

## Relationship Between Self-Concept and Academic Achievement among Biology Secodary Schools Students, in Katsina Metropolis

Abdul Kareem Munir<sup>1</sup>, Saka Abdulganiyu<sup>2</sup>

<sup>1</sup>Department of Science and Vocational Education, Umaru Musa Yar'adua University Katsina, Nigeria

<sup>2</sup>Department of Adult and Continuing Education, Federal University Wukari, Taraba State, Nigeria

**Corresponding Author:** Abdul Kareem Munir

[abdulkareemmunir@yahoo.com](mailto:abdulkareemmunir@yahoo.com)

---

### ARTICLE INFO

*Keywords:* Self-Concept, Academic Achievement, Biology Students, Mean, Standard Deviation, and PPMCC

*Received :* 14 December 2024

*Revised :* 17 January 2025

*Accepted:* 18 February 2025

©2025 Munir, Abdulganiyu:  
This is an open-access article distributed under the terms of the [Creative Commons Atribusi 4.0 Internasional](https://creativecommons.org/licenses/by/4.0/).



### ABSTRACT

This research investigated the relationship between self-concept and academic achievement among secondary school biology students in the Katsina metropolitan area. A research question and hypothesis were meticulously crafted to steer the inquiry forward. The research was carried out employing a descriptive correlation survey methodology. The survey included all public secondary schools in Katsina city, with a total population of 11,103 individuals. A total of 60 pupils were selected randomly from a population of 11,103 students, employing the simple random sampling technique in accordance with the recommendations outlined in the research advisory table. The self-concept inventory and achievement exam were chosen, validated for accuracy, and assessed with reliability coefficients of 0.87 and 0.84, respectively. The analysis employed mean and standard deviation, along with the Pearson Product-Moment Correlation Coefficient (PPMCC). The research revealed a significant relationship between the self-concept of secondary school students and their academic performance in biology within the Katsina metropolitan area. The findings of this study suggest that it is essential for parents to be informed about the importance of their involvement in fostering their children's academic self-concept, which subsequently influences their performance.

---

## **INTRODUCTION**

Self-concept plays a crucial role in the formation of one's personality. In psychology, the term "self" has two distinct meanings. Firstly, it refers to an individual's attitude and thoughts towards themselves. Secondly, it encompasses the entire psychological process that governs conduct and self-regulation (Sumadi, 1982). The self-concept encompasses an individual's self-esteem, self-worth, and self-acceptance, which include their views and evaluations of themselves. It shapes their perception of their identity, capabilities, and potential. The formation of self-concept commences from the moment of birth. This is initially demonstrated by the emotional bond between the child and the mother. The quality of interactions can either enhance or undermine the child's self-concept. Having a positive perception is beneficial for students in obtaining success in all aspects of life. Additionally, the success of children is not solely determined by their cognitive abilities, but also by their emotional capabilities (Gliebe, 2012). "Self-concept is a form of self-evaluation that develops through interactions with one's surroundings and the impact of important individuals." Self-perception refers to an individual's understanding of themselves, which is formed by their attitudes, emotions, and information about their abilities, looks, and how they are accepted by society (Tabone, 2011). According to Green, Nelson, Martin & Marsh (2006), promoting a good self-concept should be a crucial objective for educational programs. They argued that a positive self-concept is associated with favourable outcomes such as increased academic achievement and effort.

Academic performance refers to the anticipated degree of achievement that students are expected to demonstrate after receiving instruction, in order to assess their progress towards certain goals. Academic performance refers to the assessment of a student's achievements in formal education, which is measured by various influential criteria (Okegbile, 2007). Bee (2014) provided a definition of academic performance as the level of achievement a child reaches in their education, encompassing experiences, knowledge, abilities, and similar factors. He emphasized that a child's academic performance is influenced not by innate characteristics, but by complex interactions with their family, home environment, social relationships, educators, and the overall school climate and assessment methods. According to Sharm (2012), academic performance denotes the degree to which a student effectively fulfills their academic responsibilities. Nonetheless, various factors affect the quality and level of a student's academic performance, including grades, attendance, involvement in extracurricular activities, and academic self-concept.

