STUDENTS' ACADEMIC ACHIEVEMENT IN BASIC SCIENCE AND TASK PERSISTENCE AS PREDICTORS OF ACHIEVEMENT IN SENIOR SECONDARY SCHOOL BIOLOGY"

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Abstract
This study determined students' academic achievement in Basic Science and task persistence as predictors of achievement in senior secondary school Biology. Correlation survey design was employed and a sample of 210 SS II science students was drawn from the total population of 1,904 science students in Public secondary schools in Nsukka Educational Zone through multi-stage sampling procedure. "Students' Task Persistence Questionnaire (STPQ)" and "Students' Academic Achievement Proforma (SAAP)" were used as instruments for data collection. The STPQ was subjected to construct validity and only pure items were selected. An internal consistency reliability index of 0.83 was obtained for the reliability of the instrument using Cronbach Alpha method. The research questions and hypotheses were analyzed and tested at 0.05 level of significance using regression analysis. The result revealed that Basic Science predicted students' academic achievement in Biology by 10%, the variation in students' achievement in Biology as predicted by achievement in Basic Science was significant, task persistence did not predict the academic achievement of students in Biology. The variation in students' academic achievement in Biology as predicted by task persistence was not significant. Finally, students' academic achievement in Basic Science and task persistence jointly predicted their achievement in Biology by 11%.The study recommended among others, that Basic Science in junior secondary schools should be properly taught in order to lay a solid foundation so as to ensure a higher academic achievement in the senior secondary school Biology; and by so doing, achieve the objectives of Basic Science curriculum.
Keywords: *Achievement, Basic Science, Task Persistence, Biology.*

Introduction
Science is a vital instrument for every country's growth and advancement. Science is the systematic study of the structure and behaviour of the physical world, particularly via observation, measurement, experimentation, and the creation of hypotheses to characterize the outcomes of these activities. (Ajayi & Ogbeba, 2017). Ada and Okwu (2009) also viewed science as a systematic and practical investigation of natural phenomena aimed at discovering more knowledge, which involves the use of many practical processes of investigation and discovery. Fape (2009) view science as logically structured information about nature that is acquired, taught, learned, and applied through systematic techniques of positive attitudes. "To Esu (2014), science is a logical, precise and objective way to study the natural world. Science is an organized study into nature (universe and environment) by observing and experimenting, leading to the build-up of an organized body of knowledge needed for problem solving (Njoku, 2013). It could be deduced that science is a systematic process of making an enquiry about the structure and behaviour of the natural and physical world, based on facts that can be proven through observation and experimentation."

Science as an area of interest has significant contributions to human endeavours. Nations that are deemed developed have reached this position through educating their population in a scientific manner (Ajayi, 2011). Science exposes learners to experience and appreciate the natural world as they engage in inquiry, critical thinking and display various skills. The importance of science to individuals and society at large is acknowledged globally as an essential tool for the development of the society (Baroody, 2017). Federal Republic of Nigeria (2014) has advocated an improvement in the teaching and learning of Science, Technology and Mathematics (STM). This is to lay a solid foundation of technology and manpower which is in line with the needs of a nation. Therefore, learning science becomes more important not only for the wellbeing of the individual but also for the society as a whole. Due to the importance of science to national development, it was introduced into the Nigerian education system starting from the basic education level as Basic Science."

Basic Science was formally known as Integrated Science but due to some curriculum reforms by the Nigerian Educational Research and Development Council (NERDC) in 2007, which allows learners appreciate the fundamental unity of science, led to the change of its name. Basic Science as integration of science is a subject that deals with the study of living things and non-living

things. It pulls together all other science subjects such as Physics, Chemistry and Biology. Sharad (2009) extended the knowledge of Basic Science to include Mathematics. The researchers believe that the main goal of Basic Science is to improve the understanding of natural phenomena. It seeks information and the finding of facts in order to comprehend pre-existing phenomena. In the Nigerian education system, science is first presented to the learner at the basic level of education as Basic Science. Basic Science is taught at primary 1 - 6) and Junior Secondary School (JSS) 1 - 3, known as basic education level.

