ORIGINAL PAPER

THE ATTITUDE OF FINAL YEAR STUDENTS TOWARDS LEARNING OF PHYSICS IN IHIALA LOCAL GOVERNMENT AREA OF ANAMBRA STATE

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Abstract. *The deterioration in the popularity of physics education over the period of secondary schooling and beyond have been the reason for serious concern on educational and economic grounds. The purpose of this study was to find out the problems encountered by the final year students towards learning of physics. Three research questions guided the study with population of 200 students and 20 science teachers through simple random sampling. The method of data collection was through questionnaire and observation, the research questions where analyzed using mean rating scale of 2.5 point. Hence any item in the questionnaire with mean below 2.5 was rejected and above 2.5 was accepted. The results obtained from the study revealed that, gender influence, problem solving method and practical physics where some of the problems of students negative attitude towards learning of physics. The findings of this research showed that students negative attitude towards physics were due to, students are not allowed to perform practical individually because of insufficient equipments in the laboratories and also female students do shy away from studying physics because they hold that physics is for selected few. Based on the findings, it was recommended that practical equipments should be made available to secondary schools and there is need for orientation on the part of the female students for the studying of physics.*

Keywords: *Students' attitude, learning, physics.*

1. INTRODUCTION

Physics is an applied science. The knowledge of physics has been useful in the field of medicine, industry and engineering. In Nigeria education, physics are taught at senior secondary schools level in order to achieve the following objectives; to promote basic literacy in physics for functional living in the society, to acquire basic concepts and principles of physics as a presentation for further studies; to acquire essential scientific skills and attitude as a preparation for the technological application of physics and to stimulate and enhance creativity [4]. Despite all mentioned above the falling of physics education in Nigeria is too high.

Most students hold negative view about physics and this was one of the reason they are unable to learn physics. These views of the students are it positive or negative falls under

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attitude which is an aspect of the affected domain; this aspect was embraced so much by the psychologists.

Attitude determines what an individual see, here, think, feel, act or do towards issue or events. This attitude whether positive or negative affects learning in physics and other subjects. Human beings are not born with attitude rather attitude determine their behaviour. Attitudes are the most predictor for estimation of students' success. The study [3] pointed out that attitude towards a content change with exposure to that content but the direction of change may be related to the quality of that exposure, the learning environment and the teaching method. Hence an individual needs new experiences and information to change his or her attitude towards an object. Therefore helping students develop positive attitude towards physics is of great importance in learning of physics.

Learning is the acquisition of knowledge or skills through experience, practice, study or by being taught and this being centered on attitude. According to [7] learning means to bring changes in the behavior of the organism and also may be defined as relatively enduring changes in behavior usually called practice. Hence when the students know the fundamentals of learning and it's important the more they will perform in physics. Many students have entered school without any career in mind, they go for fields or areas where their friends are into. But those that has confidence in them selves and interest in science holds good positive attitude for physics. Physics as a course requires hard work, willingness, intelligence and determination on the part of the student but most students do not like stressing their brain, they maintain that physics is for selected few whereby developing negative attitude towards physics.

Other authors pointed that some students are very lazy and will never like to do something that is challenging. The work of [13] in multidimensional study among 41000 students found that boys exhibited more positive attitude towards physics than boys

Several teaching methods can be used in physics teaching. Problem solving is one method. It involves knowing what to do in a case of not knowing what to do. It is not only finding the answer but an activity that covers wide range of mental work. This has to do with the students' knowledge of mathematics. Knowledge of mathematics is essential to the experimental physics because it provides the logic by which he can best develop his deals and the language in which his results can be most conveniently expressed [8]. Some authors in your study [4] to determine students' attitudes towards physics through problem solving revealed that problem solving methods taught by a teacher to students had an important impact on development of positive attitude towards learning of physics. The impact of solving problem on a students attitude towards physics in very important, because it requires hard work, willingness and patience to accept work given by the teachers.

Laboratory works give students the room to learn ways for solving their problems rather than memorizing it. Many secondary schools that have physics students do not have laboratory, facilities for the students to practice with. Other authors [5] emphasized that the school must consist of relevant materials, equipment and infrastructures to instill positive attitudes in students. Most schools do not have well equipped laboratory and this discourages the students and instills negative attitude in them. Situations whereby the necessary equipments are not there, student take it as a waste of their effort in studying physics.

