



**PERCEIVED PROBLEMS MILITATING AGAINST EFFECTIVE TEACHING AND  
LEARNING OF SECONDARY SCHOOL PHYSICS IN  
UMUAHIA NORTH LOCAL GOVERNMENT AREA, ABIA STATE**

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**ABSTRACT**

The study evaluate the perceived problems militating against effective teaching and learning of secondary school Physics in Umuahia North LGA, Abia State. Three research questions with corresponding hypotheses guided the study. The sample size comprised 100 SSII Physics students sampled from three senior secondary schools in the study area. Data were collected using questionnaire. Mean and standard deviation were used to answer the research questions, while a t-test was used to test the hypotheses. The result on the perceived problems affecting the use of instructional materials in the teaching and learning of physics, revealed that there are instructional material problems affecting the teaching and learning of physics in secondary schools with a grand mean of 3.71. The result on the perceived teacher-related problems affecting the teaching of physics in secondary schools, indicated a grand mean value of 3.28. The result on the perceived time-related problems affecting the teaching of physics in secondary schools showed that there are time-related problems affecting the teaching and learning of physics in secondary schools, with a grand mean of 2.90. The study concluded that the perceived problems militating against the teaching and learning of Physics includes instructional material problems, teacher-related problems, and time-related problems. The study recommends that the government should provide adequate instructional materials in secondary schools, and workshops and seminars should be organized by the government and school administrators on the use of instructional materials in teaching and learning.

**Keywords:** Effective, Instructional, Material, Perceived and Physics,

**INTRODUCTION**

One of the goals of education in Nigeria is the acquisition of appropriate skills and the development of mental and physical competencies as equipment for individuals to live in and contribute to the development of society (Federal Republic of Nigeria, 2018). Education in all countries of the world is considered very important for personal and societal development. Education is a crucial tool for development in every country. Furthermore, it is an instrument for the realization of a nation's growth and development, because the level of a nation's literacy determines its extent of development. It is because of the role of education in the development of man and modern society that various declarations on education have been made at the global level and in Nigeria in particular. According to Ukeje (2020), education in science and technology is concerned with teaching individuals to acquire systematic skills, knowledge, and attitudes, and the application of these to society. In Nigeria, physics is a required science for senior secondary school students and has significantly aided in the advancement of numerous countries. The importance of knowledge of physics has affected nations positively in recent times.

Several researchers, such as Omosewo (2019); Bada *et al.* (2018), have highlighted the great importance the subject physics holds among the sciences. Bada *et al.* (2018) opined that



physics is a fundamental science subject required for the improvement of any country. This is because the subject plays a significant role in the world of science. According to Erinoshio (2020), some of the problems militating against the effective teaching and learning of physics in secondary schools include poor availability and use of instructional materials, teacher-related problems, time-related problems, etc. Instructional materials are any resources that are used to support teaching and learning. They can be physical materials, such as textbooks, workbooks, and laboratory equipment, or they can be digital resources, such as online simulations, videos, and games.

Instructional materials should be aligned with the curriculum and the learning objectives of the lesson. They should also be engaging and accessible to all students (Gimba *et al.*, 2018). Some examples of instructional materials that can be used to teach physics in secondary schools are textbooks, workbooks, laboratory equipment, chemicals, safety gear, periodic tables, charts and diagrams, models, simulations, videos, and games. Instructional materials can be used in a variety of ways to support teaching and learning. For example, a teacher might use a textbook to introduce a new concept and then use a laboratory activity to help students explore that concept in more depth. These instructional material problems can have a significant negative impact on teaching and learning in secondary schools. Students who do not have access to high-quality instructional materials are less likely to succeed in school. This can lead to several negative consequences, such as lower grades, a loss of interest in learning, and a reduced chance of pursuing higher education or a successful career (Bada and Loyiso, 2020).