Basic Science is taught at the primary school level so as to catch the pupils' hearts young. As a follow up, Basic Science is taught at the JSS level to enable students to build up and concretize the knowledge of science they had at the primary school level and to lay the foundation to study core science subjects – Biology, Chemistry and Physics at the senior secondary schools. Basic Science can be considered as the foundation of Science Education in Nigeria; basically because it lays emphasis on the fundamental unity of scientific thoughts (Maduabum, 2011). It is expected that by teaching Basic Science to children at basic education level, every child would be given the basic knowledge and understanding of what Basic Science is all about and some of the innovations that are taking place around them. This assertion blends with the objectives of science teaching at the Basic level of Education which is to produce individuals who will be effective in the modern age of science and technology, as well as contribute to the development of the nation (FRN, 2014)."

Basic Science provides students at the JSS level with the initial theoretical and practical frameworks which are prerequisites for their future study in core science subjects. This statement was buttressed by Ekundayo (2012) who was of the view that Basic Science helps students to comprehend science ideas, principles, hypotheses, and laws that are expanded upon in the core sciences. Jirgba (2008) maintains that Basic Science teaching exposes students to scientific activities. It is on this premise that the Federal Republic of Nigeria (FRN) in her National Policy on Education places emphasis on science and technology education as a foundation for the nation's socio-economic emancipation and proper integration into prevailing global culture of science and technology (FRN, 2013). Ogunjobi (2016) affirms that children should be exposed to the rudiments of science and technology education. By implication, this will be of great importance to man by getting swindled into obscurity and extinction while he still lives on earth."

Basic Science is a compulsory subject for all Nigerians in Basic education level. The Basic Science concepts are organized into themes to avoid duplication of contents and unnecessary repetition of topics in the different science disciplines, it therefore arouses curiosity and develops scientific attitudes and skills in students. This is to help children to develop reflective thinking and good habits which are needed for scientific method and successful future life (Agogo & Ode, 2011). Basic Science aims at enabling the learner to acquire specific science process skills such as observing, organizing information, generalizing, predicting and designing experiment for inference (FRN, 2013)."

The richness, appropriateness, and interconnectedness of the curricula topics are reflected in the Basic Science curriculum. The curriculum's goals at the JSS level are to help students develop an interest in science and technology, acquire fundamental science and technology knowledge and abilities, and apply scientific and technical information. Also the curriculum prepares students for further studies in science and technology (Federal Ministry of Education, 2009). To achieve these objectives, there is need for proper teaching of Basic Science to enhance students' understanding and improve their academic achievement in senior secondary school core science subjects, especially in Biology. Thus, the success or failure in Basic Science, would to a large extent affect the success and failure of Science Education (Leghara & Okafor, 2016). Based on the above statement, Basic Science could influence students' academic achievement in the individual science subjects including Biology, in senior secondary schools.

Biology is taught at the senior secondary education level in Nigeria. At this level, students are expected to be able to reflect mastery of basic concepts of science, and usher them into studying science related courses at tertiary institutions. But this may not be the case owing to the fact that over the years, the academic achievement of students in Biology at both internal and external examinations is still placed below the expected level (Saage, 2009)."

The scholastic status of a student at any particular time has been defined as "academic achievement." It describes how a person can display his or her intellectual ability. This academic status might be explained by the grades earned in a particular course or set of courses. Egbule (2014) views academic achievement as high scores obtained by students in an examination. The high scores are indices, symbols or marks which characterize the students' achievement.

Achievement is an indication of amount or level of knowledge an individual learner possesses in a given subject area as opined by Egbule (2014). Crow and Crow (2011) also see academic achievement as the extent to which a learner is benefiting from instruction in a given area of learning. This implies that achievement reflects the extent to which skills and knowledge have been inculcated to them. It could however be deduced that academic achievement is the outcome of the assessment of a students' intellectual ability which can be measured by grades obtained from examinations or continuous assessment. It is, in other words, the outcome of a teaching and learning process."

For the periods reviewed, the academic achievement of students in Biology keeps dwindling. In supporting the finding, Dinar (2013) found that academic achievement of students in Biology is poor. Enebechi (2016) showed a contrary evidence of students' academic achievement in Biology. The author showed that students' results improved when taught with innovative teaching method. Proving the dwindling nature of this trend, Adewale (2016) noted that students' achievement in Biology has been poor over the years. This has shown that there has not been an overall satisfactory result of students' achievement in Biology in senior secondary schools.