2. PURPOSE OF THE STUDY

The purpose of this study was to determine the attitude of final year students in five selected secondary schools towards learning of physics in Ihiala Local Government Area of Anambra State. Specifically, the research will explore how students gender influence,

practical physics and problem solving strategy are affected by the students attitude in secondary schools.

3. STATEMENT OF THE PROBLEMS

In Nigeria, physics education is confronted by numerous constraints at senior secondary school level. Some of the identified problems are inadequate training of teachers at institution of higher learning (University, Polytechnics and colleges of education), poor teaching method, and poor attitude of students towards learning of physics, inadequate laboratories facilities to aid physics practicals, lack of instructional materials specifically design to aid learning of physics, inadequate motivation and lack of qualified physics teachers.

4. RESEARCH QUESTIONS

1. To what extent does students gender difference affect their attitudes towards learning of physics.
2. To what extent does practical physics affect students attitude towards learning of physics.
3. To what extent does problem solving strategy affect the students attitude towards learning of physics.

5. POPULATION AND SAMPLE OF THE STUDY

[12] says “population is the total supply of potential available individually for study”. The population of this study comprises of 20 science teachers and 200 senior secondary class3 students. [10], say sample is a representative of that population. A sample is often drawn from the population from whom it is gathered and it is a representative of the population. Five schools were sampled and used for this study out of sixteen public secondary schools in Ihiala they are;

(1) Community Secondary School, Isseke
(2) Abbot Girls’ Secondary School, Ihiala
(3) St. Jude Secondary School, Ihiala
(4) Community Secondary School, Mbosi
(5) Community Secondary School, Osumoghu

The sampling technique used in obtaining them is a simple random sampling.

6. PROCEDURE FOR DATA ANALYSIS

The statistical tool or technique employed in analyzing the data is mean. The mean was used as statistical standard due to the conformity of all questionnaire items. [6] opines that the mean “is most common measure of central tendency, which is found simply by adding the score together and dividing by the total number of scores”. Base on this, the researcher organized the information into a frequency distribution table and computed the mean of the respondents on each questionnaire item using the mean formula as

$$\overline{X} = \frac{\Sigma FX}{N}$$

The decision point or cut off mean was arrived at by assigning figures to the following:

Strongly Agree	4 points
Agree	3 points
Disagree	2 points
Strongly Disagree	1 point

$$Cut\ off\ mean = \frac{4+3+2+1}{4} = \frac{10}{4} = 2.5$$

A theoretical mean of 2.5 used as a criterion to judge the means for the questionnaire items. Therefore any item in students or teachers questionnaire of the instrument which had a mean equal or higher than 2.5 was accepted while any means score below 2.5 was rejected. The mean was for the purpose of description as well as answers to the research questions.

7. RESULT AND FINDINGS

Does gender influence affect students attitude towards learning of physics.

This question will be answered using table 1 and 2

From the table 1, it shows that boys unlike girls have positive attitude towards physics and male physics teachers impart more on students than their female counterpart. Again there are girls who long the study of physics, hence it is not meant for boys only. This is supported by [1].

Table 1. Mean responses of students on the extent gender influence affect students attitude towards learning of physics.

S/N	ITEMS		SA	A	D	SD	X	DECISION
1.	Boys have positive attitude towards physics than Girls	X	4	3	2	1	3.1	Accepted
		F	60	100	30	10		
		Fx	240	300	60	10		
2	I like physics because of my female physics teacher	X	4	3	2	1	2.0	Rejected
		F	15	30	130	25		
		Fx	60	90	260	25		
3.	Physics is a difficult subject made for boys only	X	4	3	2	1	2.0	Rejected
		F	5	40	100	55		
		Fx	20	120	200	55		
4.	We understand our male physics teacher better Than their female counter part.	X	4	3	2	1	2.9	Accepted
		F	60	80	36	24		
		Fx	240	240	72	24		

$$Overall\ Mean\ For\ Student\ Table\ 1 = \frac{3.1+2.0+2.0+2.9}{4} = 2.5$$

From the table 2, it reveals that boys have goods towards studying physics than girls and it is better for men to handle physics than women. Items 3 and 4 shows that not only male students are qualified to study physics, also female teacher see physics as a difficult subject. This is in line with [14] who stated that the way physics is being presented seems to have a larger impart on female students than male students.

Table 2. Mean responses of teachers on the extent gender influence affect students attitudes towards learning of physics.

