

Study Habits and Students' Achievement in Science amongst Secondary School in Bayelsa State, South-South Nigeria.

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Abstract

Study habits are learning tendencies that influence performance either positively or negatively. The study investigated the study habits of secondary school students in relation to their achievement in science subjects (chemistry, physics, and biology). Two designs survey and ex-post-facto were adopted for the study. The population comprised of one hundred and eighty (180) science students in senior secondary two (Ss2) schools drawn from six schools in Bayelsa state, three unity schools and three state owned schools. The population also constituted the sample. Two instruments were used for data collection- a study habit inventory and the second was the test scores of students in the respective science subjects from their second term examination results. Mean and standard deviation were used for analysis. The results revealed that students have good study habits but without a corresponding good achievement in the sciences. It was recommended amongst others that teachers should adopt teaching strategies that will promote meaningful learning of science by students.

Introduction

Education is a veritable tool that builds shapes and develops an individual as well as the larger society. It further influences and enlightens an individual as well as the society in general. Akuezulo (2006) stressed that the level of educational development of any society or nation determines to a great extent, the quality of life of the members of that society or nation. Furthermore the scientific development of any nation is largely enhanced by the quality of science education in her school system (Akpan, 2008; Moses 2012). Effective teaching and learning on the part of the teacher and students respectively is a panacea for good performance of the students. Students studying science such as biology, chemistry, physics, mathematics and integrated science in the secondary schools must develop effective practice of study habit that will enable them perform higher and be successful in their various fields of study. According to Nuthana and Yenagi (2009) in Mendezabal (2013), students' academic achievement occupy a very important place in education as well as in the learning process. That it is considered as a key criterion to judge one's total potentials and capacities which are frequently measured by examination results.

Jemide (2001) defined study habits as strategies which a learner applies for acquiring knowledge, skills, ideas and competencies. Mendezabal (2013) sees study habit as the pattern of behaviour adopted by students in the pursuit of their studies that serve as the vehicle of learning. It is the degree to which the students engage in regular acts of studying that are characterized by studying routines(e.g. review of material, frequency of studying sessions) occurring in an environment that is conducive to studying. Azikwe (1998) describes study habits as the adopted way and manner a students' plans his/her private readings after classroom learning so as to attain mastery of the subjects.

It should be noted that good study habits enhance academic performance while bad study habits could lead to poor performance. Research findings have consistently proved this point, for instance, Menzel cited by Rana and Kausar (2011) observed that many students fail not because they lack ability but because they do not have adequate study skills. Similarly Fazal in Mendezebal (2013) obtained a significant relationship of time management skills, reading and note taking skills (aspects of study habits) with academic achievements. Mendezebal (2013) in her study found out that the participants do not have favourable study habits and attitudes which invariably led to very low performance. According to her study habits interacts with ability to influence students' performance. An obvious deduction from this is that students with abilities sometimes perform below average. This does not necessarily mean that they are low achievers but could be traced to poor study habits. Success is attained when students exhibit the right kind of attitudes toward study (Azikwe 1998). Study habits of students span through their time management ability, work methods, attitude to their studies and teachers' and acceptance of education. In Nigeria, several research findings revealed profound indications that performance of our country students echo a distant message of lack luster performance in scientific, technological, engineering and mathematical (STEM) disciplines (Obomanu and Akporehwe, 2012, Akpan, 2008; Ifeakor, 2007 and Moses, 2012). A wide range of factors have been identified as contributing to this trend such as teacher factor, attitude of students, lack of conducive learning environment, teaching methods and resources etc. Students' study habits as part of students' factor could as well contribute to the performance of students in the sciences. This is better explained by the motivational system theory of (Pinder 1984) illustrated in Mendezebal (2013) thus performance = ability + motivation indicating that a student with high ability but low motivation is unlikely to perform well, whereas a student with low ability but high motivation is likely to perform well.