Subsequently, available data from the two public examination bodies in their appraisal report on Senior Secondary Certificate Examination (SSCE) indicate that there was a downward trend in students' achievement in Biology in Nigeria (WAEC Chief Examiners Report, 2018). Records from WAEC Chief Examiner's report (2016) showed that between 2014 and 2016, there exist a negative trend in the achievement of students in Biology with the average achievement of 37.27%. This is in addition to an increasing failure rate in the subject. The report showed that only few students obtained the minimum of five credits in Biology. The NECO Chief Examiners Report also shows that the period between 2015 and 2019, students' results in Biology have been poor (NECO, 2019).

These poor academic achievements of students in Biology have been attributed to many factors ranging from method of instruction, unavailability of instructional materials, poor classroom management, lack of qualified Biology teachers, inadequate exposure of students to activities (Abdullahi & Bichi, 2017; Adewale, 2019). Notwithstanding, researchers have tried to proffer solutions to these problems by advocating the use of innovative instructional methods and materials, integration of ICT in teaching, proper classroom management, task based learning, yet the problem still persists. This

calls for concern as Biology is one of the core science subjects for admission into tertiary institutions for candidates going into pure science courses (Bello & Oke, 2012). High academic achievement in Biology could be attributed to high persistence in academic task. This is because the learning of Biology involves active learner participation and engagement.

Task persistence is the ability to remain focused on something in spite of distractions whether physical or emotional or a lack of immediate success. In the words of Andersson and Bergman (2011), task persistence is the ability to persevere and to concentrate on a task, even in the presence of internal and external distractions. Throughout life, task perseverance is a crucial skill for educational and vocational success. Valiente (2008) stated that task persistence is expected to have a positive influence on academic achievement and vice versa. A good number of studies have shown the importance of task persistence in academic achievement. Valiente (2008) found positive influence of persistence on students' academic achievement. Porpat, (2010) showed that task persistence affects an individual's educational attainment positively. Rabiner, Godwin and Dodge (2016) found that persistence in a task contributed to a high academic achievement and attainment of success. In the same vein, Gert, Gijbels, Coertjens and Petegem (2012) found a positive influence of task persistence on students' academic success. Affendey, Paris, Mustapha, Sulaiman and Muda (2010) showed that task persistence was one of the factors identified as predicting academic performance of students. This implies that there could be relationship between task persistence and students' academic achievement in core science subjects.

However, gaining an insight into students' academic achievement in Basic Science, and how they persist on engaging in academic tasks may provide useful insight into acknowledging their areas of strength and improvement in future achievement in Biology. Thus, in predicting academic achievement, Daniel and Schouten, as cited by Edopkayi and Suleiman, 201, emphasized the use of scores in examinations. Daniel and Schouten reported that grades serve as prediction measures and as criterion. The authors argued that prediction on future examination result could be highly possible on the basis of the results of a previous examination.

Although no research from reviewed literatures has been carried out about predictive validity of both students' academic achievement in Basic Science and task persistence on students' future achievement in Biology in senior secondary schools, scholars who have earlier researched on studies pertaining

to Basic Science as predictor of students' achievement in science subjects have had varying findings. Dike and Garba (2017) found that academic achievement of students in Basic Science precisely predicts their later achievement in Senior Secondary Certificate Examination (SSCE) Biology. Oyedokun (2012) maintained that students' scores in Basic Science predict their later achievement in Biology in Kotagora, Niger state, Nigeria. Osokoya (2009); Olatoye and Afuwape (2014) found from their separate studies that students' scores in Basic Science do not only predict their later achievement in Biology but also in Chemistry and Physics. Adebayo (2012), Afolabi and Adewole (2018) also reported in their separate studies that students' Basic Education Certificate Examination (BECE) achievement is a poor predictor of their achievement at SSCE. In a study by Adeyemi (2009), the findings revealed that in the General Certificate Examination (GCE) and in Secondary School Certificate Examination (SSCE), results provide the best predictor of university achievement. Findings made by Peers and Johnsons (2014), confirmed that validity of number and grades of passes in Scottish Certificate of Education in predicting first year and final year university achievement. Gay (2016) also reported that high school grades could be used to predict college grades. Their findings were contrary to the findings of O'Rourke (2009), that the Scholastic Aptitude Test (SAT) did not predict examination achievement as effectively as Leaving Certificate Examination (LCE) point scores.

In Nigeria, researchers had divergent findings on the predictive validity of some examinations. A cross-national study carried out by Othuon and Kishor (2014) reported that the scores obtained in Kenya Certificate of Primary Education had a moderate positive linear relationship with the grades obtained in Certificate of Secondary Education. In many other related researches that have been carried out in Nigeria, achievement in BECE has been reported to be significantly related to the achievement in SSCE. However, some other researchers have found no significant relationship between the achievement in JSC examinations and achievement in SSC examinations.

