Self-Concept and Students Perception of Learning Environment in Mathematics in Akwa Ibom State

Ayara, Ndifon Johnson
(ndifonayara@yahoo.com)
Department of Mathematics
Akwa Ibom State College of Education, Afaha Nsit

Uwem Daniel Udom
uwemudom@gmail.com
Department Of Mathematics
AkwaIbom State College of Education, Afaha Nsit

&

Esuong, Uwase Uwase
(uwaseesuong@gmail.com)
Department of Science Education
University of Calabar, Calabar.

Abstract
The study sought to investigate the relationship that exists between self concept and students' perception of learning environment in Mathematics. To achieve the purpose of this study, one null hypothesis was formulated. A survey design was employed for the study with 245 students sampled for the study. The hypothesis was tested using the pearson product moment correlation (PPMC) at 0.05 level of signifance. Two instruments titled Measure of Students Self Concept (MOSSCO) and Students Perception of the Learning Environment in Mathematics (SPLEM) were developed and used to obtain data for the study. The result showed that there is a statistically significant relationship between perception of learning environment in Mathematics and the students self concept. Based on the findings it was concluded that the self concept of the learners plays an important role in students' perception of their learning environment. Thus, it was recommended that teachers, parents and relevant stakeholders should employ relevant strategies that will improve the learning environment of Mathematics since this will boost the self concept of the student in their study of the subject.

Introduction
The standard of mathematics education in our country has always been a subject of great concern, many people from all spheres of life have openly voiced out their opinion about the fallen standard of education in the country. In searching for the factors that militate against the achievement of our students in schools, much emphasis is placed on the environment. It is a generally accepted view that the way an individual perceives

himself influence the way he believes in interaction with his physical and social environment. It can therefore be argued that the way student perceive themselves and their environment influence their academic achievement, Eshun (2004) had suggested that the study of perception is an attempt to understand those expects of observations of the world of things and people that depends on the nature of the observer. Perception is a cognitive process within which a person psychologically reaches out to his environment.

Psychologists see perception as a unitary process in which sensation hinges on meaning and meaning on sensation. In a goal seeking behaviour, a person actively seeks out those aspects of his/her environment that will either help or hinder him and usually it is to those that he/she is primarily sensitive. Perception in this case refers to two things: the student's perception of themselves and perception of their learning environment. Ukeje (1981), claims that self perception is one of the most important features of personality. It is often defined as the way an individual pictures himself.

According to Kosciejew (2010), self-concept is a self theory in the sense that the individual unwittingly constructs a theory about himself as an experiential and functional individual. This theory is in fact a conceptual tool which the individual uses to obtain the optimal balance of pleasure and pain, maintaining self-esteem and organising all experiences. Although self concept changes with time, a healthy self concept grows filler and more complex while a weak or superficially formed one is likely to fall apart altogether.

Self concept is regarded as an important aspect of personality and critical determinant of behaviour. Self theories is derived from the individual's self picture, the beliefs concerning his qualities, competence and shortcomings born as general phenomena and in particular cases as an important determinant of his behaviour.

A student's self-concept has a direct impact or influence on his academic performance thus, a student with a high concept will have positive attitude towards his studies.

According to Esuong and Edoho (2018) the main factors that play a vital role in influencing students' attitude toward mathematics are associated with the students themselves; the school, teachers, teaching techniques, home environment and society. Mahammed and Washed (2011) opined that since teaching is a main factor in individual and societal growth, it is reasonable to conjecture that mathematics classroom and learning environment is very important in the development and change of students' attitudes toward mathematics. Indeed, it was also argued by frager (2012) that 'the social ecological setting in which students function affect their attitudes, moods, behaviours, performance, self-concept and general sense of well-being. However, there has been an increasing interest to develop and employ instruments to assess students' perceptions of their classroom learning environment.

Age-interconnectivity with learning environment in mathematics

Smith, C. (2011) observed that the standards of mathematics have been much discussed and criticised over the past three years. Children frequently claim dislike or incompetence towards mathematics due to the tensed nature of the mathematics

classroom, while many pupils choose not to pursue mathematics post-compulsory education others completely escape from mathematics classes. The primary school curriculum has undergone several changes in an attempt to raise standards in mathematics is according to report in Nigeria Educational Research Development Council (NERDC 2009).

Family size – interconnectivity with student's learning environment in mathematics

Studies from Ukeje (1998) have indicated that students from small sized families were shown to be advantaged over their counterparts from large-sized families, because parents tend to have more time to put them through their various mathematical problems and the attention given to them by their parents and teachers improves their performances as compared to their counterparts in large-sized families.

These children in small family sizes tend to cope better in any learning environment because they are already exposed to the basics rudiment of mathematics from their parents houses. Thus, whether the mathematics classroom is tickly populated of not the children will be able to cope and learn something from their teachers.

School type and mathematics learning environment:

Studies from Esuong and Edoho (2018) have shown that the type of school a child attend affect their perception in mathematics learning which in turn influences the child performances. Students that happen to attend schools that are adequately equipped with standard facilities and manpower resources do better than their counterparts in less equipped schools.

