

Assessment of Students Motivation towards Physics among Senior Secondary School in Sabon Gari Local Government Area, Kaduna

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Abstract

This study assessed Students' motivation towards Physics among Senior Secondary School in Sabon Gari Local Government Area of Kaduna state. The study utilized is a descriptive survey research design. The study was guided by three research questions. The sample for the research consisted of 150 Physics students from secondary school, using simple random sampling. A questionnaire titled Students Motivation Questionnaire (SMQ) was validated by experts, the reliability coefficient of the instrument was found using the Cronbach's Alpha to be 0.72. mean and standard deviation were used to answer the research questions, while t-test was used to answer the hypothesis. The research indicated Students were motivated towards learning physics, and they like to study it further, also apply physics to their everyday activities. Factors that motivate students to learn physics are teachers, self-esteem, current technology and siblings, male students have higher motivation towards physics than their female counterpart. Finally it was recommended that

students should be motivated using all means of motivation in order to remove fear of the subject from the students. Not only teachers at school, parents should try to motivate students to learn physics and not to intimidate the students.

Introduction

Education is a fundamental human right and the structural key to sustainable development, peace and stability of a nation (Mohammed, 2019). Education is a learning experience that brings about an inherent and permanent change in person's thinking and capacity to do things; it is an indispensable instrument for the development of any nation. Edet and Beyin (2018) sees education as the acquisition of knowledge, skills, attitudes and experiences. However, sustainable development of any country has generally followed the development and application of science and technology (Mashi, Inkani and Yaro, 2014). For every developing nation to attain and sustain national development, a well-planned and implemented science education remain the only essential tool for her national development (Tafi, 2016).

Science education is designed to guide the world toward a scientifically literate society and this is important for an understanding of science as it offers personal fulfillments and excitements (Olasehinde and Olatoye, 2014). Oghenevwede (2015) explained Science Education as those methods employed in the teaching and investigation of sciences. According to Onu (2007), science education as a field of specialization is concerned with two (2) basic aims, which are the production of scientifically interactive society and technological manpower. Aina (2013) sees science education as the process of getting scientific information to individuals from beginning to the end. He also defined science education as the study of science subjects which include Biology, Chemistry and Physics.

Physics is a branch of pure science that deals with the study of matter in relation to energy. Physics is highly needed for our nation's technological breakthrough, (Agommouh & Nzewi, 2003). In addition, Danjuma (2008) stated that physics is the soul of science which plays a vital role in all human endeavour and serves as a pre-requisite for courses such as medicine, geology, agricultural science, pharmacy, forestry among others. Physics is considered as the most problematic area within the realm of science, and it traditionally attracts fewer students than

other sciences like chemistry and biology. Most of the students perceived physics as a difficult subject during high school days and becomes more problematic when they are in college, and even more challenging in graduate education (Ryan, 2013). Despite the laudable objectives of teaching physics in senior secondary schools in Nigeria, students perform woefully in physics; several factors are responsible for students' poor achievement in physics and they are: lack of qualified teachers; poor methods of teaching; poor training of teachers; lack of recommended text books, lack of physics laboratory; non-availability and use of instructional materials; etc. (Achimugu 2016). While others like Tayyaba, Ayesha and Hamid (2017) argues that lack of students' motivation in the subject is a factor to the poor academic achievement of students in the subject.

Motivation has been recognized as an important construct (Koballa & Glynn, 2007) in the field of science education. Most of the literature also shows us that motivation is a very important factor in science learning. Student's motivation towards science learning makes science learning effective (Sarıbiyık, Altunçekiç & Yaman, 2014). According to Cavas (2011), student motivation plays a crucial role in science learning, which targeting in promoting student's construction of his/her conceptual understanding of science. There are some factors that will influence students' motivation towards science learning. According to Tuan, Chin and Shieh (2015), students' motivation towards science learning may be influenced by six factors, namely: self-efficacy, active learning strategies, science learning value, performance goal, achievement goal, and learning environment stimulation.

Students' motivation towards science learning has contributed a considerable impact on students' science achievement (Pintrich & Schunk, 2012). The academic achievement, success of the students is important because it is strongly linked to the positive outcomes we value the most. Researches showed that academically successful students will have more employment opportunities than those with less education (Rentner & Kober, 2011).

Research Questions

The research questions put forward for the research are:

- i. What are the students' motivations towards learning of Physics in senior secondary schools of Sabon Gari Local Government, Kaduna?
- ii. What are those factors that motivate students to learn Physics in senior secondary schools of Sabon Gari Local Government Area of Kaduna state?

Hypothesis

- i. There is no significant difference in the male and female motivation towards learning of Physics in senior secondary schools of Sabon Gari Local Government, Kaduna.

Methodology

The study employed descriptive survey research method for the study. The population of the study comprised all physics students in SSII from some selected secondary schools in Sabon Gari Local Government. These schools among others are: Commercial College Zaria, GSS Muchia, GSS Chikaji, GSS Aminu, GSS Chindit Barrack, GSS Magajiya, GSS Pada, Alhuda huda College, GSS Kofar Doka, GSS Kyambana, GSS Kofar kayan, GSS kofan Jatau, GSS Zaria, GSS Tudun Wada, GSS Tudun Jukun with about total population of 1500 students. A sample of One hundred and fifty (150) students were used (85 male and 65 female), by taking 10% of the population. The study focused on students from SSII only.

Instrumentation

The instrument used for collecting data in the study was a researcher developed questionnaire titled (Student Motivation Questionnaire SMQ). It was divided in to two sections, section A for Bio-data and section B contained items which were used to answer research questions. The students' questionnaire was based on 4-Likert scale. The benchmark to agree or disagree with opinion is 2.50 (i.e <2.50 is disagreed and ≥ 2.50 is agreed).