The academic self-concept of individual students has a crucial influence in their perception, performance, and achievement of their goals in school. Balarabe and Bakari (2013) stated that self-concept is characterised by multiple facets, a hierarchical structure, organisation, and stability. Additionally, it is both descriptive and evaluative, while also becoming more particular in different situations. He additionally asserted that an academic self-concept is just one of many aspects of the self that contribute to an individual's overall self-concepts. Students in higher grade levels are primarily adolescents who typically advance

from one class to the next, resulting in a rise in their self-perception. They gradually regain a deeper understanding of their own identity. Understanding one's self-concept allows for a distinct perspective on oneself, which may diverge from how others perceive them. Understanding oneself is essential for developing our self-image, skills, and distinctiveness (Mcleod, 2012). Academic self-concept refers to a student's impression of their own academic aptitude, which is shaped by their own experiences and interactions with the surrounding environment (Rosen, 2010). Academic self-concept pertains to an individual's understanding and beliefs about their own abilities and achievements in an academic setting. (Catherine, 2013). Hunt (1997) identified seven essential components that are connected to the theoretical foundation of self-concept.

- It is organized structure
- has multiple dimensions, each of which reflects on a person or group.
- It is hierarchical, with generic self-concept at the top, broad effects about oneself in the middle, and individual behavior in particular situations at the base.
- Self-concept becomes increasingly multidimensional as one grows older.
- Individuals may assign varying weights to the descriptive and assessment components of self-concept.
- It is possible to distinguish self-concept from other concepts like accomplishment or fitness.

Numerous studies have examined the influence of self-concept and study habits on students' academic performance. Ajunwo (2018) conducted a study to examine the relationship between students' self-acceptance, a facet of their self-concept, and their academic achievement scores in Business Education. The research indicates that students possessing a positive self-concept achieve higher performance compared to their peers. Students exhibiting a robust self-concept and elevated self-acceptance generally achieve higher academic performance metrics. There exists a significant correlation between students' social confidence and their academic achievement scores. The study demonstrates a significant correlation between students' self-anxiety and their academic achievement scores in Business Education. This indicates that students' self-anxiety affects their academic achievement scores in Business Education. Crawford (2013) demonstrated that students' self-acceptance influences their academic success. The effort students invest in studying significantly influences their self-concept and enhances their academic performance. It is essential for teachers, parents, and all stakeholders to consider various factors that influence the development of a positive self-concept in children during their interactions. Cooley's (2010) research indicates a significant correlation between self-acceptance and the academic performance of students. A robust self-perception correlates positively with academic performance, while a weak or negative self-perception correlates negatively with academic outcomes. Bakari (2013) discovered a direct link between Ghanaian junior high school pupils' academic performance and their

academic self-concept. The research revealed a statistically significant difference in academic self-concept between students attending Urban and Rural Junior High Schools. No statistically significant difference was found in the academic self-concept between male and female students in Ghanaian Junior High Schools. Noad (2009) determined that self-concept significantly influenced students' performance more than educational attitude did. Panda and Panda (2007) identified a positive correlation between students' academic achievement and their self-concept and study behavior. Nwosu (2003) posits that self-acceptance, environmental mastery, and purpose in life are significantly correlated with levels of self-esteem satisfaction or dissatisfaction. In reaction to previous actions, the degree of satisfaction or dissatisfaction with self-acceptance serves as a significant response. Self-acceptance expectations entail evaluating one's prospective capacity to attain a goal.

### **Statement of the Problem**

Ongoing research is being conducted to enhance the standard of education in Nigerian schools, particularly with regards to students' academic achievements. The level of academic achievement a student attains is contingent upon the type of self-concept they cultivate towards their academics. The primary objective of this study is to investigate the correlation between self-concept and the academic performance of biology students in secondary schools in Katsina metropolitan.

### **Research Question**

The following research question served as the study's guide :  
Does self-concept have significant difference with student's academic performance in biology?