According to Ntibi and Edoho (2018) the location of the school plays a vital role in the students competence level in mathematics this is due to the surrounding factors in the immediate environment the child is exposed into.

Statement of the problems: Self-concept and student's perception of learning environment are vital factors that influence student's academic performance. The students academic performance is greatly influence by his understanding of himself his environment and the people around him. This is important because they determine what the child's perception are, what the child knows, what he believes and generally what he does.

Generally, the manner an individual perceives himself results from the accumulated experience of the individual learner to develop his personal understanding of himself to the extent that he know his limitation, his strength, weaknesses, and how he compares himself with his peers. In an academic environment, after years of learning the students comes to see him or her in positive or negative light. It is this perception of self that makes up an individual's conception of the self that is, self concept. A person who has a poor environment has an essentially negative background that only serves to provide frustration for him. On the other hand, a student with a positive self concept would perceive the learning environment in mathematics in an essentially positive tone, however available research and literature does not point to these directions. It is for this reasons that the current research is aimed at determining self concept and student perception among secondary school students in Akwa Ibom State.

Purpose of the study: The purpose of this study is to find out the relationship between self concept and students perception of learning environment in mathematics in Akwa Ibom State.

Research question: Does self concept relate significantly with students perception of learning environment in mathematics in Akwa Ibom State?

Research hypothesis: There is no significant relationship between self concept and students perception of learning environment in mathematics in Akwa Ibom State.

Significance of the study: The result gotten from this research will be very useful in the following ways:

1. The result of this work will be used as a pointer to students on the need to develop high self-perception with a view to achieving high academic standards in mathematics in schools.
2. This study will help students to develop positive perceptions of their energy, time and resources towards the appropriate achievement of academic excellences, the result would be of greater productivity for the nation in general and the individual student in particular.
3. The study will inspire school administration especially at the secondary educational level to restructure the school environment and promote both the social and academic advancement of students.

Research methodology

Research area: The research area is Ibeno Local Government Area of Akwa Ibom State of Nigeria. It is located along the Southern fringes of the current Akwa Ibom State. It is bounded in North by Eket Local Government Area in the West by Onna Local Government Area, in the East by Esit Eket Local Government Area and in the south by the bight of Bonny, situational, it lies between latitude 21(20 and 31) (20 North of the equator and longitudes 71/20 and 81/20 east of the Green which Meridian Ibeno composed one major clans of Ibono clan.

The people are traditionally fishermen. The area has been witnessing a lot of social and physical transformation as a result of oil production in the catchments area.

Population of study: The population for study consists of all secondary school students that are currently enrolled and studying on a full time basis in secondary schools in Ibeno Local Government Area of Akwa Ibom State. Each of these schools on the average has a population of six hundred students or more thus, the estimated population of secondary school students in the Local Government Area Stands at about two thousand expectedly, this number consists of both male and female students with fairly more boys than girls. The ages of the students should range between 10 and 20 with a median age of about 15. Generally, these students come from quite a wide array of social economic backgrounds

that stretch from the very poor, through the fairly well to do, to the very wealthy background.

Research design: Survey research design is used in the study; this is because the study will ascertain the present state of facilities in schools in the research area; compare the learning environments in mathematics in both urban and rural settings and find out their effects on the self-concept and perception amongst students.

Sample and sampling procedures: In order to effectively carry out this study and for the purpose of generating reliable and valid results, the researcher obtained a sample 245 students from two schools in SS 11 class out of a total of 2300 population of students were selected over others because of their relatives maturity. Also, it was anticipated that they would adequately understand and appropriately respond to the items of questionnaire type of instrument. The 245 students were chosen by a simple random sampling that ensured that all members of the population were given equal access to participate in the study of the 245 students, 132 (53.889%) were females while the remaining 115(46.12%) were males their ages ranged from 13 through 16 to 20 with a mean age of 18.28 and a median age of 18.63. All students had completed their JSS certificate exams successful and were working towards the SSS certificate exams.

Instrument and instrumentation: Two sets of instrument were used for conducting the study. The first was titled "measure of students self concept" (MOSSCO). It was a fifteen item instrument that was developed by the researcher. The first part consist of the demographic information of the respondents which included sex, age, school and location of school. 25 items was designed on a five point liket scale.The second instruments titled "students perception of the learning environment in mathematics" (SPLEM) contained a 25 item instrument that sought to top various dimensions of students perception of their learning environment.

Both instruments were subjected to content and face validity by two professionals in the field of test and measurement. This was to ensure that both instruments measured what it was intended to measure in a large extent.

Administration of Research Instrument: The researcher personally visited the two schools that had been randomly sampled for the purpose of the study. In each of these schools, the researcher sought the service of the principal and class teachers so as to have a disturbance free administration of the instrument and also to guard against the possible unco-operative attitudes of students in each of the schools the sampled students were assembled in their classroom where the two instruments were distributed. The contents of each was read out to students and duly explained to them. They were availed adequate time to respond to the items of the instrument.
The analysis of the coded data was done in an hypothesis-by-hypothesis basis.

