Influence of Students' Learning Readiness and Classroom Management on Senior Secondary School Students' Academic Achievement in Physics in Oyo State

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Abstract

Every secondary school leaver that is intended to study any science course in an institution of higher learning is expected to have passed physics subject at credit level as one of the prerequisites. However, the number of those who fail physics subject at West African Senior School Certificate Examination (W.A.S.S.C.E.) is on the rise yearly, thereby, leaving parents and guardians worried. On the premise, this study investigated the influence of students' learning readiness and teachers' classroom management on senior secondary school three students' academic achievement in physics in Oyo State. The study adopted the descriptive survey research design and made use of a sample of 590 selected through a multi-stage sampling procedure. Data collected were analysed using Pearson Product Moment Correlation (PPMC). The independent variables had significant relationship with the academic achievement of students in physics. These were self-efficacy ($r = 0.733$; $P < 0.05$), self-directed learning ($r = 0.549$; $P < 0.05$), verbal instruction ($r = 0.871$; $P < 0.05$) and corporal punishment ($r = 0.658$; $P < 0.05$). The study concluded that students' learning readiness and classroom management have been

adjudged to have contributed immensely to the academic achievement of students in physics. It is recommended that students should throw themselves fully into what they want to achieve in their careers. In other words, they should be committed to their goals. Also, teachers should employ corporal punishment to instil discipline among students if need be.

Keywords: Academic achievement, self-efficacy, self-directed learning, verbal instruction and corporal punishment

Introduction

Physics is one of the core science subjects taught at the secondary school level of the Nigerian educational system. On one hand, physics, as a science subject, has been acknowledged as a pre-requisite for the study of several courses in the universities, for example engineering, medical and other applied science courses need physics (Stephen, 2010). On the other hand, it has also been acknowledged as the bedrock of science which plays a significant role in technological development of a nation. This invariably means that SSS 3 science students need it to study sciences in tertiary institutions and nations need it for technological development (Adebayo and Adigun, 2018). From the foregoing, there is no doubt that the importance of physics in the lives of students and nations cannot be overemphasized (Adebayo and Adigun 2018).

In spite of the importance accorded Physics as central role in technological advancement and prerequisite for securing admission into tertiary institutions to offer science courses, several studies have revealed that the performance of Nigerian students in secondary school physics has been generally poor. For instance, according to Awodun, Oni & Aladejana (2014), students are observed to perform poorly in academic achievement in the subject. In the words of Okeke and Okoye (2013), many students are not offering physics in secondary schools, and out of the few offering the subject, majority are not doing well. Similarly, Isola (2010) testified to poor performances of secondary school students in physics. This is

evidenced in the results of physics subject released by WAEC between 2014 and 2017 (see table 1).

Table 1: Showing summary of trends of performance in May/June WAEC results in physics (between 2014 – 2017) in Oyo State.

S/N	Year	Number of Students Who Sat for the Examination	Number of Students who obtained credit and above	% of Those who obtained credit and above
1	2014	18,467	5314	28.82
2	2015	13,758	4438	32.26
3	2016	15448	9999	64.72
4	2017	9701	4988	51.38

Source: Planning, Research and Statistics Department, Oyo State Ministry of Education, Science and Technology

As shown in table 1, in the West African Senior School Certificate Examination (W.A.S.S.C.E.) conducted between the months of May and June in 2014 in Oyo State, 28.82 per cent of the total number of candidates who sat for physics examination had a minimum of five credit passes in the subject. It slightly improved in 2015 as only 4,438 candidates, representing 32.26% out of 13,758 candidates who sat for physics examination in 2015 May/June W.A.S.S.C.E. obtained credits pass in the subject. It further improved in the 2016 as reported by the examination body (WASSCE) that out of the 15,448 students who sat for physics examination in May/June, 9,999 candidates representing 64.72%, obtained credits in the subject. Sadly, the percentage of those who had credit passes in Physics examination in the WAEC examination conducted in May/June 2017 fell to 51.38 per cent. This sharp fall in performance becomes a source of worry to the stakeholders because the 49% students who failed physics subject in the 2017 May/June W.A.S.S.C.E. are not eligible to seek and gain admission into higher institutions of learning to study science courses that require credit pass in physics.

On this premise, possible solutions must be sought as quickly as possible to arrest this situation, otherwise, the performance of secondary school students in physics subject will continue to fall and this may jeopardize the future technological development of the nation.

