

Self-Efficacy and Motivation as Correlates of Secondary School Students' Academic Achievement in Biology in Enugu South Local Government Area

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Abstract

The study investigated how self-efficacy and motivation as correlates with secondary school students' academic achievement in Biology in Enugu South Local Government Area of Enugu State. Three research questions guided the study and three hypotheses were tested at 0.05 level of significance. The correlation research design was adopted for the study. The population of the study was 2, 213 SS2 offering Biology in Enugu South local government area. A sample of 450 students obtained using multistage sampling procedure involving purposive and random sampling technique were involved in the study. The instruments for data collection were Academic Self-Efficacy Scale (ASES), Academic Motivational Scale (AMS) and students' Cumulative Annual Result (SCAR) validated by experts from Nnamdi Azikiwe University in Awka. The reliability of the instruments was determined using Cronbach Alpha and the coefficient of internal consistency obtained for ASES and AMS were 0.88 and 0.82 respectively. The students' achievement scores in Biology were obtained from the teachers' score folder. Analysis of data from the study was done using Pearson product moment correlation and multiple linear regressions. The result of the study showed that there was a low positive correlation between self-efficacy and academic achievement and also motivation and academic achievement. The findings of the study also revealed among others that self-efficacy and motivation individually and jointly, have significant relationship with academic achievement in Biology. It was recommended that school counsellors should hold seminars for students to help attain higher levels of self-efficacy and motivation necessary for improved academic achievement in Biology.

Keyword: *Self-Efficacy, Motivation, Correlate, Achievement, Regression*

Introduction

The advancement of science and technology in any developing country such as Nigeria produces a larger demand for the people to pursue science education. Science education plays significant part in everyday life, teaches students to think about natural phenomena, and train students with scientific methods to become citizens who are accountable for important global issues (Adelaja, 2019). Science education is the intellectual and practical discipline concerned with the teaching and learning and assessment of scientific content, science process and nature of science (Obialor, 2016). Science education occupies the essential position in developing resources needed for socio-economic, scientific and technical development and growth of any

nation. Recognizing the importance of science education, the Federal Government of Nigeria (Federal Republic of Nigeria, FRN, 2014) included integrated science subjects in her secondary school curriculum and made biology one of the science disciplines taught at senior secondary schools.

Biology as a science subject studies in details how living organism carry out their life activities and how they interact with their surroundings (Ezenwabachili and Okoli, 2021). It is also the study of living creatures and their vital activities and educates man on how to preserve excellent health through clean water, clean air, decent hygiene and sanitation, balanced food, vaccination against infectious diseases, exercise and appropriate rest (Obialor, 2016). It also helps in interesting hobbies like gardening, insect collection and bird watching, environmental protection and conservation as well as understanding the basis of hereditary and its application in genetic engineering, crime detection, blood transfusion, banking, and the determination of paternity of children (Sara, Maruta and Olarinoye, 2016).

According to the Nigerian Educational Research and Development Council, the objectives of secondary school Biology curriculum in Nigeria as follows: Adequate laboratory and field skills in Biology; meaningful and relevant knowledge in Biology; ability to apply scientific knowledge to everyday life in matters of personal and community health and agriculture as well as reasonable and functional scientific attitude. Thus, it is crucial for biology to be taught well in schools as effective teaching and meaningful learning of biology in schools is deemed to have taken place when students' academic achievement in biology becomes notably improved. This is to imply that students' academic achievement is a viable instrument that may be used to assess good teaching of biology in schools.

Academic achievement refers to achievement of individuals' objective to many forms of knowledge and skills (Mazana, Montero and Casmir, 2020). Academic achievement according to Izuchi and Onyekuru (2017) is defined as self-perception and self-evaluation of one's success having undergone a test. It describes the measure of level of success as evidenced by marks acquired from a standardized tests or teacher provided grades. Bos and Weijer-Bergsma (2019) described academic achievement as the examination marks, teachers awarded grades and percentages in academic disciplines gained by students. High academic achievement in Biology is a signal of success as determined by a test. However, in Nigeria, research have indicated that student's achievement in Biology has not been satisfactory. This corroborates with the prior observations of Mbaegbu and Osuafor (2023) and Udegbe and Okoli (2022) that the academic achievement of biology students in external examinations such as WASSCE and NECO has remained unsatisfactory.