Teachers play the most important role in the success of students (Animba, 2021). Teachers should be student-centered, participatory, motivating, and sensitive to individual differences (Psoner and Strike, 2020). A teacher-related problem is any problem that affects a teacher's ability to teach effectively. This can include problems such as inadequate training and qualifications, a lack of motivation, a negative attitude towards students, ineffective teaching methods, and a lack of classroom management skills. In addition to these individual problems, some systemic issues can affect teaching and learning in secondary schools. A time-related problem is any problem that involves time or the management of time. Time-related problems can be simple, such as calculating how long it will take to travel from one place to another, or complex, such as scheduling a project with multiple tasks and dependencies. The use of instructional materials in schools is most often faced with the issues of poor time allocation in the curriculum and poor knowledge of teachers.

Gender is a psychological term used to describe behaviours and attributes expected of individuals based on being born as either male or female (Bessong *et al.*, 2023). A person's gender has a way of affecting their academic performance in school. Esimone and Ugoo-Okonkwo (2023) reported that male students perform better than females in physics. On the contrary, it was revealed that female students' achievement scores in physics were slightly better than those of their male counterparts. However, Ibokwe (2021) showed that gender has no significant effect on students' performance in physics. A lot of studies show the poor performance of students in physics (Bada, 2018; Psoner and Strike, 2020). This is attributed to the notion that physics is complex to teach and learn, thus making students develop an unfavourable attitude towards learning the subject. On the part of teachers, physics is taught as a series of formulas to be memorized and applied just for the sake of learning, as opposed to teaching students to think critically and independently instead of accepting such knowledge without questions. This issue has become a serious concern to education planners and policy makers in Nigeria. The purpose of the study is to find out the perceived problems militating against effective teaching and learning of secondary school Physics



in Umuahia North LGA, Abia State. Specifically, the study sought to; find out perceived instructional material problems affecting the teaching and learning of Physics in Secondary schools in Umuahia North LGA, Abia State; find out perceived teacher-related problems affecting the teaching of Physics in Secondary schools in Umuahia North LGA, Abia State; find out perceived time-related problems affecting the teaching of Physics in Secondary schools in Umuahia North LGA, Abia State.

## **MATERIALS AND METHODS**

### **The study Area**

The study was conducted in Abia state, Nigeria. The state is located within the Southeastern Nigeria and lies between longitudes  $04^{\circ} 45'$  and  $06^{\circ} 07'$  East of the Greenwich Meridian and Latitudes  $07^{\circ} 00'$  and  $08^{\circ} 10'$  North of the equator. The State is blessed with young and vibrant population who are largely homogeneous in socio psychological characteristics with a lot of farmers and local organizations and very strong in terms of popular grassroots organizations (Igwé and Egbuson, 2013). Abia state is divided into 17 Local Government Areas (LGAs), which is grouped into three (3) agricultural zones namely, Ohafia, Umuahia and Aba zones. Its population stood at about 2,883,999 persons with a relatively high density of 580 persons per square kilometer. Agriculture is the dominant economic activity and main source of employment in the State providing employment and income for more than 70.0 per cent of the population. The people are predominantly farmers and have the potentials for the production of agricultural produce and products such as palm oil, cassava, vegetables, palm kernel, yam, and rice and they also engage in food processing.

### **Sampling technique**

The population of this study was 208 SS II students offering physics in the seventeen public secondary schools in Umuahia North L.G.A. of Abia State. The sample of the study consisted of 100 senior secondary two (SS2) Physics students from five (5) sampled secondary schools (i.e., 20 Physics SS2 students from each sampled school). Three co-educational public secondary schools in Umuahia North L.G.A. were randomly selected from the 17 public schools. This is because gender is one of the variables under consideration.

### **Method of data collection**

Data were collected using questionnaire. Qualitative data were collected using four (4) points scale responses value of 4, 3, 2, and 1 for strongly agree (SA), agree (A), disagree (D), and strongly disagree (SD), respectively. Therefore, any item with a mean score of 2.00 and above was accepted by the researcher as positive, while any score below 2.00 was rejected by the researcher as negative. The instrument for data collection was validated by three experts, two from Physics Education and one from Measurement and Evaluation, all at Michael Okpara University of Agriculture, Umudike. This was to ensure that the items are fit to answer the research questions. The reliability of the instrument (PPMAETLSSP) was determined using the Cronbach Alpha method. Data were analysed using descriptive statistics. The null hypotheses were tested using a t-test at the 0.05 level of significance.