Pilot Study was conducted using the questionnaire to test the reliability. The instrument was validated by experts. The responses obtained from the pilot study were used to determine the reliability coefficient of the instrument. Cronbach's alpha was used to determine the reliability coefficient of the instrument and it was found to be 0.72. Mean and Standard Deviation were used to answer the research questions while t-test was used to answer the Hypothesis at 0.05 level of significance.

Results

A descriptive statistics mean and standard deviation were used to answer the research questions.

Research Question One: What are the students' motivations towards learning of Physics in senior secondary schools of Sabon Gari Local Government, Kaduna?

Table 1: Table showing the students' motivation towards learning of Physics (N=150)

S/N	Items	Mean (\bar{x})	SD	Decision
1	Physics is relevant to my life	2.90	1.21	Agreed
2	Getting a good physics grade is important to me	2.88	0.33	Agreed
3	I like to do better than other students in Physics test	2.58	0.56	Agreed
4	I do well on Physics tests	2.46	1.11	Disagreed
5	I can master Physics lessons being taught	2.96	4.12	Agreed
6.	I use Physics principles and theories to solve real problems	3.35	2.21	Agreed
7	Knowing Physics will give me a career advantage	2.22	0.22	Disagreed
8	I use strategies to learn Physics well	2.96	1.22	Agreed
9	I feel connected to my teacher and fellow students in Physics classes	3.12	5.32	Agreed
10	The teacher responds to questions clearly than other subjects	2.98	3.18	Accepted

Benchmark: <2.50 Disagreed, \geq Agreed

Research Question Two: What are those factors that motivate students to learn Physics in senior secondary schools of Sabon Gari Local Government Area of Kaduna state?

Table 2: Table showing the factors that motivate students to learn physics.

S/N	Items	Mean (\bar{x})	SD	Decision
1	My teachers motivated me to learn physics	2.88	2.31	Agreed
2	My parents motivated me to learn Physics	2.33	3.22	Disagreed
3	My peer group motivated me to learn physics	2.48	1.09	Disagreed
4	I like physics on my own	2.55	3.02	Agreed
5	Mathematical aspects of physics attracts me to learn physics	2.90	1.12	Agreed
6.	Physics is related to my career	2.45	2.98	Disagreed
7	The current technology motivates me to learn physics	2.81	3.33	Agreed
8	I am motivated to learn physics because the subject is simple	2.28	2.12	Disagreed
9	Physics is always straight forward	2.25	2.33	Disagreed
10	I am motivated by my siblings to study physics	3.02	3.21	Agreed

Benchmark: <2.50 Disagreed, \geq Agreed

Hypothesis One: There is no significant difference in the motivation of male and female secondary school students towards Physics in Sabon Gari.

Table 3: Mean motivation scores of male and female Physics students in Sabon Gari Local government area.

Group	N	Mean(\bar{x})	SD	DF	p-Value	Decision
Male	85	56.09	5.17	148	0.037	Retained
Female	65	57.50	3.80			

Table 3 shows the motivation of male and female students towards physics in Sabon Gari local government. The result shows that the p-value is 0.037 with df = 148. The observed p-value is less than the 0.05. The hypothesis is rejected. Therefore, there is significant difference between the mean motivation scores of male and female Physics students towards Physics in Sabon Gari Local Government. (df=148, p=0.037<0.05).

Discussions

Results from the study shows the responses on students' motivation towards physics, some options were accepted while others were rejected. In table 1, the options accepted are: Physics is relevant to my life, getting a good physics grade is important to me, I like to do better than other students in Physics, I can master physics lesson being taught, I use physics principles and theories to solve real problems, I use strategies to learn physics well, I feel connected to my teacher and fellow students in Physics classes and finally the teacher responds to questions clearly than other subjects. These are the options that were accepted according to the respondents. While the options rejected are only two, these are: I do well on physics test and knowing physics will give me a career advantage. Based on this findings, it was found that Students were motivated towards learning physics, and they like to study it further, also apply physics to their everyday activities, this finding is in line with the finding of Astalini, Darmaji & Pathoni (2019).

The responses on the factors that motivate students to study physics from table 2 shows that, the options that were accepted are: My teachers motivated me to learn Physics, I like physics on my own, mathematical aspects of physics attracts me to learn physics, the current technology motivates me to learn physics, I am motivated by my siblings to study physics. The options that were disagreed are:

my parents motivated me to learn Physics, my peer group motivated me to learn physics, physics is related to my career, I am motivated to learn physics because the subject is simple, physics is always simple, these are the options considered disagreed by the respondents.

Finally it was found from the study that there is significant difference in the mean motivation scores of male and female students which male having higher motivation towards physics than female students. This in-line with the study of Katcha (2015) who observed that male students have higher motivation towards physics than their female counterpart.

Summary of Findings

Based on the outcome of the analysis, the following are the major findings from the study.

- i. Students have high motivation towards learning physics.
- ii. Factors that motivate students to learn physics are teachers, self-esteem, current technology and siblings.
- iii. There is significant difference in the motivation scores of male and female students, towards physics in favour of the male students.

Conclusion

The findings of the study has provided the basis for the researcher to conclude that:

- i. Students were motivated towards learning physics, and they like to study it further, also apply physics to their everyday activities.
- ii. Factors that motivates students to learn physics are teachers, self-esteem, current technology and siblings.
- iii. Male students have higher motivation towards physics than the female.

Recommendations

- i. Students should be motivated using all means of motivation in order to remove fear of the subject from the students.
- ii. Not only teachers at school, parents should try to motivate students to learn physics and not to intimidate the students.

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