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Self Concept And Academic Performance In Mathematics Among Public Secondary School Students In Obio Akpor Local Government Area Of Rivers State.

PROF. CHIKWE CHRISTIAN K.
Department of Educational psychology,
Guidance and Counselling, Ignatius Ajuru University of Education,
Port Harcourt, Rivers State
Phone:08037450414
Email: chikwechris8@gmail.com

&

OUSERIGHA EGEDEBA AGNES
Department of Educational Psychology,
Guidance and Counselling, Ignatius Ajuru University of Education,
Port Harcourt, Rivers State
Phone: 08033383398
Email: egedeba100@gmail.com

Abstract

The study examined self-concept and academic performance in mathematics among secondary school students in Obio/Akpor Local Government Area of Rivers State. The study adopted the correlational research design. Two research questions and two corresponding hypotheses guided the study. The population of the study comprised 5,052 students in public secondary schools in Obio Akpor Local Government of Rivers State. The simple random sampling technique was used in selecting a sample size of 371 from the population. The instruments for data collection were self designed questionnaires and Mathematics Testtitled: Self-Concept Questionnaire (SCQ), and Mathematics Achievement Test (MAT). The reliability of the instruments were determined using the Cronbach Alpha method and it yielded reliability indexes of 0.70 and 0.82 respectively. The research questions and hypotheses were answered and tested using Pearson Product Moment Correlation Method. The result of the study revealed that there is positive relationship between self-concept and public secondary school students' academic performance in Mathematics in Obio Akpor Local Government Area of Rivers State. Based on the findings, it was recommended that parents and teachers should endeavor to give good counsel that will propel students to establish an effective study habit as well as building good self concept which will in turn boost their academic performance in Mathematics.

Keywords: Self-concept, Academic Performance, Mathematics; Secondary School.

Introduction

Every nation of the world depends on education as an important vehicle of change and development. Nigeria, being no exception stated in the Federal Republic of Nigeria (2004), that all her citizens will have access to free education knowing fully well that education is the means of bringing about a democratic society, united and self-reliant nation that is filled with great and dynamic economy. In this era of globalization and technological revolution, education is considered as a first step for every human activity. It plays a vital role for every human activity and in the development of human capital and is linked with an individual well-being and opportunities for better living. It ensures the acquisitions of knowledge and skills that enable individuals to increase in their productivity and improve in their quality of life (Ololube, 2011; Achuonye, 2004).

High academic performance in mathematics is one of the top expectations of most parents, school and the government. Regrettably, there have been continuous poor academic achievement in mathematic among students in senior secondary school certificate examination (WASSCE) indicating that the achievement as expected in mathematic for global competitiveness looks illusive (Ezekiel-hart & Adiele, 2010). This problem is prominent in the previous results released by West Africa Examination council which indicated continuous poor academic performance in mathematics considering the percentage of those who obtained a minimum grade of C6 for many years.

Performance is a very common word used everywhere. Grimes (2003) described performance as "showing of a doing". Academic performance of students is a major concern of all education stakeholder's world over. Academic performance is the end product of teaching and learning process. Academic performance of a student provides the general background of how a student is progressing.

The perception of self plays a vital role in students' academic performance. Argyle (2008) explained that self- concept is multi-faceted, hierarchical, organized and structured, descriptive and evaluative, stable, and yet increasingly situation specific. Students in senior classes are mostly adolescents and tend to grow by being promoted from one class to the next, and so their self- concept increases. They begin to rediscover themselves more and more. Knowing that self- concept gives an opportunity for one to view himself in a unique way which probably differs from how others may perceive him. Odiri (2015) expressed academic performance as that behavior exhibited by a person that is noticeable after undergoing a programme of instruction in a school. The programme could be a course work, syllabus or scheme of work for a particular class, over a period of time.

Also, Arens, et. al., (2021) claimed that some factors that influence academic performance of students are heredity, environment, time and some that are resident in the students, the family, the school and the society. Those factors resident in the student include physical, health, truancy, emotional problem, personality factors, poor study habit, self-concept, continued failure, lack of basic cognitive skills and examination strategies or restiveness. Some crucial emotional competencies like lack of self-concept, unsatisfactory study habit which impress their educational attainment is not at all good both at the micro level and as well as the macro level.