In line with this, the WAEC Chief Examiner of Biology in 2023 indicated that the performance of applicants in biology fell below expectation. The report classified candidates' weakness under the following subheading: poor spellings of some technical terms, poor performance in questions that require application of knowledge, inability to answer questions that require corresponding answers correctly, inability to relate and state observable structures of organism and their functions, not giving titles to drawing among others. However, numerous reasons had been discovered by researchers (Obialor and Osuafor, 2016; Irede and Okoli, 2019; Onu, Anyaegbunam and Uzoigwe, 2020, Nweke, 2021; Mbaegbu and Osuafor, 2023) to be accountable for this low performance of students' in biology. Some of the factors include; poor teaching methods used by most of biology teachers, abstract nature of several themes in the curriculum such as cell division, genetics, variation, evolution and many others that are identified as difficult to teach and learn, peer influence, large class size, self-concepts, self-

efficacy, motivation and gender. Furthermore, one still notices weak academic accomplishment in biology despite the bulk of research to improve achievement in biology. This could be because the relationship that exists between some of these variables highlighted may have not been ascertained. It consequently becomes necessary to study the relationship that exists between student's self- efficacy and motivation and their academic achievement in biology.

Self-efficacy is the belief in one's ability to arrange and execute the courses of action required for achieving a particular accomplishment (Gutiérrez-García and Landeros-Velázquez, 2018). Self-efficacy relates not to the real skills of someone to execute various tasks but rather to their self-perception of being able to perform certain tasks under given conditions. Maliha and Sarwat, (2019) maintained that individuals with high level of self-efficacy assign greater goals to themselves and exercise more effort and readiness to ensure they succeed. Umesh and Sam (2018) highlighted self-efficacy as predictor of students' academic achievement and persistency in post-secondary academic achievement. It affects the choice and commitment in a task and energy spent in completing it and the level of achievement. Maliha and Sarwat, (2019) referred to academic self-efficacy as students' perceptions of their capacity to accomplish their academic class work. It is the individuals' convictions that they can effectively accomplish provided academic activities at prescribed levels, which also includes the beliefs about the capacities to achieve the tasks in various academic fields. According to Habok, Magyar, Nemeth and Csapo (2020), self-efficacy offers the foundation for human motivation, wellbeing and personal accomplishment. Thus, the concept is directly tied to motivation which is an inner drive that leads a student's actions towards the achievement of a goal.

Motivation is a goal directed behaviour and reflects the willingness of the students to invest high levels of effort toward obtaining goals (Dramanu and Mohammed, 2017). It is considered as a set of energetic forces that originates both within as well as beyond an individual's existence, to launch work-related behaviour, and to define its form, direction, intensity and length (Dawson-Brew and Nyarko-Sampson, 2017). Motivation determines how students study as well as their academic achievement. Research findings however, have not critically demonstrated the correlational association of motivation and self-efficacy have on secondary school biology students' academic achievement. To perceive the relationship between self-efficacy and motivation, self-efficacy is considered to be a fundamental factor in motivation (Deepika and Sushma, 2018). Again, the interaction between the two variables and their joint influence on academic achievement in biology is not widely understood. Based on this, this study finds it necessary to investigate self-efficacy and motivation as correlates of secondary school students' academic progress in biology.

Purpose of the Study

The purpose of the study was to investigate self-efficacy and motivation as correlates of secondary school students' academic achievement in Biology. Specifically, the study determined the relationship between:

1. students' self-efficacy and their academic achievement in biology.
2. students' motivation and their academic achievement in biology.
3. joint relationship of self-efficacy, motivation and students' academic achievement in biology.

Research Questions

The following research questions guided the study:

1. What is the relationship between students' self-efficacy and their academic achievement in biology?
2. What is the relationship between students' motivation and their academic achievement in biology?
3. What is the joint relationship between the students' self-efficacy, motivation and their academic achievement in biology?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

1. There is no significant relationship between students' self-efficacy and their academic achievement in biology.
2. There is no significant relationship between students' motivation and their academic achievement in biology.
3. There is no significant correlation among students' self-efficacy, motivation and academic achievement in biology.

Method

The study utilized a correlational survey design. The study was conducted in Enugu South Local Government Area of Enugu State. The population of the study comprised 2, 213 (1099 males and 1114 females) SS2 Students offering biology in Enugu south local government area of Enugu state. The sample size for the study was 450 biology students. The instruments for data collection are Academic Self-efficacy Scale (ASES), Academic Motivational Scale (AMS) and students' Cumulative Annual Result (SCAR).