In this light, Crede and Kuncel (2008) found that non-cognitive factors like study habits, skill and study motivation, among other attitudinal constraints accounted for incremental variance in academic performance beyond standardized test and previous grades. Most students find it difficult to devote sufficient time to study their books as they are easily distracted by less beneficial activities most especially the social media. There should be an intervention strategy aimed at helping students develop effective study habits an aspect well considered is their emotional state. According to Sujit (2001), many factors are responsible for students' study habit and that one of such factors is the emotional state of the student. Ogbodo (2010) had argued that students should be properly counselled to study effectively and use an appropriate study habit model designed with the aim of showing the students how to study effectively.

Areas to pay attention when addressing students study habits include:

- Homework and assignment;
- Time allocation;
- Study period procedures;
- Concentration;
- Written work;
- Examination;
- Teacher consultation.

With positive correlation of students' study habits with performance elsewhere in the world, this study seeks to find out the study habits of science students in Bayelsa State in relation to their performance.

Specific Purpose of the Study

1. To determine the study habits of Senior Secondary Two SS2 science students.

2. To access the extent to which study habits influence students' achievement in science subjects.

Research questions

Two research questions were raised for investigation as follows.

1. What are the study habits of senior secondary two (Ss2) science subjects?
2. What are the mean achievements of the students in Biology, Chemistry and Physics?
3. What is the relationship between the study habits of the students and the achievement in Biology, Chemistry and Physics?

Methodology

Two research methodologies were adopted in this study. The first is the survey designed where opinion on the type of study habits adopted was sought from respondents. The second is the ex-post-facto research design where previous test scores of students in science subject were obtained.

The population comprises one hundred and eighty (180) senior secondary two (SS2) science students drawn from six secondary schools in the state.

Table 1

s/n	Name of school	No of students
1	Federal Government Girls College Imiringi	30
2	Federal Government College Odi	30
3	Federal Science and Technical College Tungbo	30
4	Community Secondary School Kolo	30
5	National Epie High School Kpansia	30
6	Community Secondary School Biogbolo	30

The population also serves as the sample size. Two instruments were employed in this study in order to address the research questions. The first was a study habit inventory. The inventory consisted of (8) sections A-H on different aspects of study habits in form of statements followed by three (3) options which had been selected based on two inventories presented by Bakare in Psycho educational research productions (1998) and Wren(2005). The students were expected to choose the option which best describes their study habit. Test scores in physics biology and chemistry from their second term examination results were obtained from their respective form teachers. The inventory was validated by two experts in Educational Psychology. A reliability index of 0.73 was obtained using PPMC after the inventory was tested on a group comparable to the sample under investigation.

Data collection

The study habit inventory was administered to the students I.e. both the state owned schools and the unity schools sections A-G of the inventory contained 5 items each while section H contained only three items. All the items contained three categories of responses namely: almost never, sometimes and almost always with a weight value of (1) through (3) depending on how the response was favorable or unfavorable statements.

Scoring

For positively structured items, the marks were assigned as follows always never-1, sometimes-2, and almost always-3. For negative structured items the marks were reversed as follows almost never-3, sometimes-2 almost always-1. The maximum score on the 42 items on the inventory was 129 while the minimum was 43. Mean scores of students obtained from both the inventory and test scores were computed to answer the research questions.

Results

The result of the study is presented in accordance with the research questions for the study

Research question 1

What is the mean scores of the study habits of the students?

Table 2 was used to answer this research question

Table 2: Summary of mean scores of the study habits of the students.

S/N	Study Habits	x	SD
1	Assignment and homework	79.33	12.69
2	Time Allocation	72.64	14.02
3	Note Taking	63.66	12.41
4	Study periods procedure	73.17	13.45
5	Concentration	68.40	12.92
6	Written work	70.30	12.29
7	Reading speed	66.68	37.84
8	Test examination anxiety Management	72.36	13.57
9	consultations	68.73	16.83
	Mean of means	70.52	

Table 2 showed that the students have good study habits as all the study habits examined have means higher than 60. The least mean in the table was 63.66 which is for note taking. The highest mean value was 79.33 which is the mean value for assignment and homework.

