

Students' Attitude and Interest as Correlates of Students' Academic Performance in Physics in Secondary Schools in Ekiti State, Nigeria"

Adebisi O. AWODUN(Ph.D)

Department of Physics, College of Education, Ikere- Ekiti, Ekiti State, Nigeria

Phone No: 08038527974, E-mail : bisawoideas@yahoo.com

Abstract

The study examined the relationship in the students' attitude to Physics and students' interest and academic performance of student in Physics in Ekiti State, Nigeria. Subject for the study were one hundred and twenty (120) SS II Physics students randomly drawn from six 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 subjects were Physics Attitudinal Scale (PAS), Physics Interest Scale (PIS) 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 student attitude to Physics and student academic performance in Physic, and the findings also revealed that there if significant relationship in the student interest to Physics and student academic performance in Physics. Conclusion and recommendations were also made in this paper.

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

Introduction

The development of any nation, which depends on science and technology, hinges on the strength of the nation’s science education. Science education is a distinct form of creative human activity which involves distinct ways of seeing, exploring and understanding reality. Science, being a fundamental part of everyday life and essential to our understanding of the world, teaches us a way of finding out about the world (by becoming curious and seeking explanations) and this helps us to develop a growing body of ideas and information about the ways things work. Physics is among the three major pillars of science (i.e. Physics, Chemistry and Biology). Physics deals with the study of laws that determine the structure of the universe with reference to the matter and energy in the universe (Ike, 2002).

According to Olarinmoye (2000), “Physics is the most utilized basic science subject in most technology and technology- related profession”. This merely indicates that the enormous role that Physics plays in the technological growth of any nation must not be undermined. It is germane to say that the technological growth of a nation leads to its social and economic development. The importance of Physics for the development of a nation is, therefore, glaring. Physics is the most basic of the sciences and its concepts and techniques underpin the understanding of other disciplines: A thorough understanding of mechanics is necessary to the chemists and the material scientists since the structure of every atom in the universe is determined by mechanics.

In Nigeria, in spite of the enormous role that Physics plays in national development and the efforts of government in the provision necessary science equipments in schools with good teachers and other stakeholders like parents/guardians in providing for their children/wards at improving science education, Physics results in the examination conducted by most certified examination bodies like the West African Examinations Council (WAEC) and National Examinations Council (NECO) have not been satisfactory. In particular, reports on WAEC results of Senior School Certificate Examination in Ekiti State over the years often revealed low performance of students in Physics. A fluctuation trend was recorded in the performance of students in Physics in the past five years (between 2008-2012) in May/June WASSCE (Table 1).

Table 1: Summary of trends of performance in Physics in the West African Senior Secondary School Certificate Examination, Ekiti State (between 2008-2012)

YEAR	TOTAL No EXAMINED	CREDIT A1- C6	PASSES D7- E8	FAILURE F9
2008	3385	1274 (37.6%)	797 (23.5%)	1314 (38.9%)
2009	4289	2296 (53.5%)	1036 (28.7%)	937 (17.8%)
2010	5459	2569 (49.8%)	1825 (31.6%)	1065 (18.6%)
2011	6859	4020 (58.6%)	1124 (16.4%)	1715 (25.0%)
2012	5081	2514 (49.5%)	1379 (27.1%)	1188 (23.4%)

Source: Ekiti State Ministry of Education, Science and Technology (2013).

A look at table 1 revealed that: in 2008, out of 3,385 candidates examined for Physics in MAY/JUNE WASSCE, only 1,274 (37.6%) scored A1 to C6 grade, 797 (23.5%) got pass and 1,314 (38.9%) candidates failed. In 2009, 4,289 candidates were examined for Physics, only 2,296 (53.5%) recorded A1 to C6 grade, 1,036 (28.7%) scored pass and 937 (17.8%) failed. Also, in 2010, out of 5,459 candidates that were examined for Physics, only 2,569 (49.8%) had A1 to C6 grade, 1,825 (31.6%) scored pass and 1,065 (18.6%) failed. In 2011, out of 6,859 candidates that were examined for Physics, only 4,020 (58.6%) had A1 to C6 grade, 1,124 (16.4%) scored pass and 1,715 (25.0%) failed. Finally, in 2012, 5,081 candidates were examined, 2,514 (49.5%) recorded A1 to C6 grade, 1,379 (27.1%) scored pass and 1,188 (23.4%) failed.

The analysis further revealed that not very many of the candidates had credit pass in Physics 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 science based courses in the tertiary institutions. This situation is disturbing and not in the best interest of the technological growth and development of the country.