S/N	ITEMS		SA	A	D	SD	X	DECISION
1.	Boys have good feeling towards studying physics Than girls	X F Fx	4 10 40	3 8 24	2 2 4	1 0 0	3.4	Accepted
2	Is better for men to handle physics than women	X F Fx	4 8 32	3 10 30	2 0 0	1 2 2	3.2	Accepted
3.	Only male study are qualify to study physics	X F Fx	4 0 0	3 2 6	2 10 20	1 8 8	1.7	Rejected
4.	Female teachers do not see physics as difficult subject	X F Fx	4 2 8	3 2 6	2 6 12	1 10 10	1.8	Rejected

$$\textit{Overall Mean For Student Table 2} = \frac{3.4 + 3.2 + 1.7 + 1.8}{4} = 2.5$$

What is the place of practical work in motivating students attitude towards learning of physics?

From the table 3, it shows that group work in practical physics contribute to the student negative attitude towards learning of physics, also practical work help students in understanding of the theories. Again practicals help students to understand the world around them and if the teacher should motivate students when arrived at the desired work it will change their negative attitude towards learning of physics. There is need for practicals in schools for effective learning of physics. This is in line with the work of as have stated before.

Table 3. Mean responses of students as regard to the place of practical work in motivating students attitude towards learning of physics.

S/N	ITEMS		SA	A	D	SD	X	DECISION
5.	Physics practicals are good because we do work In group	X F Fx	4 0 0	3 20 60	2 104 208	1 76 76	1.7	Rejected
6	I like practical because it helps in understanding of the world around	X F Fx	4 80 320	3 90 270	2 23 46	1 7 7	3.2	Accepted
7.	Practical physics does not help in understanding of the theories.	X F Fx	4 6 24	3 20 60	2 114 228	1 60 60	1.9	Rejected
8.	Lack of commendation by the teacher when Students arrive at the desired work makes them To have negative attitude.	X F Fx	4 40 160	3 117 351	2 29 58	1 14 14	2.9	Accepted

$$\textit{Overall Mean For Student Table 3} = \frac{1.7 + 3.2 + 1.7 + 2.9}{4} = 2.4$$

From table 4, it shows that work in practicals and inability of the instructor to direct students during practicals affect student attitude negatively. Also practicals have bridge the gap of abstraction in physics lessons and help the students to understand the theory part of physics. This result agree with [15] which stated that most of the physics candidates fail practical examination because they lack skill for doing simple experiments in science.

Table 4. Mean responses of teachers as regard to the place of practical work in motivating students attitude towards learning of physics.

S/N	ITEMS		SA	A	D	SD	X	DECISION
5.	Students achieve more in practical when they are in group than being done individually.	X F Fx	4 2 8	3 2 6	2 12 24	1 4 4	2.1	Rejected
6	Instructors should not direct student while performing practicals	X F Fx	4 0 0	3 1 3	2 10 20	1 9 9	1.6	Rejected
7.	Practicals have bridge the gap of abstraction in physics lessons	X F Fx	4 3 12	3 10 30	2 7 14	1 0 0	2.8	Accepted
8.	Practical physics help students in understanding Theories	X F Fx	4 4 16	3 9 29	2 4 8	1 3 3	2.8	Accepted

$$\textit{Overall Mean For Student Table 4} = \frac{2.1+1.6+2.8+2.8}{4} = 2.3$$

What are the implications of problem solving strategy on students attitude towards learning of physics? This question will be answered using table 5 and 6.

From the below table, it indicate that solving problem individually make students to have negative attitude towards learning of physics. Also it shows that problem solving strategy as an approach in teaching and learning affect students negative attitude towards learning of physics. Similar to the findings of [11] students who can successfully solve a problem posses good reading skills, have the ability to compare and contrast various cases, can identify important aspects of a problem, can estimate and create analogies and attempt trying various strategies.

Table 5. Mean responses of students on the implication of problem solving strategy on students attitude towards learning of physics.