**RESULTS AND DISCUSSION**

**Perceived Problems Affecting the use of Instructional Materials in the Teaching and Learning of Physics in Secondary Schools**

The result in Table 1 shows an average mean value of 3.71, which implies that the students perceived the teaching and learning of physics in secondary schools to be affected by lack of availability of instructional material. The result shows that all the 7 items listed in Table 1 were perceived problems affecting the use of instructional materials in the teaching and learning of physics in secondary schools, with mean values of 2.50 and above. This work is in agreement with Eriba and Iwanger (2018) who found that instructional materials constituted the challenges affecting the effective teaching and learning of secondary school Basic Science and Technology in Nasarawa State, Nigeria.

**Table 1: Perceived problems affecting the use of instructional materials in the teaching and learning of Physics in Secondary schools**

S/N	Items	Mean	SD	Decision
1	Poor availability of instructional materials	3.85	0.390	Accept
2	Poor knowledge on the use of instructional materials	3.73	0.624	Accept
3	Insufficient time to use instructional materials in teaching Physics	3.62	0.653	Accept
4	Lack of interest in the use of instructional materials	3.64	0.695	Accept
5	Lack of motivation of teachers to use instructional materials	3.37	0.593	Accept
6	Little or no experience in the use of instructional materials	3.80	0.523	Accept
7	Poor availability of instructional materials	3.94	0.250	Accept
<b>Grand mean</b>		<b>3.71</b>		<b>Accepted</b>

**Perceived Teacher-related Problems Affecting the Teaching of Physics in Secondary Schools in Umuahia North LGA, Abia State**

The result in Table 2 showed that teacher-related problems were the perceived problems affecting the teaching of physics in secondary schools in Umuahia North LGA, Abia State, with a grand mean of 3.28. This implies that teachers who are not qualified or lacks experience will not be able to deliver his or her lessons effectively and efficiently. This work is in agreement with Mojisola (2021), who found that teaching and learning of Physics in Nigerian private universities were affected by teacher-factors such as poor time management, lack of teachers’ qualification, inadequate teachers’ experience.

**Table 2: Perceived teacher-related problems affecting the teaching of Physics in Secondary schools in Umuahia North LGA, Abia State**

S/N	Items	Mean	SD	Decision
1	Lack of qualified physics teachers	3.79	0.123	Accept
2	Inadequate experienced physics teachers	3.26	0.612	Accept
3	Rushing the students to finish the scheme of work due to time factor	3.52	0.514	Accept
4	Poor communication skills	2.73	0.962	Accept
5	Skipping unfamiliar content areas	2.98	0.926	Accept
6	Poor preparation of lesson notes	3.39	0.733	Accept
<b>Grand mean</b>		<b>3.28</b>		<b>Accepted</b>

**Perceived Time-related Problems Affecting the Teaching of Physics in Secondary Schools in Umuahia North LGA, Abia State**

The findings in Table 3 showed that time-related problems were the perceived problems affecting the teaching of physics in secondary schools, with a grand mean of 2.90. This implies that poor time management, inadequate time allocation to physics classes and practical, always in



a hurry to finish scheme of work etc. affects teaching and learning of physics in secondary schools. This work is in agreement with Mojisola (2021) and Omajemite (2020), who found that teaching and learning of Physics were affected by time related factors such as poor time management, inadequate time allocation to physics classes and practical.

**Table 3: Perceived time-related problems affecting the teaching of Physics in Secondary schools in Umuahia North LGA, Abia State**

S/N	Items	Mean	SD	Decision
1	Inadequate time allocation to Physics classes	3.03	0.90	Accept
2	Poor time management during classes	3.07	0.98	Accept
3	Little or no time for practicals	2.79	1.05	Accept
4	Inadequate preparation of lessons plans/notes	2.93	1.04	Accept
5	Hurrying to finish the scheme of work	2.70	1.14	Accept
<b>Grand mean</b>		<b>2.90</b>		<b>Accepted</b>