Considering the divergent views and findings of previous researchers on the predictive validity of the Basic Education Certificate Examination in Basic Science, it is therefore on this premise that the researcher deems it pertinent to carry out a study to find out if students' past academic record (Basic Science achievement scores of students at junior secondary school examination result) coupled with their perseverance skill in a psychomotor task (task persistence

of students) can be effectively used in predicting their future academic achievement in Biology.

The purpose of this study was to find out students' academic achievement in senior secondary school Biology as predicted by their academic achievement in Basic Science and task persistence. In specific terms, the study is designed to determine the:"

i.   Variation in students' achievement in Biology as predicted by their achievement in Basic Science.

ii.   Variation in students' achievement in Biology as predicted by their task persistence.

iii. Variation in students' achievement in Biology as jointly predicted by their achievement in Basic Science and task persistence.

To address the problem of the study, these research questions were posed to guide the study:"

1.   What amount of variation in students' achievement in Biology is accounted for by their achievement in Basic Science?"

2.   What amount of variation in students' achievement in Biology is predicted by task persistence?"

3.   What amount of variation in students' achievement in Biology is predicted by their achievement in Basic Science and task persistence?"

The following null hypotheses were formulated and tested at 0.05 (α) level of significance:"

1.   **Ho_1:** Students' achievement in Basic Science is not a significant predictor of students' achievement in Biology."

2.   **Ho_2:** Task persistence is not a significant predictor of students' achievement in Biology."

3.   **Ho_3:** Students' achievement in Basic Science and task persistence are not significant predictors of students' achievement in Biology."

Method

Correlation survey research design was adopted for the study. Correlation survey research design seeks to establish what relationship, association or co-variation exists between two or more variables. The population for this study is 1,904 senior secondary two (SS2) science students in public secondary schools in Nsukka education zone for 2018/2019 academic session. There were 1200, 461 and 243 SS2 science students in Nsukka, Igbo-Etiiti and Uzo-Uwani LGAs, respectively. The sample of this study consisted 210 SS2

science students drawn from the population. The sample was drawn using multi-stage sampling procedure.

The researcher developed two instruments titled "Students' Task Persistence Questionnaire (STPQ)" and "Students' Academic Achievement Proforma (SAAP)". The STPQ has two sections: Section A contains the demographic data of the respondents and Section B contains 25 items rated on a four (4) point Likert type scale of Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD) scaled numerically as 4, 3, 2, and 1 respectively, to seek information on students' task persistence in science related activities. The students' Academic Achievement Proforma (SAAP) was used to collect the already existing achievement scores of the sampled SS2 science students in their Basic Science BECE of 2017 and their scores in Biology end of term results. The pro-forma contains five (5) columns: serial number, students' identification number, scores obtained in Basic Science BECE, and scores obtained in Biology in their class end of term results.

The instruments were subjected to face validation. After the face validation, construct validity of the items of the STPQ was ascertained through Factor Analysis using Principal Component Analysis (PCA) with Varimax Rotation on three (3) factor loadings. A total of thirty (30) students were used. In selecting valid items, the researcher employed Meredith (1969) criterion of 0.35 and above for substantive factor loadings for valid items. However, 23 items were considered pure, and thus selected. The STPQ instrument was trial tested on an equivalent group of 30 students. The internal consistency was established using Cronbach Alpha reliability method and reliability coefficient of 0.83 was obtained, and this shows that the instrument is reliable and adequate for the study.

The researcher visited each of the schools that were used for the study. Such visits helped the researcher to make contacts with the school authority especially the principals and the form teachers of the students, who provided information about the students. After that, the researcher with the help of three (3) research assistants, administered the STPQ instrument to the respondents, and collected them on the spot too. Meanwhile, with the permission of the school principals and form teachers, students' achievement scores in Basic Science for the 2017 BECE and their class end of term achievement scores in Biology were obtained respectively, using the Proforma. Data collected were analyzed using multiple regression analysis. Meanwhile, coefficient of determination (R^2) was used to answer all the research questions. For the

hypotheses, ANOVA output from regression analysis was used to test all the hypotheses at 0.05 level of significance."

