

Article Information

Received: 2 Jan 2026

Revised: 21 Feb 2026

Accepted: 17 Mar 2026

Published: 30 Mar 2026

Original Article

Students' and Teachers' Perceived Difficult Topics in Senior Secondary School Physics Curriculum in Akoko South West Local Government Area, Ondo State, Nigeria

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Keywords: Curriculum, Attitude, Perceive, Learning

Abstract

This study investigated students' and teachers' perceived difficulty topics in senior secondary school physics curriculum in Akoko – South – West Local Government, Ondo State. The study is a descriptive research of the survey. The subjects for the study were randomly selected from Five (5) secondary schools used for the study. A total of 250 students responded to the first part of the questionnaire while the same 250 students responded to the second part of the questionnaire. The instrument was subjected to crobach alpha which yielded a coefficient value of 0.65 thus ensured the validity if the instrument. The reliability was done through test – retest method. The reliability coefficient was found to be 0.72 which was considered high for this study. The analysis of the data was based on frequency counts and scores obtained were subjected to test statistics to test for the significant difference of the variables in each of the six (6) hypotheses raised for the study at 0.05 alpha level. The outcome of the study revealed that school location is a major determinant of students learning difficulties in Physics. There was no significant difference in the learning of the students by their gender. School type, public or private showed no significant difference in the topics perceived difficult by both the student's and teachers'. Some recommendations were made based on the outcome of the findings.

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Introduction

The need for physics education in Nigeria educational system and the technologist development of her as a nation is not negotiable. One of the pre – requisite subjects for the study of engineering, medicine, technological and other applied science courses in higher school of learning is Physics. However, the Senior Secondary School where physics is introduced as a separate subject area, the teaching of the subject is hem by numerous problems, some of them reported in research studies carried out in Nigeria are as follows: Lack of qualified physics teachers and a consequence of poor teaching of physics. Lack of motivation of students resulting in low enrolment and achievement in Physics.²

Some of the factors contributing to these listed problems include: (a) Poor attitude of students towards the nature of physics. Physics is abstract and difficult. (b) Inadequacy of laboratory work and laboratory facilities. Poor Science background of the primary science level.³ A clear study of the aforelisted problems unveiled that they form a vicious circle hence they need vicissitude. Lack of qualify physics teachers originated from low enrolment in Physics which is a consequence of perception that some concepts in Physics are different resulting into low achievement due to poor teaching of the subject (physics) by unqualified teachers. Some associations such as Science Teacher Association of Nigeria (STAN), the Co – operative Education Study and Adaption Centre (CESAC), the Nigerian Educational Research and Development Council (NERDC) couple with efforts made by some higher schools of learning e.g. Universities, Colleges of Education, the government at all levels and groups of individuals have not only developed innovative science curricula but has also succeeded in organizing seminars and workshops to facilitate the learning of science. In spite of all these developments, researches revealed that students still find it difficult to learn a good master of all the concepts and principles of this subject (physics). This had debarred many youngsters (students) from gaining admission into higher schools of learning of their choice to study any of this science and technologically oriented courses which is against 60/40% of science and other courses ratio as recommended by the Nigerian University Commission (NUC). Furthermore, studies had revealed that much has not been done in finding out the extent of the learning difficulties experienced by Senior Secondary School students

² Ajayi, A.O & Akinwumiju, J.A. (Eds): Personnel Performance and Capacity Building. Ibadan, Nigeria

³ National Research Council. (2007). Taking Science to school: learning and teaching Science in grades K – 8. National Academies Press.

in physics, for this reason, I considered it necessary and expedient to probe into the topic perceived difficult topics in Senior Secondary School physics curriculum both by students and teachers. The result of this study will be useful in improving student's achievement in physics.

Methodology

This study describes the various aspect of research methodology. These includes the following: Research Design, Population of the study, Samples and Sampling Technique, Data for Gathering instrument, validity of the instrument, Reliability of the instrument, Administration of instrument and data Collection and Method of Data Analysis.

The study investigated the students and teachers perceived difficult topics in Senior Secondary School physics curriculum in Akoko South – West Local Government Area of Ondo State Nigeria. Therefore, the study was descriptive research of the survey type.

❖ Population

The population consisted of five secondary schools in Akoko South – West Local Government Area of Ondo – State, Nigeria.

❖ Sample and sampling techniques

The sample for this study consisted of two hundred and fifty (250) students selected through simple random sampling technique out of which 74 male and 176 females was selected through stratified random sampling technique. Also, 149 and 101 students were selected from the urban and rural schools respectively.

❖ Research instrument

Student learning difficult questionnaire (SLDQ) constructed by the researcher was the only instrument used to collect data for the study. The instrument consisted of two (2) sections, A and B. Section A of the Questionnaire was designed to collect information on the biodata of respondent. Section B was divided into three (3) groups. The first group consists of the topics in the SSS₁ curriculum, the second group consists of the topics in the SSS₂ curriculum while the third group consist of the topics in the SSS₃

❖ **Validity of the instrument**

This questionnaire was given to my project Supervisor who painstakingly did the face validity, content validity as well as the construct validity of the questionnaire and was certified by him.

❖ **Reliability of the instrument**

Reliability of the instrument simple means the degree of consistently to which an instrument is consistent in measuring whatever it is to measure. Therefore, the reliability of the instrument is the degree of consistency between the states of observation obtained from the respondents after which responses have been compared to show similarity in the response given.