### **Research Hypothesis**

At the 0.05 threshold of significance, the following hypothesis was developed and examined:

There is no significant relationship between self-concept and student's academic performance in biology

## **METHODOLOGY**

### **Design**

The research design used in this study was a descriptive correlation survey. The survey included all the students in the public senior secondary school two (SSS2) in Katsina city. As per the Katsina State Ministry of Education (KTSMOE) during the time of this study, the population consisted of 6,016 male biology students and 5,087 female biology students, making a total of 11,103 students. A straightforward random sampling technique was utilised to choose a complete classroom from the specified schools. The sample size consisted of 60 participants, who were picked from two distinct public senior secondary schools in Katsina metropolis using a simple random method. This study utilised two research instruments: the self-concept inventory (SCI) and the biology

performance test (BPT). Both instruments were entrusted to the specialist in their respective domain to evaluate their efficacy and thereafter underwent pilot testing to establish their reliability. The self-concept inventory had a reliability value of 0.76, while the biology achievement test had a reliability score of 0.84, demonstrating the good reliability of both measures. Both descriptive statistics, such as the arithmetic mean and standard deviation, and inferential statistics, such as the Pearson product-moment correlation coefficient (PPMCC), were used to analyze the collected data.

## RESEARCH AND RESULT

### Results

RQ: Does self-concept have statistical difference with student's academic performance in biology?

Table 1: mean and standard deviation summary of Self-concept and Academic performance of students in Biology. (N=60)

Variable	N	Mean	Std. Deviation	Mean Difference
Self-concept	60	56.37	9.23	48.20
Academic performance	60	8.17	3.31	

The above table, shows that the mean self-concept scores of 56.37 and standard deviation of 9.23 while the mean academic performance scores of 8.17 and standard deviation of 3.31. The mean difference of 48.20 shows that there is a statistical difference between students' self-concept and academic performance in biology. The standard deviation of both shows that the individual academic performance score are closer to each other while the individual self-concept score are little differ from each other.

H<sub>0</sub>: There is no significant relationship between self-concept and academic performance of student in biology

Table 2: Pearson product moment correlation summary of Self-Concept and Academic performance of students in Biology. (N=60)

Variable	N	Mean	Std. Deviation	r - value	p-value	Decision
Self-concept	60	56.37	9.23	0.002	0.991	significant relationship
academic performance	60	8.17	3.31			

\*\* . Correlation is significant at the 0.01 level.

The Pearson Product Moment (PPMC) between students' self-concept and academic achievement in biology is displayed in the following table (r<sub>30</sub>= 0.002;

$p > 0.05$ ), suggesting that there is a relationship between students' self-concept and biology performance that is not statistically significant at the 0.05 level. The two variables do not appear to have a strong association, as indicated by the  $r$  value of 0.002.

## **DISCUSSION**

The findings of the study reveal a significant positive correlation between students' self-concept and their performance in Biology. Cooley's (2010) findings indicate a significant correlation between self-acceptance and the academic performance of students. A robust sense of self correlates positively with high academic performance, while a weak or negative sense of self is associated with low academic achievement. Bakari (2013) demonstrates a positive correlation between academic self-concept and academic performance in Junior High School students in Ghana. The research identified a statistically significant difference in academic self-concept among students attending Urban versus Rural Junior High Schools. No statistically significant difference was observed in academic self-concept between male and female students in Ghanaian Junior High Schools. The study's findings indicate a slight correlation between students' self-concept and their academic performance.

## **CONCLUSION**

This study examined the correlation between self-concept and academic achievement among secondary school biology students in Katsina metropolis. The findings indicate a significant positive relationship between students' self-concept and their performance in Biology in this region of Nigeria. Thus, the academic self-concept encompasses factors such as concentration in class, effective writing, proficient reading and comprehension, enjoyment of class activities, and interest in the subject matter, among others. External factors influencing student performance should be made accessible to enhance their academic self-concept.