Many factors have been attributed to this ugly and unwholesome situation. These factors, include: students' negative attitude towards Physics, students' learning readiness, students' lack of interest in Physics, gender inequality, teachers' classroom management and student study habits according to (Akanbi, 2003; Asikhia, 2010; Awodun, Oni & Aladejana, 2014). However, factors such as students' learning readiness and teachers' classroom management were primary focus in this study.

Students' learning readiness refers to how likely a person is to seek out knowledge and participate in behavior change. Learning readiness, according to Hung, Chou, Chen and Own (2010), consists of five sub-dimensions which are self-directed learning, learner's control, motivation towards learning, self-efficacy and learners communication. In this study, self-efficacy and self-directed learning were considered.

Self-efficacy is the measure of one's own competence to complete tasks and reach goals (Omrod, 2006). This affects every area of human endeavor. It determines the beliefs a person holds regarding his or her power to affect situations, thus if strongly influences both the power a person actually has to face challenges competently and the choices a person is most likely to make. Anderson and Betz (2001) defined self-efficacy as people's judgments of their abilities to perform career behaviours in relation to career development choice and adjustment. Lunenburg (2011) defined self-efficacy as an individual's level of confidence in and beliefs about his or her capabilities to successfully carry out course of action, perform given behaviours, accomplish given tasks and attain desired performance outcomes. According to Lunenburg (2011), self-efficacy refers to judgments of a person's capability to carry out the actions needed to succeed in a Task. It is one of the strongest factors predicting performance in

domains as diverse as sports, business, and education. In academic settings, self-efficacy is a strong predictor of performance (Klassen, Krawchuk, Rajani, 2008). Faruk (2011) studied role of academic motivation and academic self-efficacy on Academic performance in 774 students in Turkey. Their study results showed a high relationship between academic performance and self-efficacy. Klassen, Krawchuk, Rajani (2008) believed that self-efficacy strongly influences individual task, choice, level of effort, persistence, and resilience. Newby-Fraser & Schlebusch (2001) also found that there is significant relationship between one's self-efficacy level and his performance. These findings were further strengthened by Wolters & Pintrich (2004) when they found significantly positive association between self-efficacy level and performance. Lane and Marzona (2008) proposed that the confidence of the students to pass the exam in which they were appearing for the first time was noteworthy associated with the performance of the students. It means that students were so much confident that they would pass the exam; no matter they were appearing in it for the first time. Hence, performance is associated with the self-efficacy level of the students.

In addition, another element that could be responsible for academic achievement of students in physics is self-directed learning. Self-directed learning (SDL), according to Knowles (1975), cited in Kırmızı (2015) is "a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating goals, identifying human and material resources, choosing and implementing appropriate learning strategies, and evaluating learning outcomes". This definition is highly comprehensive and indicates a complex learning process that makes high demands on students for choices (Winne & Perry, 2000). Paris and Paris (2001) stated that self-directed learning "emphasizes autonomy and control by the individual who monitors, directs, and regulates actions toward goals of information acquisition, expanding expertise and self-improvement".

To summarize, self-regulated learners are "metacognitively, motivationally, and behaviorally active participants in their own

learning process" (Zimmerman, 2003). According to Caprara, Barbaranelli, Pastorelli, and Cervone (2004), self-directed learning concerns peoples' perceptions for relating their actions in accord with personal norms when they are faced with peer pressure for engaging in anti-social conduct. It has been found that good self-directed learners do better academically than those who are compelled to study (Zimmerman & Schunk, 1999), and that those students who are considered good self-directed learners use their own performances as a guide for assessing their readiness to learn (Schunk, 1995). Bandura, Caprara, Barbaranelli, Gerbino, and Pastorelli (2003) found that high self-directed learning was related to the ability to effectively manage one's academic development. Moreover, Caprara, Fida, Vecchione, Del Bove, Vecchio, Barbaranelli, and Bandura (2008) investigated the central role played by perceived self-regulation of 412 Italian students in their academic development and functioning over three time periods. Longitudinal findings indicated that there was a decline in self-regulatory learning from junior to senior high school but those who experienced the lowest decline in self-regulatory learning had the higher grades and the greater chance of remaining in school. In summary, high perceived self-directed learning contributed positively to junior high grades.