**Comparative Analysis of Male and Female Students on the Perceived Problems Affecting the use of Instructional Materials in the Teaching and Learning of Physics in Secondary Schools**

Table 4 shows that the calculated t-value on the response of male and female students on the perceived problems affecting the use of instructional materials in the teaching and learning of physics in secondary schools is 2.628 with a P value of 0.001, which is less than the level of significance of 0.05. Therefore, the hypothesis of no significant difference is rejected, which implies that there is a significant difference in the mean response of male and female students to the perceived problems affecting the use of instructional materials in the teaching and learning of physics in secondary schools. This disagrees with the findings of Eriba and Iwanger (2018) that there is a no significant difference in the mean response of male and female students on the perceived problems affecting the use of instructional materials in the teaching and learning of basic science and technology in secondary schools.

**Table 4: Comparative analysis of male and female students on the perceived problems affecting the use of instructional materials in the teaching and learning of Physics in Secondary schools**

Variables	Mean	SD	Df	t-cal	Sig	Decision
Male students	3.12	0.762	98	2.628	.001	Reject H <sub>0</sub>
Female students	3.81	0.618				

**Comparative Analysis of Male and Female Students on the Perceived Teacher-related Problems Affecting the Teaching of Physics in Secondary Schools**

Table 5 shows that the calculated t-value for male and female students’ responses to the perceived teacher-related problems affecting the teaching of physics in secondary schools is 2.232 with a P value of 0.001, which is less than the level of significance of 0.05. Therefore, the hypothesis of no significant difference is rejected, which implies that there is a significant difference in the mean response of male and female students to the perceived teacher-related problems affecting the teaching of physics in secondary schools. This work is in agreement with Mojisola (2021), who found a significant difference in the mean response of male and female students to the perceived teacher-related problems affecting the teaching of physics in secondary schools.



**Table 5: Analysis of t – test on the mean response of male and female students on the perceived teacher-related problems affecting the teaching of Physics in Secondary schools**

Variables	Mean	SD	Df	t-cal	Sig	Decision
Male students	3.16	0.892	98	2.232	.001	Reject H <sub>0</sub>
Female students	3.72	0.463				

**Comparative Analysis of Teachers and Students on the Perceived Influence of Class Size on Teaching and Learning of Physics in Umuahia North LGA schools**

Table 6 shows that the calculated t-value for the male and female students’ responses to the perceived time-related problems affecting the teaching of physics in secondary school is 2.412 with a P value of 0.001, which is less than the level of significance of 0.05. Therefore, the hypothesis of no significant difference is rejected, which implies that there is a significant difference in the mean response of male and female students to the perceived time-related problems affecting the teaching of physics in secondary school. This work is in agreement with Mojisola (2021) and Omajemite (2020), who found that there is a significant difference in the mean response of male and female students to the perceived time-related problems affecting the teaching of physics.

**Table 6: Comparative analysis of teachers and students on the perceived influence of class size on teaching and learning of Physics in Umuahia North LGA schools**

Variables	Mean	SD	Df	t-cal	Sig	Decision
Male students	3.24	0.913	98	2.412	.001	Reject H <sub>0</sub>
Female students	3.79	0.525				

**CONCLUSION AND RECOMMENDATIONS**

From the findings, the study concluded that there are instructional materials, teacher-related, and time-related problems affecting the teaching and learning of physics among secondary schools in the study area. Also, there is a significant difference in the mean responses of male and female students to perceived instructional materials and teacher-related and time-related problems affecting the teaching and learning of physics in secondary schools. As a result of the findings from this study, the following recommendations were made: the government should provide adequate instructional materials in secondary schools; workshops and seminars should be organized by the government and school administrators on the use of instructional materials in teaching and learning; and qualified and experienced teachers should be employed to teach secondary school students.

**Educational Implication**

Since the result of this study showed that there are instructional materials, teacher-related and time-related problems affecting the teaching and learning of Physics in Secondary schools, there is need for the collective efforts of the government, school administrators and secondary education management board to make effort to address the issues of instructional materials, teacher-related and time-related problems affecting the teaching and learning of Physics in Secondary schools.



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