## **RECOMMENDATIONS**

Based on the findings of this study, the following recommendations were made:

- Teacher should encourage the students on how effectively positive academic self-concept is important and powerful towards their goals.
- The significance of parental involvement in improving their children's academic self-concept and performance should be adequately explained to them.

## REFERENCES

- Ajunwo, Favour Oroma (2018), "Self-Concept and Academic Achievement of Undergraduate Business Education Students in Rivers State", *International Journal of Innovative Psychology & Social Development*. ISSN: 2467-8546, 6(3):6-17.
- Bakari Yusuf, Draman (2013), "Relationship between Academic Self-concept and Academic Performance of Junior High School Students in Ghana". *European Scientific Journal* December 2013 edition vol.9, No.34, ISSN: 1857 - 7881 (Print), e - ISSN 1857- 7431
- Balarabe, M., & Bakari, Y. (2013). Relationship between Academic Self-concept and Academic Performance of Junior High School Students in Ghana. Retrieved from [www.eujournal.org/index.php/esj/article/view/2162](http://www.eujournal.org/index.php/esj/article/view/2162)
- Bee, J.M. (2014). Academic Performance. From [www.ehow.com/m/about\\_474075c](http://www.ehow.com/m/about_474075c)
- Burns, R. B., *Konsep Diri: Teori, Pengukuran, Perkembangan, dan Perilaku*, (Jakarta: Penerbit Arcan, (1993) p. 87
- Cooley, K. O. (2010). An Investigation of the Academic Self-concept and its Relationship to Academic Achievement in African American College Students. *Journal of Black Psychology*, 26(2), 148164.
- Crawford, W. R. (2013). The Relationship of Self-concept and Academic Achievement. Unpublished Master's thesis, Glass Bobo States College, Nigeria.
- Gliebe, S. K. (2012). Strategies to Foster Emotional Intelligence in Christian Higher Education. *Christian Higher Education*, 11(4), 253-259. doi:10.1080/15363759.2010.515482.
- Green J., Nelson G., Martin A.J. & Marsh H. (2006). The causal ordering of self-concept and academic motivation and its effect on academic achievement. *International education journal IEJ*, 7(4).
- Hunt, A. (1997). Psychology. From [www.abdn.ac.uk](http://www.abdn.ac.uk) Retrieved February 2021
- Meleod, S. A. (2012). Low Self Esteem. From [http:// www. Simply psychology.org / self - esteem.html](http://www.Simplypsychology.org/self-estem.html) Retrieved February 2021
- Noad, B. M. (2009). The Influence of Self-concept and Education Attitudes on Performance of Elementary Students. *Journal of Instructional Psychology*, (6)1, 28-30.

- Nwosu, B. O. (2003). Business Education in the 21st century: The Challenges of Technology. In C. I. Akinola (Ed.), *Business Education in Nigeria: Trends, Issues and Challenges*, (8- 20), Lagos: NABE Publications.
- Okegbile, A. S. (2007). Achievement in School Core Subjects, Student's Adjustment and Study Habit Factors S. A. Predictive Approach Faculty of Education and Arts, Ibrahim Babangida University Niger State, Nigeria.
- Panda, K. C. & Panda, P. C. (2007). Self-concept, Study Behaviour and Cognitive Performance of 6 Grade Boys in Relation to their Feelings of Intellectual Achievement Responsibility. *India Journal of Behaviour*, (1)2, 234-247.
- Sharm,O.(2012).MeaningofAcademicPerformance.From<http://www.studymode.com/essayus/meaningofacademicperformance-1107119.html>. Retrieved February 2021.
- Sumadi Suryabrata, *Psikologi Kepribadian* (Jakarta: Rajawali Press, 1982), 3(4), 2179 - 2187.
- Tabone, F. N. (2011). Academic self-concept, self-efficacy, and achievement among students with and without learning disabilities (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. 3452797)
- Rosen, J. A. (2010). *Cognitive Skills in the Class Room: New Perspective on Educational Research* RII Press Publication. From <http://www.rti.org/rtipress> Retrieved February 2021.