Classroom management is the term used by teachers to describe the process of ensuring that classroom lessons run smoothly despite disruptive behavior by students. The term also implies the prevention of disruptive behavior (Adeyemo, 2012). According to Umoren (2010), classroom management includes all the things teachers must do in the classroom to foster students' academic involvement and cooperation in classroom activities to create conducive learning environment. Morse (2012) cited in George, Sakirudeen and Sunday (2017), relates that classroom management involves curtailing learner's disruptive behaviors such as fighting and noise making, close observation, arrangement of classroom learning materials, and response to students who suffer from poor sight (vision), poor reading, poor writing, poor spelling, shame, dullness, hyperactivity and poor study habits. According to George, Sakirudeen,

and Sunday (2017), there are about five classroom management techniques. These techniques aim at producing conducive learning environment where students can learn with ease and perform better academically. All of these techniques can be adopted in the classroom depending on the nature of the problem at hand (George, Sakirudeen, and Sunday, 2017). However, this study only examined two out of the five techniques. They were verbal instruction and corporal punishment. The use of verbal instruction is one of the techniques for effective classroom management that can be adopted by teachers. According to Good (2004), clear instruction on what should be done gives the students concrete direction to compliance. In this approach, teachers try to be consistent in enforcing the verbal instruction so that it produces the desired results. In a study conducted by George, Sakirudeen, and Sunday (2017), it was revealed that Senior Secondary School One (SS1) students in public secondary schools in Uyo Local Government Area whose teachers give instructions do differ significantly in terms of academic performance from those whose teachers do not. This result was in line with the view of Obinaju (2006), which stated that most students misbehave and perform below expectations because the classroom teacher fail to give and explain disciplinary rules and regulations governing the class. This result is also in line with the views of Okon (2009) who asserted that verbal instruction on what to be done gives students an idea of what is expected of them in the classroom and this help them to behave well. In another perspective, this result supports the views of Ndiana (2009) which opines that if teachers give directives on how classroom activities should be done, the classroom will be orderly enough for lessons to be affective, and this will have positive impact on students' academic performance.

Moreover, another classroom management technique that might be responsible for academic achievement of senior secondary school students is corporal punishment. Until recently, corporal punishment is also a technique that can be adopted by teachers to curb disruptive behaviors in the classroom. It is now not commonly applicable though it is still practiced in some schools as an effective

classroom management technique. Meanwhile, many teachers use corporal punishment to instill fear and discipline in the classroom yet there are prevalence of disruptive behaviors in the classroom. The study carried out by George, Sakirudeen, and Sunday (2017) revealed that Senior Secondary School One (SS1) students in public schools in Uyo Local Government Area whose teachers administer corporal punishment do differ significantly in terms of academic performance from other students whose teachers do not. The result is in line with the views of Etim (2005) which asserted that corporal punishment makes students think twice before committing the same offence. It is also in support of Ime (2008) who opined that students only respond to corporal punishment. According to Udeme (2006), effective classroom management involves the teacher's considerable use of corporal punishment which will create a conducive learning atmosphere. This result was also in agreement with Ukpong (2007), which posited that effective use of corporal punishment produce an orderly classroom setting, which will have a positive impact on students' academic performance.

It is against this background that this study investigated the influence of students' learning readiness on students' academic achievement in physics in secondary schools in Oyo State.

Statement of the Problem

Physics is the bedrock of science and it plays a significant role in the development of a nation. Many students are not offering physics in secondary schools, and out of the few offering the subject, majority is not doing well as a result of learner's learning readiness and poor classroom management. The justification for this statement is based on the low achievement of students in the physics subject examination conducted by WAEC. Therefore this study is out to see the influence learner's learning readiness and classroom management will have on secondary school three student's academic achievement in physics in Oyo State.

Purpose of the Study

The main objective of the study was to investigate the influence of students' learning readiness and teachers' classroom management on senior secondary school three students' academic achievement in physics in Oyo State. Specifically, the study aimed to:

i. Investigate the influence of self-efficacy on senior secondary school three students' academic achievement in physics.
ii. Investigate the influence of self-directed learning on senior secondary school three students' academic achievement in physics.
iii. Investigate the influence of verbal instruction on senior secondary school three students' academic achievement in physics.
iv. Investigate the influence of corporal punishment on senior secondary school three students' academic achievement in physics.

Hypotheses

In view of the problem raised above, the following hypotheses were tested.