Sagar (2014) conducted a study to investigate whether self-concept has any significant relationship with academic achievement of the secondary school students

or not in Dhaka city. Results indicated that self-concept had only slight positive association with academic achievement of the students. Olatunde (2010) concluded that there is a vital, and a positive correlation between self-concept and academic performance and also they are so linked as one effects the other and vice versa. Early researches on the self-concept also found that there was an important link between self-concept and performance of students. Barker, et. al., (2005) stated that there is a correlation between two most important variables i.e. academic self-concept and academic performance.

In another study, Matuvo (2012) found that gender and faculties (like arts and science) of the students might be the dominant factor which effect students' academic self-concept. The change in the academic self-concept can be mirrored on the achievement of students. He found that students (males and females) have different academic self-concept and hence they differ in their academic abilities as well.

Talukder and Parvin (2011) also conducted a study to explore the relationship of medical students' self-concept with their academic achievement in three dimensions of self-concept such as personal, family and social self-concept. The result showed that there was significant difference between dimensions of self-concept of students according to gender. The research finding also showed that there was positive correlation between dimensions of self-concept with academic achievement of students. Self-concept is one of the major components within the individual that shapes his goal of life. Moreover, it should be measured as a psychological construct that can impact on individuals´ attitudes and perceptions toward their life and surroundings. At times, it changes the approach of their behavior and relationship with people around them in various cultures and societies. In fact, knowing the self and its correct development can be worthy for human being.

According to Ahmed (2014), females possess lower self-concept than the males. Rath and Nanda (2012) also conducted a study to examine the consequence of gender and educational competence on the self-concept of adolescents. The findings of the study indicate academically proficient adolescents have greater physical, moral, personal, domestic, social and overall self-concept than less-proficient ones. The strength of association between personal self-concept and overall self-concept in boys is higher than the association found in girls.

Statement of the Problem

The extent to which students excel or perform in their studies depends on the kind of study self-concept they develop and use to a very large extent. Over time, poor self-concept led to poor academic performance. Unchecked, low self-esteem may even lead to mental health issues such as anxiety and depression, sometimes with tragic results. When someone lacks confidence about who they are and what they can do, they often feel incompetent, unloved, or inadequate. People who struggle with low self-esteem are consistently afraid about making mistakes or letting other people down. In recent time, Barrett (2017) identified characteristics of a person's self-concept based on specific situations and experiences. Self-concept impacts person's decision-making process, relationships, emotional health, and person's overall well-being. It also influences motivation, as people with a healthy, positive view of themselves understand their potential and may feel inspired to take on new challenges. A person's self concept influences academic performance. It is on this premises that this study intent to examine the relationship between self-concept and

academic performance in mathematics among public secondary school students in Obio/Akpor Local Government Area of Rivers State.

Aim and Objectives of the Study

The aim of this study was to examine self-concept and academic performance in mathematics among public secondary school students in Obio/Akpor Local Government Area of Rivers State. Specifically, the objectives of the study were to:

1. Investigate the relationship between self-concept and academic performance in mathematics among public secondary school students' in Obio/Akpor Local Government Area of Rivers State.
2. Determine the relationship between academic self-concept and academic performance in mathematics based on gender among public secondary school students' in Obio/Akpor Local Government Area of Rivers State.

Research Questions

1. What is the relationship between self-concept and academic performance in mathematics among public secondary school students' in Obio/Akpor Local Government Area of Rivers State?
2. What is the relationship between academic self-concept and academic performance in mathematics based on gender among public secondary school students' in Obio/Akpor Local Government Area of Rivers State?

Hypothesis

The following null hypotheses were tested in order to achieve the objectives of the study:

1. There is no significant relationship between self-concept and academic performance in mathematics among public secondary school students' in Obio/Akpor Local Government Area of Rivers State?
2. There is no significant relationship between self-concept and academic performance in mathematics based on gender among public secondary school students' in Obio/Akpor Local Government Area of Rivers State?