The Academic Self-Efficacy Scale (ASES) was adapted from the Academic Self-Efficacy Scale created by Abdul and Mohammed (2006), which is based on Bandura's theory of self-efficacy. The ASES is a scale consisting of 40 items, each rated on a five-point scale ranging from 1 ("Exactly true") to 5 ("Exactly false"). The authors developed the instrument to measure the various dimensions of academic self-efficacy. These dimensions include the learning process, reading, comprehension, memory, curricular activities, time management, teacher-student relationship, peer relationship, utilisation of resources, goal orientation, adjustment, and examination. The scale consists of a total of 40 statements, with 20 statements being positive and the remaining 20 statements being negative. The adaptations entailed the elimination of six items which are not suitable for the students under study, resulting in a reduction of the total number of items in the scale to 34 items. Several sentences were modified to align with the objectives of the research.

The Academic Motivation Scale (AMS), consists of 24 items that have been adapted from the work of Smith, Jennifer, and Onencan (2020). The instrument known as the AMS initially consisted of a six-point scale, with each point representing a different level of agreement or disagreement. The scale ranged from severely disagree (SD = 1) to disagree (D = 2), somewhat disagree (SWD = 3), neutral (N), somewhat agree (SWA = 4), agree (A = 5), and strongly agree (SA = 6). The scale was adjusted to a four-point continuum, encompassing the categories of "very much likely," "much likely," "likely," and "unlikely." Additionally, the instrument has been specifically constructed to assess three distinct categories of motivations, namely intrinsic motivation, extrinsic motivation, and amotivation. The instrument used in this study assesses intrinsic motivation, which refers to the extent to which individuals participate in an activity only for the purpose of experiencing enjoyment, satisfaction, or pleasure. Extrinsic motivation is derived from external factors, such as the presence of deadlines, the desire to achieve high grades, or the need for positive reinforcement and avoidance of negative

consequences. Amotivation refers to a state in which an individual experiences a complete absence of motivation, resulting in a lack of interest or perceived worth in engaging in a particular activity. The amotivation component of the scale was excluded from the study in order to maintain a clear focus on motivation, which aligns with the study's objectives. The instruments were validated by two lecturers from the Department of Science Education and the Department of Educational Foundation (Measurement and Evaluation) respectively, both in Nnamdi Azikiwe University in Awka, and, one experienced biology teacher from a secondary school.

The instrument's reliability was determined by administering the questionnaire to a sample of 30 students selected randomly from a secondary school in Awgu Education Zone, located in Enugu State. This school was chosen outside the research area, ensuring that the sample had a similar cultural background as the research area. The Cronbach Alpha coefficient was employed to assess the internal consistency of the instrument. The reliability coefficients for ASES and AMS Questionnaire were 0.88 and 0.82, respectively.

Students' cumulative annual results of the 2022/2023 session will be used. The result of the biology students in the three term examination was collected. The collected results were matched with students' scores in the questionnaire noting their serial numbers. The researcher personally administered the questionnaire, with the assistance of two research assistants who got instructions and guidance on the procedures for administering and collecting the questionnaire. They met with the schools authorities and on their permission, obtain the Biology annual results of the students. To administer the instruments, the research assistants gave the students the instruments and collect them on the spot. The primary objective of implementing this measure is to enhance the rate of return for the dispersed instruments and mitigate the potential risks associated with errors or losses in the process. 100% of the instruments administered on the students were retrieved by the research assistants as they collected them on the spot. The data was collated and cleaned for analysis.

Pearson product moment correlation and regression analysis were used to analyze data to answer the research questions and test the hypotheses at 0.05 level of significance respectively in order to compare the computed correlation index against the critical values for appropriate decision. The criteria according to Nworgu (2015) are as follows: $r = 0$, no relationship; $r = \pm 0.01$ to 0.30, low relationship; $r = \pm 0.30$ to 0.50, moderate relationship; $r = \pm 0.50$ to 0.70, strong relationship; $r = \pm 1.0$, perfect relationship. The null hypothesis was rejected when p-value is less than or equal (\leq) 0.05, otherwise it was not be rejected.

Results

Research Question 1: What is the relationship between students' self-efficacy and their academic achievement in biology?