Hypothesis Ho: there is no significant relationship between self concepts, perception of the learning environment, sex, locality, age, family size and school type.

Dependent variables: Perception of learning environment and self-concept.
Independent variables: Sex, locality, age, family size and school type.
Statistical tool: Pearson product moment correlation (r)

Result

The results of the study are presented as follows

Hypothesis: The hypothesis stated that there is no significant relationship between self concepts and perception of the learning environment (sex, locality, age, family size and school type) in mathematics among secondary school students.

The above hypothesis was tested using the various forms of correlation analytical techniques viz. The Pearson product moment correlation, the point bassinet and the phi coefficient. The obtained results are as given below in Table below

Correlation matrix on the relationship between self concept, perception of learning environment, sex, locality, age, family size and school type

	Variables	1	2	3	4	5	6	7
1.	Perception of Learning Education	1.00						
2.	Self concept	0.42	1.00					
3.	Sex	-0.37	-0.26	1.00				
4.	Locality	0.13	0.31	0.02	1.00			
5.	Age	0.17	0.09	-0.11	0.14	1.00		
6.	Family size	0.28	0.35	0.03	0.23	0.08	1.00	
7.	School type	0.11	0.16	0.09	0.24	0.04	0.05	1.00

Interpretational of results

In consideration of the data as shown in the above table indicates that there were significant relationship between perception of learning environment and self concept cr=0.42, thus depicting the fact that students perception of their environment was established to be significantly related, in a negative manner, to sex (Ph.0-37) a fact that depicts a tendency for males to be more positive in their self concept as compared to their females counterparts.

Student perception of their learning environment was also shown to be positively related to family size (r=0.28) a fact that indicated that students from large families are inferior in their self concept as compared to those from small sized families on the other hand, self concept was found to be positively related to the pairs of variables which are family size and locality (pb=0.23) as well as family size and school type (r=0.24). Given

these results, the first hypothesis in those being no significant relationship between the pairs of variable are not rejected.

Summary of findings

At the end of the study, result showed that there is a statistical significant relationship between perception of their learning environment mathematics on one hand and their self concept, sex and family size on the other hand. Also the following pairs of variables were found to be related to a significant degree; sex and self concept, sex concept and locality, sex concept and family size, locality and family size, and school size. All the other pairs of variables were not found to be significantly related.

Conclusion

The results from the study have showed the variables; perception of the learning environment in mathematics and self concept of students are important dimensions of students learning. They difference in their availability on the basis of students' personal and background characteristics. These differences suggest that the students are not equally and adequately equipped to cope with the social and academic demands of learning. It also showed that those handicapped with respect to the two variables can hardly be expected to do or perform beyond the level that is consistent with their cognitive and social endowment.

The overall findings of the study point to the dire need among those charged with the responsibility of providing education leadership to ensure that learners are adequately equipped to have a fairly equitable and positive perception of their learning environment in mathematics. Meanwhile, also developing the requisite self concept that is essential for the purpose of enabling students achieves learning mastery in their academic understanding.

Recommendation

With respect to the present study, the following recommendations are hereby advanced.

a. Since it has been established that perception affects academic performance, teachers should employ instructional strategies that will help to boost the self perception of students. This is turn will influence their academic achievement in mathematics.
b. Parents and teachers should refrain from using derogatory statements on students as their world serve to discourage students as well as make their self perception to lower.
c. There should be counsellors in all schools to help the students with negative perception to achieve well in schools.
d. The parents must strive to provide the moral and emotional support needed by their children in order for the latter to effectively cope with the task of learning.

References

Dimitrieva, E. Zaitzeva, K. and or Lov, Alexander (2003). Influence of emotional perception on achievements in Mathematics. Journal of Research in Mathematics Education (28) 26-47.

Eshun, B. (2004). Differences in attitude of students towards mathematics in secondary school. Journal of science and social issues 5(3) 215-228.

Esuong, U. U. And Edoho, E. A. (2018). Correlates of attitude of students and academic performance of senior secondary school students towards mathematics. International Journal of Contemporary Social Science Education (IJCSSE) 1(1) 108-110.

Frager, S. (2013). Senior Secondary School Students' perceptions of Mathematics classroom learning environment in China and their attitudes (The Mathematics educator 2013 Vol. 15, Vol 1, 66-80).

Kosciejew, R. (2010). Orientation compositions of thoughts. http://www.springer.liste.org.

Smith, C. (2011). Children's perception of and attitudes towards, their Mathematics lessons. Journal of the Science Teachers Association 20(2), 72-76.

Ntibi, J. E And Edoho, E. A (2018) Influence of school location on students performance in senior secondary school mathematics. British Journal of Education BJE 2(2) 123-128

Ukeje, B. O. (1989). Factors that influence students in mathematics achievement international Journal of Academic Research 3(3), 49-54.