Ho1: There will be no significant influence on self-efficacy and senior secondary school three students' academic achievement in physics in Oyo State.

Ho2: There will be no significant influence on self-directed learning and senior secondary school three students' academic achievement in physics in Oyo State.

Ho3: There will be no significant influence on verbal instruction and senior secondary school three students' academic achievement in physics in Oyo State.

Ho4: There will be no significant influence on corporal punishment and senior secondary school three students' academic achievement in physics in Oyo State.

Methodology

The descriptive research design was adopted for this study. The use of this design was considered appropriate because it involved the collection of data to accurately and objectively describe existing phenomena. The population for this study comprised all the senior secondary school III students offering Physics in Oyo State. A sample of 590 out of the entire number of SS2 physics students was selected using multi-stage sampling technique. The instrument titled "students' learning readiness, teachers' classroom management and students' academic achievement in physics" was used to collect data for this study. It was a self-developed structured questionnaire. The instrument was designed in line with the modified Likert scale type, and was rated as follows: SA - Strongly Agree (4), A - Agree (3), D - Disagree (2) and SD - Strongly Disagree (1). The draft questionnaire was given to an expert in the field of test and measurement who examined the items for necessary corrections as deemed for objectivity. Thereafter, all comments, suggestions and modifications were carefully utilized to improve the quality of the instrument. The test-retest method was used to confirm the reliability of the research instrument. The data collected were analyzed using Conbach alpha and it yielded a reliability coefficient of 0.77. This implies that the instrument was very reliable. The data collected through questionnaire were analyzed using both descriptive and inferential statistics. Descriptive statistics of frequency counts and simple percentage were used to analyze the background information of the respondents in the section A of the questionnaires. Pearson Product Moment Correlation (PPMC) was used to test hypotheses 1, 2, 3 and 4 of the study at 0.05 level of significance.

Results

Hypothesis 1: There is no significant relationship between self-efficacy and students' academic achievement in physics in Oyo State.

The result of the PPMC analysis is presented in table 2.

Table 2: Relationship between self-efficacy and students' academic achievement in physics

Variables	N	$\overline{X}$	SD	Df	r	P	Remarks
Self-efficacy	590	37.08	7.752	590	0.733	.003	Sig
Academic Achievement	590	34.27	6.487				

S – Significant at 0.05

The result on table 2 simply depicts the relationship between self-efficacy and students' academic achievement in physics in Oyo State to be significant at 0.05 level. Based on this result, the null hypothesis was thus rejected. The correlation coefficient between self-efficacy and students' academic achievement is ($r=0.733$, $p<0.05$). Therefore, it was concluded that there was a significant relationship between self-efficacy and students' academic achievement in physics in Oyo State.

Hypothesis 2: There is no significant relationship between self-directed learning and students' academic achievement in physics in Oyo State.

The result of the PPMC analysis is presented in table 3.

Table 3: Relationship between self-directed learning and students' academic achievement in physics

Variables	N	$\overline{X}$	SD	Df	r	P	Remarks
Self-directed Learning	590	31.80	5.614	590	0.549	.001	Sig
Academic Achievement	590	34.27	6.487				

S – Significant at 0.05

The result on table 3 showed that there was a positive and significant relationship between self-directed learning and students' academic achievement in physics in Oyo State. The correlation coefficient between self-directed learning and students' academic achievement in physics is $r = 0.549$, $p<0.05$. Therefore, it was concluded that there is a significant relationship between self-directed learning and students' academic achievement in physics in Oyo State. Hence, the null hypothesis was rejected.

Hypothesis 3: There is no significant relationship between verbal instruction and students' academic achievement in physics in Oyo State.

The result of the PPMC analysis is presented in table 4.

Table 4: Relationship between verbal instruction and students' academic achievement in physics

Variables	N	$\overline{X}$	SD	Df	r	P	Remarks
Verbal Instruction	590	30.40	4.533	590	0.871	.001	Sig
Academic Achievement	590	34.27	6.487				

S – Significant at 0.05

The result on table 4 revealed that there was a positive and significant relationship between the two variables (verbal instruction and students' academic achievement). The correlation coefficient between verbal instruction and students' academic achievement in physics is $r = 0.871$, $p < 0.05$. Therefore, it was concluded that there is a significant relationship between verbal instruction and students' academic achievement in physics in Oyo State and hence, the null hypothesis was rejected.