Table 1: Pearson Correlation Coefficient between Students' Self-efficacy and Academic Achievement in Biology

Variables	N	r	Decision
Self-efficacy	450	0.112	Low positive relationship
Academic Achievement	450		

Table 1 shows that the magnitude of correlation coefficient between self-efficacy and academic achievement in biology is 0.112. This implies that the relationship between students' self-efficacy and their academic achievement in biology is low and positive.

Research Question 2: What is the relationship between students' motivation and their academic achievement in biology?

Table 2: Pearson Correlation Coefficient between Students' Motivation and Academic Achievement in Biology

Variables	N	r	Decision
Motivation	450	0.128	Low positive relationship
Academic Achievement	450		

Table 2 shows the magnitude of correlation coefficient between motivation and academic achievement in biology is 0.128. This implies that the relationship between motivation and academic achievement in biology is low and positive.

Research Question 3: What is the joint relationship between the students' self-efficacy, motivation and their academic achievement in biology?

Table 3: Regression Correlation Coefficient among Students' Self-efficacy, Motivation and Academic Achievement in Biology

Variables	N	r	Decision
Self-efficacy	450	0.162	Low positive relationship
Motivation	450		
Academic Achievement	450		

Table 3 shows the magnitude of correlation coefficient among students' self-efficacy, motivation and academic achievement in biology is 0.162. This implies that the relationship among students' self-efficacy, motivation and academic achievement in biology is low and positive.

Hypothesis 1: There is no significant relationship between students' self-efficacy and their academic achievement in biology.

Table 4: Test of Significance of Correlation between Students' Self-efficacy and Academic Achievement in Biology

Variables	N	r	p-value	Decision
Self-efficacy	450	0.112	0.018	Significant
Academic Achievement	450			

Table 4 shows that with r value of 0.112 and p-value of 0.018 which is less than 0.05, the relationship between students' self-efficacy and their academic achievement in biology is significant. The null hypothesis was therefore rejected meaning that there is a significant relationship between students' self-efficacy and their academic achievement in biology.

Hypothesis 2: There is no significant relationship between students' motivation and their academic achievement in biology.

Table 5: Test of Significance of Correlation between Students' Motivation and Academic Achievement in Biology

Variables	N	r	p-value	Decision
Motivation	450	0.128	0.007	Significant

Academic Achievement 450

Table 5 shows that with r value of 0.128 and p-value of 0.007 which is less than 0.05, the relationship between students' motivation and their academic achievement in biology is significant. The null hypothesis was therefore rejected meaning that there is a significant relationship between students' motivation and their academic achievement in biology.

Hypothesis 3: There is no significant correlation among students' self-efficacy, motivation and academic achievement in biology.

Table 6: Regression Correlation Coefficient among Students' Self-efficacy, Motivation and Academic Achievement in Biology

Variables	N	r	p-value	Decision
Self-efficacy	450			
Motivation	450	0.162	0.003	Significant
Academic Achievement	450			

Table 6 shows that with r value of 0.0162 and p-value of 0.003 which is less than 0.05, the relationship among students' self-efficacy, motivation and academic achievement in biology is significant. The null hypothesis was therefore rejected meaning that there is a significant correlation among students' self-efficacy, motivation and academic achievement in biology.

Discussion

The findings of the study showed that self-efficacy has a significant positive relationship with academic achievement in Biology. The study's finding indicates that academic self-efficacy correlates accomplishment directly and indirectly through learning engagement. Higher levels of academic self-efficacy can stimulate and improve learner engagement. The more a student deliberately aligns their behaviour with social or self-standards and the stronger their drive to prioritise learning over leisure activities and overcome emotional distractions, the more likely they are to attain outstanding academic performance. A student's drive to study, study habits, and academic accomplishment are all impacted by their perception of their own ability to perform and succeed.

Academic self-efficacy significantly influences the amount of effort put into studying and can indicate a positive investment in learning. Higher levels of self-efficacy are associated with greater engagement in learning. Students with high self-efficacy are more likely to dedicate effort to their studies, exhibit confidence and optimism in the face of obstacles, and effectively tackle problems, resulting in improved engagement in the learning process. Conversely, a student with poor self-efficacy is inclined to establish smaller learning objectives, possess more pessimistic views towards academic obstacles, lack the motivation to overcome failures, and struggle to employ effective learning practices.

Self-efficacy beliefs significantly influence how individuals approach academic challenges, their motivation to engage in the activity, the level of effort they put in, their tenacity when encountering a challenging academic task, and their achievement in the task. Self-efficacy influences an individual's decision-making in activities, level of effort, and perseverance. Individuals with low self-efficacy for a certain academic task may choose to avoid it, whilst those who have confidence in their abilities are more inclined to engage in it.