For the purpose of this study a test – retest method was used to check the reliability of the questionnaire. The reliability index of $r=0.65$ was obtained, the result showed that instrument was reliable.

❖ **Administration of instrument & Data collection**

The administration of the instrument was done personally by the researcher to two hundred and fifty (250) students in the selected schools for the study. The teachers teaching the subject were not allowed to administer the instrument, so as to prevent an influence on the students' responses.

Data analysis

The analyzed data were subjected to frequency counts statistical treatment. The scores were also subjected to t – test statistics to test for significant difference of the variables in each of the generated hypothesis at 0.05 level of significance.

Results and Discussion

The result of the findings was derived from the data obtained from the subjects used in this study.

Q1: - Is there any difference in the students' gender and their perceived difficulty topics in physics.

Table 1: Mean and standard deviation of physics topics perceived difficult by male and female students.

Gender, Male =1, Female =2, Difficulties in sss physics Curriculum	N	Mean	SD
Male	81	43.54	15.218
Female	169	44.82	17.121

The table above indicates that a total number of two hundred and fifty (250) questionnaire were distributed and 81 respondents were male with the mean value 43.54 and Standard deviation value 15.218 and the remaining 169 were female with the mean value 44.82 and standard deviation value 17.121.

Q2: - Is there any difference in students' gender and their performance in Physics?

TABLE 2: Mean and Standard Deviation of Male and Female performance in Physics

Gender, Male =1, Female = 2 performance of Students' in physics	N	Mean	SD
Male	74	17.30	4.521
Female	176	16.35	7.206

The table above indicate that a total number of 250 questionnaire were distributed and 74 respondents were male with the mean value 17.30 and standard deviation value 4.521 and the remaining 176 were female with the mean value 16.25 and standard deviation value 7.206. While the mean of the male was 17.30, Standard deviation value of 4.521. This shows that male students perform better than the female students in the physics test.

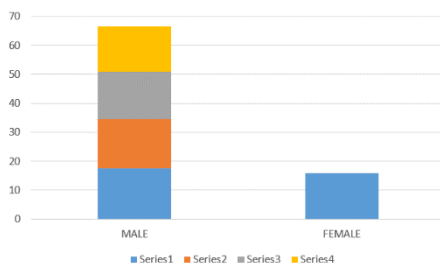


Figure I: - Bar chart on male and female students' performance in physics. The bar chart above shows that the male students perform better than the female students in physics test.

H01: There is no significant difference in physics topics perceived difficult by male and female students in school setting.

Table I – t –test analysis of the main score of physics topics perceived difficult by male and female student in School setting.

Gender, Male =1, Female =2, Difficulties sss physics Curriculum:	N	X	S. D	D.F	t-cal	t-tab
Male	81	43.54	15.218	248	0.578	1.960
Female	169	44.82	17.121			

From the table above the mean score X of male students is 43.54 and the standard deviation is 15.218 while the mean score X of the female is 44.82 and the standard deviation SD is 17.121 with the d.f 248 at 0.05 level of significance of 1.960. Since the t- calculated 0.578 is less than the table value of 1.960. This means there is no significance difference in the physics topics perceived difficult by male and female students. Hence, the hypothesis which state that there is no significance difference in topics perceived difficult in physics by male and female student in school setting is therefore accepted.

H02: There is no significant difference in physics topics perceived difficult by students in Urban and rural school setting.

Table 2: t. test Analysis on urban and rural school setting on perceived difficult in SSS physics curriculum.

Gender, Urban =1, Rural=2	N	X	S.D	d.f	t-cal	t-tab
Urban	149	43.78	15.843	248	0.727	1.960
Rural	101	45.33	17.485			

From the table above the mean score $\bar{X}$ of the urban located students is 43.78 while the mean score $\bar{X}$ of the rural located students is 45.33 and the standard deviation SD is 15.843. the t- calculated is 0.727 with D.F 248 at 0.05 level of significance of 1.960. Since the t-calculated 0.727 is less than the table value of 1.960. This means that there is no significance difference in topic perceived difficult in physics by urban student and the rural students. The hypothesis is therefore accepted.

H₀₃: There is no significant difference in Male and Female performance of student in Physics.

Recommendations

- The following recommendations were made on the light of the findings of the study:
- Teachers should be encouraged to show commitment to real teaching and improvisation when teaching.
- Faculty for science teaching must be made available in all secondary schools.
- Emphasis should be laid on teaching to develop skills and attitude in schools.
- School guidance and counsellor should monitor the performance of students and advice parents on their children activities.
- Teachers should from time to time vary their teaching methodologies to take care of children from different educational background.
- Government should supply necessary equipment to all school both rural and urban.
- Parents should not adopt a careless attitude to their children's education rather they should motivate them.
- Government should encourage teachers to attend regular workshops and seminars so as to equip them with new improvement in the teacher of physics and science in general.
- Government should provide suitable textbooks for the teaching and learning of the subjects (Physics).
- More practical work should be done rather than ordinary theory all the time.

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Declarations:

Author's Contribution:

- **Conceptualization, and intellectual revisions**
- **Data collection, interpretation, and drafting of manuscript**
- The author agrees to take responsibility for every facet of the work, making sure that any concerns about its integrity or veracity are thoroughly examined and addressed

▪ **Conflict of Interest:** NIL

▪ **Funding Sources:** NIL