation, creativity, sociability, age, persistence, and intelligence. In this investigation, traits that serve as predictor variables are attitude towards school and interest in learning because the extent to which these constructs actually correlate with and probably predict students' academic performance in the SSCE, conducted by WAEC, has not been conclusively established empirically.

All senior secondary students desire success academically, but are driven by different motives and different stimuli for attainment of the success. Students do different things to attain desired academic performance while some students lack self-confidence and may resort to examination malpractice for their test scores, some are studious but still do not do very well in their educational pursuit, some have examination phobia maybe due to some unpleasant situations experienced at younger age in school that has resulted in apathy in schooling. While some students attribute their successes and failures to outside factors like their luck, teachers and other influential persons; some accept total responsibility for their successes and failures. Some students' level of achievement is dependent upon the level of motivation they get from people directly or indirectly.

Though there may be other factors like social and environmental factors that militate against students' achievement, the variables investigated in this study are centered on the students' response to psychological stimuli of academic performance. The researchers are interested in finding out the magnitude and nature (direction) of relationship between each of the psychological constructs (interest in learning) and students' academic achievement; and the extent to which the criterion variable is predicted individually and collectively by the predictor variables.

Research Questions

The following questions were formulated to guide the study:

1. What is the interest level of students in the learning of science subject?
2. What are students' opinions on the relevance of science subject in life and academics?
3. Is there a relationship between student's interest in studying science and their academic performance?

Methodology

The study adopted a descriptive survey research method with a correlational approach. The target population for this study was senior secondary science students in Oyo metropolis Area of Oyo State, Nigeria. One hundred (100) science students drawn from five randomly selected secondary schools within the study area. Students were selected based on their level of academic knowledge area covered and also because they were not being prepared for any immediate external examination. Science Interest Inventory Scale (SIIS) was developed by the researcher, vetted by expert in the field and used to collect data for the study, it was designed to assess students' interest in science on four- point Likert type rating scale thus: Strongly agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2 and Strongly disagree (SD) = 1. The responses strongly agree, agree, disagree and strongly disagree are respectively assigned value point of 4, 3, 2, 1 for positive statement and the reverse for negative statements. The internal consistency of SIIS was determined from the response of 20 students. A reliability coefficient of 0.95 was measured for the instrument using Crombach-alpha formula. The scores obtained from the pre and posttest was analyzed using mean and standard deviation for research questions.

Analysis of Results

Research Question 1: What is the interest level of students in the learning of science subject?

Responses were solicited from 100 students. Respondent's responses concerning the interest level of students in the learning of science subject are presented in Table 1.

Table 1: Interest Level of Students in the Learning of Science Subject

S/N	Statement	Mean	SD
1.	I prepared myself for science class	2.36	0.820
2.	I listen attentively in the class during the lesson	2.30	1.022
3.	I participate actively in discussion, answering questions, class exercise and/or classifying things.	2.04	1.019
4.	I always aspire to have good grades in test, quizzes, assignment and projects.	3.08	0.742
5.	I get frustrated when discussion is interrupted or when teacher is absent for the class	3.32	0.714
6.	I attend all basic science classes throughout the term	2.40	1.103
7.	I always attend to my assignments regularly	2.35	0.976
8.	I study the lesson I missed for one reason or the other	2.00	0.950
9.	I teach my classmates that failed to understand some topics	2.10	1.029
10.	I exert more efforts when I do difficult assignments	2.05	0.976
	MEAN AVERAGE	**2.41**	**0.935**

Table 1 present the interest level of students in the learning of science subject which were analyzed using 10 items, it can be seen in statement 1, that I get frustrated when

the discussion is interrupted or when teacher is absent was at the highest level with mean of 3.32 and a standard deviation of 0.714. This level was followed by statement, I want to get good grades in test, quizzes, assignment and projects which elicit a level mean of 3.08 and a standard deviation of 0.742. This implies that, students agreed to both statements. However, on whether students attend all science class throughout the term came third with a level mean of 2.40 standard deviation of 1.103. I make myself prepared for the science subject occupied the next level with mean of 2.36 and standard deviation of .820 whiles I do my assignment regularly marginally follows with mean of 2.35 and standard deviation of 0.976. More so, on the statement, I listen attentively to the lecture of my math teacher had a mean of 2.30 and a standard deviation of 1.022, followed by I taught my classmates who do not understand some topics I do understand with a mean of 2.10 and a standard deviation of 1.029. On the issue of whether students study the lessons they missed if they absent themselves from the class marked the eighth level with mean of 2.09 and a standard deviation of 0.950 whiles the statement I exert more effort when I do difficult assignments‟ was next with mean of 2.05 and standard deviation of .976. I actively participate in the discussion, answering exercises and/or clarifying things I did not understand‟ occupied the tenth level with a mean of 2.04 and standard deviation of 1.019. This implies that students disagreed to the later eight statements discussed. Finally, there is a mean of means of 2.41 and standard deviation of .935 indicating an average level of interest of students in the learning of science below 2.50. This implies on average that, students have negative interest in science.