Results

Table 1: Amount of Variation in Students' Achievement in Biology that is   Accounted for by Achievement in Basic Science"

Model	N	R	R^2	Adjusted R^2
1	210	0.31	0.10	0.09

N = Number of respondents (students), R = Correlation coefficient, R^2 = Coefficient of determination"

Result in Table 1 shows the amount of variation in students' achievement in Biology as predicted by achievement in Basic Science. The Table showed a low positive correlation coefficient (R) of 0.31 with associated coefficient of determination (R^2) of 0.10. This coefficient of determination (R^2) indicated that 10% variation in students' achievement in Biology is predicted by their achievement in Basic Science."

Table 2: Amount of Variation in Students' Achievement in Biology that is Accounted for by Task Persistence"

Model	N	R	R^2	Adjusted R^2
1	210	0.07	0.00	0.00

N = Number of respondents (students), R = Correlation coefficient, R^2 = Coefficient of determination"

Result in Table 2 shows the amount of variation in students' achievement in Biology as predicted by task persistence. The Table showed a low positive correlation coefficient (R) of 0.07 with associated coefficient of determination (R^2) of 0.00. This coefficient of determination (R^2) indicated that 0% variation in students' achievement in Biology is predicted by task persistence."

Table 3: Amount of Variation in Students' Achievement in Biology that is Accounted for by Achievement in Basic Science and Task Persistence

Model	N	R	R^2	Adjusted R^2
1	210	0.33	0.11	0.10

N = Number of respondents (students), R = Correlation coefficient, R^2 = Coefficient of determination"

Result in Table 3 shows the amount of variation in students' achievement in Biology as jointly predicted by achievement in Basic Science and task persistence. The Table showed a low positive correlation coefficient (R) of 0.33 with associated coefficient of determination (R^2) of 0.11. This coefficient of determination (R^2) indicated that 11% variation in students' achievement in Biology is predicted by their achievement in Basic Science and task persistence compositely."

Table 4: Regression Analysis of the Significance of Students' Achievement in Basic Science in Predicting Students' Achievement in Biology"

Model	Sum of Squares	*df*	Mean Square	F	Sig.
Regression	2241.18	1	2241.18	22.03	0.00
Residual	21164.45	208	101.75		
Total	23405.62	209			

$\alpha = 0.05$

Result in Table 4 shows that an F-ratio of 22.03 with associated p-value of 0.00 was obtained. This probability value of 0.00 was compared with 0.05 level of significance and it was significant because 0.00 is less than 0.05. The null hypothesis was therefore rejected and inference drawn that, students' achievement in Basic Science is a significant predictor of students' achievement in Biology."

Table 5: Regression Analysis of the Significance of Students' Task Persistence in Predicting their Achievement in Biology"

Model	Sum of Squares	*df*	Mean Square	F	Sig.
Regression	110.47	1	110.47	0.99	0.32
Residual	23295.15	208	111.99		
Total	23405.62	209			

$\alpha = 0.05$

Result in Table 5 shows that an F-ratio of 0.99 with associated probability value of 0.32 was obtained. This probability value of 0.32 was compared with 0.05 level of significance and it was not significant because 0.32 is more than 0.05. The null hypothesis was therefore not rejected and inference drawn that, task persistence is not a significant predictor of students' achievement in Biology."

Table 6: Regression Analysis of the Significance of Students' Achievement in Basic Science and Task Persistence in Predicting their Achievement in Biology"

Model	Sum of Squares	*Df*	Mean Square	F	Sig.
Regression	2468.97	1	1234.48	12.21	0.00
Residual	20936.66	207	101.143		
Total	23405.62	209			

$\alpha = 0.05$

Result in Table 6 shows that an F-ratio of 12.21 with associated probability value of 0.00 was obtained. This probability value of 0.00 was compared with 0.05 level of significance and it was significant because 0.00 is less than 0.05. The null hypothesis was therefore rejected and inference drawn that, students' achievement in Basic Science and task persistence are significant predictors of students' achievement in Biology."

Discussion
The findings showed a positive relationship with10% variation in students' academic achievement in Biology as predicted by their achievement in Basic Science. This implies that, other variables not investigated by this study predicted more of students' academic achievement in Biology by 90%. Findings also revealed that the variation in students' academic achievement in Biology as predicted by achievement in Basic Science was significant. The findings of this study corroborate with the findings of Ugwu (2011), who found that Basic Science significantly predicted the achievement of students in the individual science subjects including Biology in senior secondary schools, even though the current study did not predict as much amount as the previous study. It is also in agreement with the findings of Dike and Garba (2017) whose findings indicated that Basic Science significantly predicted students' later achievement in Biology. However, the finding disagrees with the findings of Onwukwe and Okereke (2009) whose findings revealed that there was no significant difference in achievement in Basic Science and single science subjects including Biology, among secondary school students.