According to Macmillan (2012), some of the factors inhibiting the learning of Physics and leading to students' poor academic performances in Physics have been identified. These factors, according to Macmillan (2012) include; poor teaching methodology, students' negative attitude towards Physics, students' lack of interest in Physics, school location, gender inequality and poor quality of Physics teacher.

Attitude is an opinion or general feeling about something (Encarta Dictionary, 2004). Also, Adesoji (2002) 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. Akinyemi (2009) 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 (Adesina and Akinbobola, 2005). Students' attitude towards science is more likely to influence achievement in science courses than achievement influencing attitude (O'Connel, 2000). Also, Akinyemi (2009) in his study affirmed that improved students' attitude in Physics will enhance students' performance in the subject.

Interest is a feeling of curiosity or concern about something that makes attention turn towards it (Encarta Dictionary, 2004). As opined by Hidi, Renninger and Krapp (2004), 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 (Schraw and Lehman, 2001). Various researches have indicated positive relationships between students interest and learning (Trumper, 2006 ; Elster, 2007 and Logan and Skamp, 2008). However, there are also many findings that show that interest declines as students pass through the secondary school years (Chiappetta and Koballa, 2006 and Babalola and David, 2011).

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 Physics in Secondary Schools in Ado Local Government Area, Ekiti State, Nigeria.

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 Physics and student’s academic performance in Physics.
2. There is no significant relationship in the student’s interest in Physics and student’s academic performance in Physics.

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) Physics students in all the public senior secondary schools in Ado Local Government Area of Ekiti State.

A total of hundred and twenty (120) SS II Physics students, which were randomly selected from ten (6) public secondary schools in Ado Local Government Area of Ekiti State, formed the sample (i.e. 20 Physics Students from each school). The sample comprises of sixty five (65) male and fifty five (55) female. The researcher made personal contact with all the selected schools and collected the following:

- (1) Terminal continuous assessment scores of SS II physics students, and
- (2) The responses of the students involved in the study to the: Physics Attitudinal Scale (PAS) and Physics Interest Scale (PIS).

The instruments were subjected to validity and reliability mechanism and they were found appropriate for the study. The researcher administered PAS and PIS and 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.

Results and Discussion

Hypothesis 1

There is no significant relationship in the students’ attitude to Physics and students’ academic performance in Physics.

Table 2: Pearson Product Moment Correlation of Students’ Attitude to Physics and Students’ Academic Performance in Physics

VARIABLE	N	X	SD	df	r-cal	r-tab	Remark
Students’ Attitude to Physics	120	11.75	0.275	118	0.337	0.195	*
Students’ Academic Performance	120	7.00	0.492				

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

The result in table 2 showed that ‘r’ value, r_{cal} (0.337) 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 Physics and students’ academic performance in Physics. The study also revealed that students’ attitude to Physics ($X = 11.75$) have higher disposition towards academic performance in Physics.

Hypothesis 2

There is no significant relationship in the student’s interest in Physics and student’s academic performance in Physics.

Table 3: Pearson Product Moment Correlation of Students’ Interest in Physics and Students’ Academic Performance in Physics

VARIABLE	N	X	SD	df	r_{cal}	r_{tab}	Remark
Students’ Interest in Physics	120	10.65	0.492	118	0.307	0.195	*
Students’ Academic Performance	120	8.10	0.275				

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

The result in table 3 showed that ‘r’ value, r_{cal} (0.307) 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 Physics and students’ academic performance in Physics. The study also revealed that students’ interest in Physics ($X = 10.65$) have higher disposition towards academic performance in Physics.

Discussion

As shown in table 2, there is significant relationship in the students’ attitude to Physics and students’ academic performance in Physics. The findings agreed with that of O’Connell (2000) 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 Akinyemi (2009) that improved students’ attitude toward Physics will enhance students’ performance in the subject.

Similarly, as shown in table 3, there is significant relationship in the student’s interest in Physics and student’s academic performance in Physics. The findings agreed with that of Trumper (2006), Elster (2007) and Logan and Skamp (2008) 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 (Chiappetta and Koballa, 2006 and Babalola & David, 2011).

Conclusion

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

Recommendations

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

- Science educators (in particular, Physics educators), should encourage the use of better teaching method that would stimulate students' positive attitude towards Physics.
- Science educators (in particular, Physics educators), should encourage the use of better teaching method that would stimulate students' interest in Physics.

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