Methodology

The study adopted the correlational design. Tan (2014) sees correlational design as one that examines whether an increase or decrease in one variable corresponds to an increase or decrease in another variable. The researcher considered this design because she sought to find out how self concept relates to the academic performance in Mathematics among public secondary school students in Obio Akpor Local Government Area of Rivers State. The population of the study was all the five thousand and fifty-two (5,052) students offering mathematics (SS1-SS3) from the twenty-one (21) public senior secondary schools in Obio/Akpor Local Government Area of Rivers State(RSSSSB, 2021). The sample size for the study therefore was 371.The sampling technique applied in selecting the sample of 371 from a population of 5,052 in this study was the simple random technique in which every member has an equal chance of being selected.

The instruments for data collection for this study were a self-designed questionnaires titled; Self-Concept Questionnaire (SCQ) and an Achievement Test Titled: Mathematics Achievement Test (MAT). The items on section B and C was responded

to on a four-point Likert scale of Very High Extent (VHE) –4, High Extent (HE) - 3, Low Extent (LE) - 2 and Very Low Extent (VLE) -1. Each research question on the instrument contains will four (4) items so it is expected that respondents will choose from the items outlines for each research questions while responding to any of the questions. Section D contains 25 multiple choice objective items on mathematics.

The face and content validity of the instrument was used in determining the validity of the instrument. Reliability for the study was determined using the Cronbach alpha coefficient which is an internal form of reliability measurement. Copies of the instrumentswere distributed to the respondents to elicit the required information from them by the researcher and three other assistants that were duly trained on the mode and method of distribution and how best to interact with respondents.Pearson Product Moment Correlation was used to answer the various research questions and also test the stated hypotheses at the 0.05 level of significance.

Analysis and Results

Research Question One: What is the relationship between self-concept and academic performance in mathematics among public secondary school students' in Obio/Akpor Local Government Area of Rivers State.

Hypothesis One: There is no significant relationship between self-concept and academic performance in mathematics among public secondary school students' in Obio/Akpor Local Government Area of Rivers State.

Table 1: Relationship between self-concept and academic performance in Mathematics among public secondary school students' in Obio/Akpor Local Government Area of Rivers State.

Correlations

		Self Concept	Academic performance in mathematics
Self Concept	Pearson correlation	1	0.83**
	Sig. (2-tailed)		0.04
	N	371	371
Academic performance in mathematics	Pearson correlation	0.83**	1
	Sig. (2-tailed)	0.04	
	N	371	371

**. Correlation is significant at the 0.05 level (2-tailed).

Table 1 reveals that the relationship between self-concept and academic performance in mathematics among public secondary school students' in Obio/Akpor Local Government Area of Rivers State is 0.83. This result shows that there is a strong positive relationship between self-concept and academic performance in mathematics among public secondary school students' in Obio/Akpor Local Government Area of Rivers State.

Table 1 indicates that the relationship between self-concept and academic performance in mathematics among public secondary school students' in Obio/Akpor Local Government Area of Rivers State is significant at 0.05 level of significance. The result of the null hypothesis is that there is a significant relationship between self-concept and academic performance in mathematics among public secondary

school students' in Obio/Akpor Local Government Area of Rivers State at 0.05 level of significance. The null hypothesis is rejected. This is because the p-value (0.04) is less than the level of significance (0.05). The result of the null hypothesis is that there is a significant relationship between self-concept and academic performance in mathematics among public secondary school students' in Obio/Akpor Local Government Area of Rivers State.

Research Question Two: What is the relationship between academic self-concept and academic performance in mathematics based on gender among public secondary school students' in Obio/Akpor Local Government Area of Rivers State?

Hypothesis Two: There is no significant relationship between self concept and academic performance in mathematics based on gender among public secondary school students' in Obio/Akpor Local Government Area of Rivers State.

Table 2: Relationship between self concept and academic performance in mathematics based on gender among public secondary school students' in Obio/Akpor Local Government Area of Rivers State.