The probable explanation for this finding could be as a result of the fact that the aspects of Biology in Basic Science were not well integrated in the course of its teaching at the junior secondary school level, and as such did not lay a good foundation for the study of Biology at the senior secondary school level.

It could also be that the Basic Science teachers were not very democratic in their teaching which must have made the learning of science subjects boring and uninteresting to the students, hence discouraging them from developing love and interest in learning Biology as a science subject at the senior secondary school level. Another reason could be that the objectives of Basic Science as stipulated in the Basic Science curriculum were not actualized, and however, did not prepare the students well for the learning of Biology in the senior secondary school level.""**

The findings of this study showed a positive relationship with 0% variation in students' academic achievement in Biology as predicted by task persistence. This implies that, students' academic achievement in Biology is not predicted by task persistence. Findings also revealed that the variation in students' academic achievement in the Biology as predicted by task persistence is not significant."

The result of this study is not in line with the findings of Rabiner, Godwin and Dodge (2016) which revealed that task persistence highly predicted students' academic achievement. In addition, the findings of this study is also in disagreement with earlier findings of Affendey et al (2010) and Gert et al (2012) who found that task persistence was a good predictor of academic achievement among school children. However, the findings of this study indicated that task persistence alone did not determine to a great extent, a students' success or failure in performing academic tasks."

This shows that students' academic achievement may not be as a result of their constant persistence in only classroom activities but other factors around the school environment, since task persistence has proven not to significantly contribute to the academic achievement of the students, especially, in Biology. This point can be justified by the fact that in carrying out activities in Biology, a lot of factors has to come into play in order to diligently carryout these activities so as to get to the final result. In carrying out these Biology-related tasks, there are processes involved which are called science process skills which include among others, measuring, classifying, communicating, etc. However, Biology-related activities cannot be carried out effectively without involving these processes. This is because science is not done haphazardly but as a process, and this could have influenced the findings of this study.

Findings from this study revealed a positive relationship with 11% variation in students' academic achievement in Biology which is jointly predicted by

their achievement in Basic Science and task persistence. This implies that other variables not investigated by this study predicted students'academic achievement in Biology by 89%. The result also revealed that the variation in students' academic achievement in the Biology, as jointly predicted by their achievement in Basic Science and task persistence were significant. Irrespective of the fact that no research, to the best of the researchers' knowledge, has been carried out on the predictive potency of these variables jointly, on students' academic achievement in Biology, but the result indicated that the combination of these two variables had a positive correlation with students' academic achievement in Biology. In essence, the finding of this study is an indication that students' academic achievement in Basic Science in junior secondary schools and their abilities to be persistent in academic tasks, can significantly enhance their future academic achievements in Biology, although other variables that accounted for 89% variation in their academic achievement in Biology respectively, should be considered in order for students to achieve maximally."

Conclusion
On the strength of the findings of this study, the following conclusions were drawn. Basic Science predicted students' academic achievement in Biology by 10%. However, the variation in students' achievement in Biology as predicted by achievement in Basic Science was significant. Task persistence predicted variation in students' academic achievement in Biology by 0%. However, the variation in students' achievement in Biology as predicted by task persistence is not significant.

Students' academic achievement in Basic Science and task persistence jointly predicted students' academic achievement in Biology by 11%. However, the variation in students' academic achievement in Biology as jointly predicted by their achievement in Basic Science and task persistence was significant.

Recommendations

1. It is recommended therefore that; apart from content coverage of the curriculum, the teacher should also be sensitive about other factors that contribute positively to students' academic achievement such as teacher's disposition, school climate, peer tutoring, classroom environment, etc, and incorporate them in the teaching and learning process since they are proven to have contributed to a large extent to students' academic achievement.

2. Biology teachers should try to explore better ways that would help steer up the students' interest in learning Biology other than task persistence as this may help in promoting their academic achievement in this subject. For instance, the teacher should introduce humour in the classroom during the teaching of Basic Science in the junior secondary school rather than just giving them tasks as a way of engaging them in meaningful learning.

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