Research question 2

What are the mean achievements of students in biology, chemistry and physics.

Table 3 was used to answer this research question.

Table 3: Summary of mean achievements of the students in biology, chemistry and physics.

S.N	Science subject	mean	SD
1	Biology	53.31	21.05
2	Chemistry	46.19	15.55
3	Physics	48.14	14.75
	Mean of means	49.21	

Table 2 revealed the achievement levels of the students in the three subjects. Biology, chemistry and physics were generally below the average of 50% as the mean was 49.21. Biology was the highest with a mean value of 53.31 which was above 50, while chemistry was the lowest with a mean value of 46.19.

Research question 3

What is the relationship between the study habits of students and their achievements in biology, chemistry and physics?

Table 3 was used to answer this research question.

Table 3: Summary of the mean of means of the students study habits and the mean of means of the students' achievements in biology, physics and chemistry. Table 3

S/N	Variable	Mean of means
1	Study habits	70.52
2	Science subjects	49.21

Table 3 showed that the mean of means of the students' study habits was 70.52 which was above the acceptable value of 60%. This showed good study habit of the students generally while the mean of means of the students' achievements in biology, chemistry and physics was 49.21 which was slightly below acceptable value of 50%. This summed the achievement of the students to be generally below average.

Discussion

The findings of the study revealed that the study habits of the students were generally good. This contradicts with Ogodo's (2010) call for counseling of students to develop good study habits. Assignments and homework was assessed to have the highest value. This indicates that the students were not careless with their homework and assignments. The reason could be that, they do not want to fail in their continuous assessment. This must have motivated them to take the homework and assignments seriously. Closely following assignment and homework is study period procedures which had a mean value of 73.17. Note taking has the lowest mean value, this could be due to slow writing, especially when the note is dictated, having spelling difficulties. This will definitely affect reading speed, as reading speed has the second lowest mean value with 66.68.

Since the study habits of the students were assessed to be generally good, it was expected that the achievement of the students in the science subjects such as biology, chemistry and physics will be high, but that was not the case, as the students' mean achievements were below the accepted value of 50, as the mean of means was 49.21.

This explained the fact that, it is not just one variable that determines students' achievement. Their low achievements could be as a result of the teachers' factor such as teaching strategy adopted by the teacher availability of qualified and well trained science teachers, teachers'

attitude and availability of instructional materials, qualified laboratory staff and well equipped laboratories for biology, chemistry and physics. This is in line with Sujit's (2001) observation that many factors account for students' academic achievement. This is however at variance with Mendezabal (2013) findings that students with less favourable study habits have low performance and vice versa. The assertions of Obomanu and Akporehwe (2012) corroborates the findings of this study that students' performance in the sciences is low.

This indicates that the teaching and learning of science has a complex relationship of so many variables for the process to be successful. Therefore all hands must be on deck, from the government to the teachers, students, parents, administrators and all stakeholders, to bring about effective teaching and learning of science.

Conclusion

The findings of this study have shown that the students study habits of the sampled schools were generally good. That is they have good study habits ranging from assignment and homework, time allocation for study, note taking, study period's procedure, concentration, written work, reading speed, test/examination, anxiety management and consultation. But it was found out that the achievements of students in the science subjects of biology, physics and chemistry were low. This brings to mind that there are so many variables that make science teaching and learning to be successful, that will lead to the students' achieving high in both internal and external examinations. Therefore, such variables like well-equipped separate laboratories for biology, physics and chemistry, qualified and well trained science laboratory personnel, good instructional materials and facilities and well trained qualified science teachers. This should be made possible for an effective teaching and learning for science.

Recommendations

The following recommendations were made based on the findings:

1. Parents should encourage their children to study at home;
2. For day students, study rooms should be provided for them at home;
3. Teachers should also encourage the students to study in school;
4. Teachers should use appropriate teaching strategy to ensure effective teaching and learning;
5. Instructional materials should be provided in schools;
6. Good and well equipped laboratories should be provided for biology, chemistry and physics.

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