Correlations

		Self Concept among male	Academic performance in mathematics	Self Concept among female	Academic performance in mathematics
Study Habit	Pearson Correlation	1	0.69**	1	0.84**
	Sig. (2-tailed)		0.03		0.00
	N	121	121	250	250
Academic performance in mathematics	Pearson Correlation	0.69**	1	0.84**	1
	Sig. (2-tailed)	0.03		0.00	
	N	121	121	250	250

**. Correlation is significant at the 0.05 level (2-tailed).

Table 2 reveals that the relationship between self concept and academic performance in mathematics based on gender among public secondary school students' in Obio/Akpor Local Government Area of Rivers State are 0.69 for male and 0.84 for female. This result shows that there is a strong positive relationship between relationship between study habit and academic performance in mathematics based on gender among public secondary school students'. This result shows that as scores on self concept increases, there is a corresponding increase in the scores on academic performance in mathematics based on gender among public secondary school students' in Obio/Akpor Local Government Area of Rivers State.

Table 2 indicates that the relationship between self concept and academic performance in mathematics based on gender among public secondary school students' in Obio/Akpor Local Government Area of Rivers State at 0.05 level of significance. The null hypothesis is rejected. This is because the p-value for male is (0.03) and p-value for female is (0.00)are less than the level of significance (0.05). The null hypothesis is that there is a significant relationships between self concept and academic performance in mathematics based on gender among public secondary school students' in Obio/Akpor Local Government Area of Rivers State.

Discussion of Findings

The result of Research Question One and Hypothesis One (Table 1) indicated that there is a positive relationship between self-concept and academic performance in mathematics among public secondary school students' in Obio/Akpor Local Government Area of Rivers State. This means that as scores self-concept increases, there is a corresponding increase in scores on academic performance in mathematics among public secondary school students' in Obio/Akpor Local Government Area of Rivers State and viceversa. However, the result showed that the relationship between self-concept and academic performance in mathematics among public secondary school students' in Obio/Akpor Local Government Area of Rivers State is significant at 0.05 level of probability. The result of this study is in agreement with the findings of Sagar (2014) and Olatunde (2010) whose results indicated that self-concept had positive association with academic achievement of the students in their respective research results. Talukder and Parvin (2011) research finding is also in line with this study as it showed that there was a positive correlation between dimensions of self-concept with academic achievement of students.

Theresult of Research Question Two and Hypothesis Two (Table 2) indicated that there is a positive relationship significant relationship between self-concept and academic performance in mathematics based on gender among public secondary school students' in Obio/Akpor Local Government Area of Rivers State. The positive relationship between significant relationship between self-concept and academic performance in mathematics based on gender among public secondary school students' mean that as scores in self-concept increases, there is a corresponding increase in scores on academic performance in mathematics based on gender among public secondary school students' in Obio/Akpor Local Government Area of Rivers State. However, the result showed that the relationship between self-concept and academic performance in mathematics based on gender among public secondary school students' in Obio/Akpor Local Government Area of Rivers State is significantat 0.05 level of probability.

The result of this study is in agreement with Barker, et. al., (2005) whose findings indicated that there is a correlation between academic self-concept and academic performance irrespective of gender. Also the result that emanated from this study is not conflicting with the findings of Matuvo (2012) whose study found that students (males and females) have different academic self-concept and hence they differ in their academic abilities as well.

Conclusion

Based on the results of this study, the researcher concluded that, self-concept, self-concept of maleand self-concept of female significantly relate to academic performance in Mathematics among Public Secondary School Students in Obio/Akpor Local Government Area of Rivers State. It was also concluded that Self-Concept, and significantly predicted the Academic Performance in Mathematics among Public Secondary School Students in Obio/Akpor Local Government Area of Rivers State.

Recommendations

Based on the result of the study, the following recommendations were made:

1. Parents, guidance and teachers should be reminded of the role they play in the lives of their children, wards, and students. They should endeavour to give

good counsel that will propel them to establish a positive self-concept. This will help the students to overcome any unpleasant feelings that may likely cause them to perform poorly in mathematics.

2. Students who have low or poor self-concept should be encouraged to visit the school guidance counsellor, collectively he/she and the guidance counselor will develop therapies and strategies to help such students to develop good self-concept.
3. Students should be enlightened on skills that will help them identify their areas of weakness, be it poor self-concept or poor study habit and the best way to deal with it. This will help them perform excellently in mathematics.

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