S/N	ITEMS		SA	A	D	SD	X	DECISION
9.	Teaching of physics without problem solving Make us bored.	X F Fx	4 40 160	3 134 402	2 16 32	1 10 10	3.1	Rejected
10	Physics lesson are more understandable when solving problem individually.	X F Fx	4 0 0	3 150 450	2 54 108	1 96 96	1.8	Rejected
11.	Solving problems in physics help to understand things in real life situation	X F Fx	4 35 140	3 140 420	2 25 50	1 0 0	3.1	Accepted
12.	When a problem is perfectly solved it brings about interest in the subject matter.	X F Fx	4 40 160	3 125 375	2 35 70	1 0 0	3.0	Accepted

$$\textit{Overall Mean For Student Table 5} = \frac{3.1+1.8+3.1+3.0}{4} = 2.8$$

From the table 6, it reveals that if problem solving strategy is applied in the process of teaching hysics and their solutions obtained, it will help to change students negative attitude towards learning of physics. This is in line with the work of [4] as have mentioned before.

Table 6. Mean responses of teachers on the implication of problem solving strategy on student attitude towards learning of physics.

S/N	ITEMS		SA	A	D	SD	X	DECISION
9.	Teaching of physics without problem solving makes students to be bored	X F Fx	4 40 160	3 134 402	2 16 32	1 10 10	3.1	Rejected
10	Physics lessons are more understandable when solving problem along with the teacher.	X F Fx	4 0 0	3 150 450	2 54 108	1 96 96	1.8	Rejected
11.	Solving problems in physics helps to understand things in real life situation	X F Fx	4 35 140	3 140 420	2 25 50	1 0 0	3.1	Accepted
12.	When a problem is perfectly solved it brings About interest in the subject matter	X F Fx	4 40 160	3 125 375	2 35 70	1 0 0	3.0	Accepted

$$\textit{Overall Mean For Student Table 6} = \frac{2.9 + 3.8 + 3.5 + 2.8}{4} = 3.4$$

Table 7. Teacher and Student Average Overall Mean (X).

RQS	TEACHERS	STUDENTS	AVEAGE MEAN (X)
RQ_1	2.5	2.5	2.5
RQ_2	2.4	2.3	2.4
RQ_3	2.8	3.4	3.1

Table 8. Mean in degree and percentage.

RQ_S	(X)	Degrees	Percentage
RQ_1	2.5	112.5^0	31.25%
RQ_2	2.4	108^0	30.00%
RQ_3	3.1	139.5^0	38.75%
Total	**8.0**	$360^{\%}$	100%

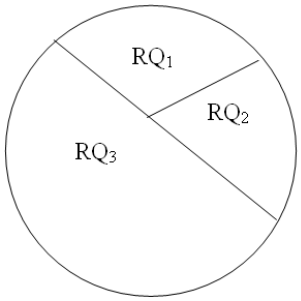

Fig. 1. Pie chart showing the RQs in degree.

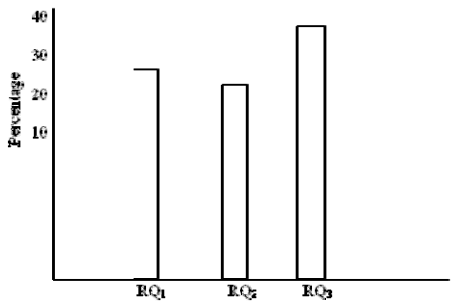

Fig. 2. RQs in percentage.

8. SUMMARY OF THE MAJOR FINDINGS

These problems were identified through the findings made from students attitude towards learning of physics in Ihiala Local Governemnt Area, Anambra State.

1). Students are not allowed to perform practicals indivudally because of insufficient equipment in the laboratories.

2). Lack of orientation on part of female students for studying of physics.

3). Lack of motivation on the part of the teachers.

4). Inability of government to provide equipment and power supply for most practicals.

5). Inability of the instructors to direct students while performing practices.

6). Lack of willingness on students and teachers to tackle physics owning to the fact that it is seen as a difficult subject.

9. RECOMMENDATIONS

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

1). Teachers should try to use problem solving method for the purpose of teaching.

2). There is need for orientation on the students especially on the side of female students for the studying of physics.

3). Government should provide equipment and power supply for most physics practicals.

4). Teachers should also try to use motivation as a means to arouse students interest and direct them while performing practicals.

10. CONCLUSION

The teaching and learning of physics will be a waste enterprise without the students to be taught, the negative attitude of final year students in Ihiala Local Government Area where due to many problems confronted by physics education in general. But only some of the problems were treated in this study, they are also seemed to be inter-dependent one leading to another. It is clear that with good planning, hard work, willingness and combined efforts a lot will be achieved in changing students' negative attitude towards learning of physics

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