Furthermore, people who feel effective are inclined to exert more effort and persevere for longer periods when faced with challenges compared to those who are uncertain of their abilities. The inclination of capable students to invest greater effort and persevere for longer periods is crucial as most personal achievements necessitate sustained work. Therefore, low self-efficacy acts as a self-limiting process. For students to succeed, they require a robust sense of task-specific self-efficacy, combined with resilience to overcome life's inevitable challenges.

The findings of the study collaborate with the findings of Rudina (2013) and Ara and Ghazanfar (2014) that there is a significant positive relationship between students' self-efficacy and their academic achievement. The findings of the study are also in line with the findings of Screenivasulu (2015) which revealed a significant influence of self-efficacy on academic achievement of students. The findings of the study supports the findings of Aurah (2017) that students' science self-efficacy is highly correlated to academic achievement in Sciences.

The findings of the study showed that there is a significant positive correlation between motivation and academic achievement in Biology. Motivation improves cognitive processing. Motivation influences the processing of information by encouraging students to pay attention and comprehend the material rather than passively engaging with it. Highly motivated learners are more likely to succeed in their learning endeavours. Motivation can stem from interest, driving the desire to learn and impacting the learners' conscious decision to behave and the effort they put into learning. Without motivation, students' academic achievement cannot be enhanced, regardless of the quality of the teacher, programme, or school. Unmotivated students can negatively impact the academic environment of a classroom or school by disengaging other students.

Motivated students are more likely to be eager to learn and open to facing the problems that learning entails. Students that are motivated to learn are more inclined to put effort into their studies, do homework diligently, strive to correct errors, and possibly inspire their classmates. Motivation brings various advantages such as heightened effort, energy, tenacity, and creativity, improved cognitive processing, increased school attendance, and overall enhancement of a student's well-being. Higher motivation in medical students positively correlates with improved learning quality, strategies, tenacity, and academic achievement.

The findings of the study support the findings of Chow and Seng-Yong (2013) that a significant positive association between students' motivational orientations and science achievement. The findings of Ferguson (2017) that amotivation was negatively correlated to achievement, lends credence to the findings of this study. The findings of the Jhoselle (2020) that motivation have no significant relationship with the students' academic achievement contradicts the findings of the study.

Conclusion

The conclusion drawn from the findings of the study is that self-efficacy and motivation have significant influence over students' achievement in biology and therefore, has important roles in improving academic achievement in the subject. Students with high self-efficacy will therefore do better than those with low self-efficacy in Biology. When student have high motivation, it could become for them an incentive with which to increase their academic activities, do assignment, visit library and study harder to attain better academic achievement in biology. Again, both self-efficacy and motivation together interact to enhance academic achievement in Biology.

Recommendations

The following recommendations are made based on the findings of the study:

- 1 School counselors should hold seminars for students to help attain higher levels of self-efficacy and motivation necessary for improved academic achievement in Biology.
- 2 Teachers of Biology should make sure that female students are given as much attention as is given the male students even when they do not seem to be nurturing thoughts of pursuing a career in the field of sciences.
- 3 Biology teachers should manage biology classes in such a way as to give students room to develop higher levels of self-efficacy and motivation through positive reinforcement and rewards of academic progress.