Research Question 2: What are students' opinions on the relevance of science in life and academics?

This research question sought to students' opinions on the relevance of science in life and academics. To elicit these responses, respondents answered 10 items in this section. The results are as presented in Table 2.

Table 2: Students' Opinions on the Relevance of Science in Life and Academics

S/N	STATEMENT	MEAN	SD
1.	New knowledge is created from already established structures.	170(85)	30(15)
2.	It develops creativity, basing alternative and new ideas on established ones.	145(75)	55(27)
3.	Emphasis is laid on the control of situations through its applications	130(65)	70(35)
4.	Its full of fascinating ideas which seems to exist independently of human actions.	165(83)	35(17)
5.	It provides an understanding of the world around us.	150(75)	50(25)
6.	It is a secure subject that deals with routine procedures and established rules.	190(95)	10(05)
7.	It is idea and methods that leads to thinking and logical argument.	160(80)	40(20)
8.	It form basis which enables one to excel in the specialty of ones choice.	145(73)	55(27)
9.	It makes one to be smarter.	80(40)	120(60)
10.		60(30)	140(70)

From Table 2, it can be noticed that, the students are of the view that, new knowledge is created from already established structures. Again, the table further revealed that, the students are of the view that, basic science emphasis the control of situations through its application. It was also revealed in this study that, science is full of fascinating ideas which seems to exist independently of human actions, science provides an understanding of the world around us, it is a secure subject dealing with routine procedures and established rules, basic science‟ ideas and methods are testable and verifiable as well as basic science develops rational thinking and logical argument. However, the table revealed that, basic science is not the basis that enables you to excel in the specialty of your choice. Again the students are of the view that, mathematics does not make one smarter. The study therefore established that, the students believe that basic science has relevance in one's life and one's academics. The findings in this study agree with assertion that, the key to the economic development of Ghana therefore depends on the development of a strong science, mathematics and technology base (Anamuah–Mensah, 2007).

Research Question 3: Is there a relationship between student's interest in studying science and their academic performance?

In finding out the relationship between student's interest in studying science and their academic performance, the continuous assessment of students in previous semester were used. The data were analyzed with Pearson product moment correlation coefficient and are presented in Table 3.

Table 3: Pearson Product Moment Correlation Test for the relationship between Students' Interest in studying science and their academic performance

Variable		Academic Performance
Students' Interest in studying basic science	Pearson correlation	0.813
	Sig. (2-tailed)	0.002
	N	100

The results in the Table 3 show the relationship between students‟ interest and academic performance in studying science. The table shows that, there is significant relationship between students‟ interest in studying science and academic performance with significant value of 0.002 at 0.05 level. The correlation coefficient which show that there is significant relationship between students' interest in studying science and academic performance is (r = .813). This implies that, there is high or strong relationship between students' interest and academic performance in studying science and that, it is in a positive direction implying that, if there is increase in students' interest, there will be high academic performance in basic science and if there is decrease in students' interest, there will be low academic performance in basic science. The above findings correspond with the findings of a study by Long (2019) who pointed out that, igniting interest among students with lower basic science achievements given its strong link to science achievements. However, the findings contradict the finding from the study conducted by Kalpana & Malathi (2019) who indicates that, there is significant difference when extent of motivation was taken as variable of interest on academic achievement in science based on the degree of their motivation.

Conclusion

Based on the findings of the study, it can be concluded that, with most students not having interest in science subject, students‟ academic performance will be very low or poor which will in a long effect

impede the nations' development and growth. The second finding could stimulate students' interest in the studying of basic science and augment academic performance. Being aware of increase in students‟ interest yielding high academic performance in science and vice versa, teachers will ensure that students‟ interest in science is sustained. More so, students will intrinsically increase and sustain the interest in studying science since the study revealed that most students want to get good grades on test, quizzes, assignment and projects.

Recommendation

On the basis of the findings of the research work, the following recommendations are made;

- Students should seek counseling on science subject so as to increase their interest in studying science.
- Teachers and educationalist should orient students to stimulate the interest in order to appreciate the studying science.
- The curriculum developer should make the teaching and learning of science practical and activity-oriented.
- Teachers should also adhere to the practical teaching and learning of science for students to appreciate the relevance of science in one's life and one's academics.
- Finally, teachers should be motivated so that they may assist students in teaching and learning science' skills to increase students' interest in studying science to foster high academic performance.

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