Hypothesis 4: There is no significant relationship between corporal punishment and students' academic achievement in physics in Oyo State.

The result of the PPMC analysis is presented in table 5.

Table 5: Relationship between corporal punishment and students' academic achievement in physics

Variables	N	$\overline{X}$	SD	Df	r	P	Remarks
Corporal punishment	590	27.15	3.267	590	0.658	.000	Sig
Academic Achievement	590	34.27	6.487				

S – Significant at 0.05

The result on table 5 revealed that there was a positive and significant relationship between the two variables (corporal punishment and students' academic achievement). The correlation coefficient between corporal punishment and students' academic achievement in physics is $r = 0.658$, $p < 0.05$. Therefore, it was concluded that there is a significant relationship between corporal punishment and students' academic achievement in physics in Oyo State and hence, the null hypothesis was rejected.

Discussion of Findings

Hypothesis one stated that there is no significant relationship between self-efficacy and students' academic achievement in physics in Oyo State. The result on table 2 revealed that there is significant relationship between self-efficacy and students' academic achievement in physics in Oyo State. This result is not surprising as it corroborates the work of Klassen, Krawchuk and Rajani (2008) which stated that self-efficacy is one of the strongest factors predicting performance in domains as diverse as sports, business, and education. In line with this, Newby-Fraser & Schlebusch (2001) found that there is significant relationship between one's self-efficacy level and his performance. These findings were further strengthened by Wolters & Pintrich (2004) when they found significantly positive association between self-efficacy level and academic achievement.

Hypothesis two stated that there is no significant relationship between self-directed learning and students' academic achievement in physics in Oyo State. The result on table 3 revealed that there is significant relationship between self-directed learning and students' academic achievement in physics in Oyo State. This result corroborates the finding of Caprara, Barbaranelli, Pastorelli, and Cervone (2004) that self-directed learning is significantly related to academic achievement of students. Similarly, Zimmerman & Schunk (1999) found in their study that good self-directed learners do better academically than those who are compelled to study.

Hypothesis three stated that there is no significant relationship between verbal instruction and students' academic achievement in physics in Oyo State. The result on table 4 revealed that there is significant relationship between verbal instruction and students' academic achievement in physics in Oyo State. In corroborating this, in a study conducted by George, Sakirudeen, and Sunday (2017), it was revealed that Senior Secondary School One (SS1) students in public secondary schools in Uyo Local Government Area whose teachers give instructions do differ significantly in terms of academic performance from those whose teachers do not. This is in line with the view of Obinaju (2006), which states that most students

misbehave and perform below expectations because the classroom teacher fail to give and explain disciplinary rules and regulations governing the class. This result is also in line with the views of Okon (2009) who asserted that verbal instruction on what to be done gives students an idea of what is expected of them in the classroom and this help them to behave well. From the foregoing, it means that students whose teachers give verbal instructions exhibits less disruptive behavior and perform better academically.

Hypothesis four stated that there is no significant relationship between corporal punishment and students' academic achievement in physics in Oyo State. The result on table 5 revealed that there is significant relationship between corporal punishment and students' academic achievement in physics in Oyo State. In line with the finding, the study carried out by George, Sakirudeen, and Sunday (2017) revealed that Senior Secondary School One (SS1) students in public schools in Uyo Local Government Area whose teachers administer corporal punishment do differ significantly in terms of academic performance from other students whose teachers do not. Invariably, it is deducted that students whose teachers use corporal punishment exhibit less disruptive behavior and perform better academically.

Conclusion

It has been shown that student learning readiness and effective classroom management are not only necessary for, but also stimulate excellent academic achievement in subjects particularly physics. This implies that when these factors are not taken into consideration, excellent students' academic performance may not be guaranteed.

Recommendations

In view of the findings, the following recommendations are made:

i. Students, in order to boost their sense of self-efficacy, should change the way they think about themselves, their careers and must set out to challenge their existing negative assumptions about their capabilities, ability and competence towards performing academic tasks successfully.

ii. Students should throw themselves fully into what they want to achieve in their careers. In other words, they should be committed to their goals.
iii. Teachers should establish rules and regulations in the classroom against disruptive behaviour.
iv. Teachers should always pay attention to their classroom management skills so that it affects students' academic performance positively.
v. Teachers, sometimes, should use corporal punishment to instill discipline in the lives of the students.

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