References

- Adelaja, S. (2019). *Nigeria: How to develop a nation through science and technology*. Retrieved from <https://allafrica.com/stories/201601110147.html> on 9/9/2023
- Aurah C (2017). Investigating the relationship between science self-efficacy, belief, gender and academic achievement, among high school students in Kenya. *Journal of Education and practice*, 6(8), 146-15 ISSN 222-288X (Online)
- Bos, I.F.D. and Weijer-Bergsma, E.V.D. (2019). Classroom versus individual working memory assessment: predicting academic achievement and the role of attention and response inhibition. *Memory*, 28, 70-82.
- Chow, S.J., and Seng-Yong. B.C. (2013). Secondary school students' motivation and achievement in combined science. *US-China Education Review*, 3(4), 21-29.
- Dawson-Brew, E. and Nyarko-Sampson, E. (2017). Relationship between motivation and academic achievement of undergraduate students of college of distance education, University of Cape Coast, Ghana. *Zimbabwe Journal of Educational Research*, 29(2), 12-21.
- Deepika, S. and Sushma, S. (2018). Relationship between motivation and academic achievement. *International Journal of Advances in Scientific Research*, 4(1), 01-05.
- Dramanu, B.Y. and Mohammed, A.I. (2017). Academic motivation and achievement of junior high school students in Ghana. *European Journal of Education and Development Psychology*, 5(1), 1-11
- Ezenwabachili, C.G. and Okoli, J.N. (2021). Effect of flip classroom and think-pair-share instructional strategies on students' retention in Biology in Enugu education zone. *International Journal of Education and Evaluation*, 7(3), 70-79.
- Ferguson, H.L. (2017). Mindset, academic motivation and academic self-efficacy as correlates of academic achievement among undergraduate students in communication sciences and disorders programs. *Dissertations*, 1648.
- Gutiérrez-García, A. G. & Landeros-Velázquez M. G. (2018). Academic self-efficacy and anxiety, as a critical incident in female and male University students. *Revista Costarricense de Psicología*, 37(1), 1-25. <https://doi.org/10.22544/rcps.v37i01.01> On 16 August, 2020.
- Habok, A., Magyar, A., Nemeth, M.B. & Csapo, B. (2020). Motivation and self-related beliefs as predictors of academic achievement in reading and mathematics: structural equation model of longitudinal data. *International Journal of Educational Research*, 103, 1-12.

- Irede, E.A. and Okoli, J.N. (2019). Teachers' use of science writing heuristics in Biology instruction and its effect on students' acquisition of science process skills. *IOSR Journal of Research and Method in education (IOSR-JRME)*, 9(6), 17-26.
- Izuchi, M.N. and Onyekuru, B.U. (2017). Relationships among academic self-concept, academic motivation and academic achievement among college students. *European Journal of Research and Reflection in Educational Sciences*, 5(2), 93-102.
- Jhoselle, T. (2020). Academic stress, academic motivation and its relationship on the academic achievement of the senior high school students. *Asian Journal of Multidisciplinary Studies*, 8(11), 29-37.
- Maliha, N. and Sarwat, I. (2019). Academic self-efficacy as a predictor of academic achievement of students in pre-service teacher training programs. *Bulletin of Education and Research*, 41(1), 33-42.
- Mazana, M.Y., Montero, C.S. and Casmir, R.O. (2020). Assessing students' performance in Mathematics in Tanzania: The teacher's perspective. *International Electron Journal of Math Education*, 15(3), 05-89.
- Mbaegbu, S.C. and Osuafor, M.A. (2023). Effect of ethnobiology instructional approach on academic achievement of secondary school students in biology in Onitsha education zone. *International Journal of Innovative Research and Advanced Studies (IJIRAS)*, 10(3), 1-6.
- Nweke, P. I (2021). *Effects of ethno-science instructional method on secondary school students' interest in separation techniques in Nasarawa state*. Retrieved from <https://file.currentschoolnews.com/product/effects-of-ethnoscience-based-instructional-model-on-students-academic-achievement-and-interest-in-senior-secondary-school-Biology/>
- Obialor, CO (2016). *Effect of project work on students achievement in secondary school biology*. Unpublished M.Sc. (Ed), Thesis), Nnamdi Azikiwe University, Awka.
- Onu, W., Anyaegbunam, N. and Uzoigwe, A. (2020) Improving Biology students' interest and achievement through collaborative instructional strategy. *Journal of Education, Society and Behavioural Science*, 33(2), 9-20.
- Rudina, S. (2013). The relationship between self-efficacy and Academic Performance in the Context of Gender among Albanian students. *European Academic Research* (1)4, 467-478. ISSN 2286-4822, www.cuacademic.org
- Sara, S.S., Maruta, A.G. and Olarinoye, R.D. (2016). Effects of cognitive styles on academic performance of senior secondary school biology students in science process skills in Jigawa state, Nigeria. *International Journal of Educational Benchmark (IJEB)*, 4(3), 66-71.
- Udegbe, S. I. and Okoli, J.N. (2022). Self-efficacy, study habit and attribution style as predictors of senior secondary school students' interest in Biology in Ogidi education zone. *IOSR Journal of Research and Method in Education*, 12(1), 46-52.
- Umesh, R. and Sam, R. (2018). The relationship between chemistry self-efficacy of South-African first year students and their academic performance. *Chemistry Educational Research and Practice*, 19(1), 60-67.