

## SELF-ESTEEM AS CORRELATES OF ACADEMIC PERFORMANCE IN MATHEMATICS AMONG SECONDARY SCHOOL STUDENTS IN DUTSIN-MA ZONAL EDUCATION QUALITY ASSURANCE, KATSINA STATE, NIGERIA

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### Abstract

This study was conducted to investigate self-esteem as correlate of academic performance in mathematics among senior secondary schools in Dustin-Ma Zonal Education Quality Assurance, Katsina state. The study contained five research objectives, two research questions and three hypotheses. The target population consist of four thousand, one hundred and twenty-nine (4,129) while the total sample size is three hundred and fifty-one (351) Senior Secondary School (SSS II) students selected from Dustin-Ma Zonal Education Quality Assurance, Katsina state. Multistage sampling technique was used to select ten (10) Senior Secondary Schools on the bases of gender, which comprises of five (5) from Schools from the two LGA area of the zone. The instruments used to collect data are Self-Esteem Questionnaires (SEQ) and Mathematics Academic performance Test (MAPT) adapted for this study. The Cronbach's alpha was used to determine the reliability. Therefore, the reliability co-efficient of the instruments are SEQ has 0.84 and MAPT has 0.78 respectively. Analysis of data was carried out using descriptive statistics and inferential statistics. The three hypotheses were tested at 0.05 alpha level of significance. The findings of the study revealed that there is significant relationship between self-esteem and academic performance among secondary school students in Katsina State. Also, there is significant difference in academic performance of secondary school students based on gender. The study concluded that, it is obviously shown that there is correlation between self-esteem and academic performance among senior secondary schools in Dustin-Ma Zonal Education Quality Assurance, Katsina state. It was recommended among other that Mathematics teachers should encourage students to develop high positive self-esteem by making them believe in their abilities to succeed.

**Keywords:** Self-esteem, Academic performance, Mathematics

### Introduction

Students' ability for learning and performance excellently are determined by their psychological health, a healthy individual is the person that has a positive perception of his/her totals self. This positive personality construct can be developed through educational processes in academic performance. In other words, to appreciate students' academic performance, we need to understand how students perceive and interpret academic activities and performance in their subjects offers by investigating their belief system such as self-esteem (Anyanwu & Emesi, 2020). Academic performance according to Yusuf, Onifade and Bello (2016) is a measurable and observable behaviour of a student within a specific period. It consists of scores obtained by a student in an assessment such as homework, class exercise, class test, mid-test, mock examination, and end of term examination. Academic performance is regarded by individual's self-abilities and belief in learning to feel confidence in better retention of learning information.

Self-esteem according Mazuki (2018) is the belief in one's capabilities to organize and execute courses of action required to produce given attainments. Self-esteem is a way of thinking, feeling and acting that implies that you accept, respect, and believe in yourself. When you accept yourself, you are okay with both the good and not so good things about yourself. Most students in secondary schools lack the confidence to tackle mathematical problems because of lack of self-esteem and as a result find it difficult to perform well in the subject.

Social Psychologist have converged around the notion that Self-esteem is a way of thinking, feeling and acting that implies that you accept, respect, and believe in yourself (Bada, Umar & Jimoh 2021). Most students sometimes refused to attend school regularly and if they do, they refused to attend Mathematics class due to their self-esteem. Self-esteem is your subjective sense of overall personal worth or value. Individual sense of personal worth or value is self-esteem; students having healthy self-esteem can influence their motivation, mental well-being, and overall quality of life. However, having self-esteem that is either too high or too low can be problematic (Bada, et al 2021). Therefore, better understanding of what individual unique level of self-esteem is to help individual to strike a balance that is just right for him/her.

According to Olutola, Shehu, Olutola and Olatoye, (2018) Self-esteem is a person's inner appreciation or assessment of him or herself in reflection of individual's overall subjective emotional evaluation of his or her own worth. Self-esteem is the value that individual place upon themselves. Key elements of self-esteem include: self-confidence, feelings of security, Identity, sense of belonging and Feeling of competence. Other terms often used interchangeably with self-esteem include self-worth, self-regard and self-respect (Bada, et al 2021). Self-esteem tends to be lowest in childhood and increases during adolescence, as well as adulthood, eventually reaching a fairly stable and enduring level. This makes self-esteem similar to the stability of personality traits over time. Self-esteem impacts your decision-making process, your relationships, your emotional health, and your 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 (Kendra, 2023).

However, Olutola, et al, (2018) suggested that low self-esteem can be seen as a major factor in abuse, addiction, crime, depression, loneliness, low educational performance, mental illness and unhappiness while people with high self-esteem are often creative, joyful and productive. Bello,et al, (2017) believed that, children and adolescents who lack self-esteem may be more dependent on their parents and have lower academic and vocational goals. Bada et al (2021) described the signs and symptoms of low self-esteem which could include; lack of confidence, fear of being ridiculed, negative view of life, mistrusting others inappropriately, fear of taking appropriate risks, blaming self or behaviours, feelings of being unloved and unlovable. A higher academic self-esteem has been associated with better academic achievement (Fakolade & Oloruntoba, 2017). Bada et al (2021) supports the idea that self-esteem not only helps academic performance but also helps students to be resilient through difficult times.

Therefore, academic performance is one of the most important indicators of learning and understanding in all educational systems and is viewed as a scientific progression and rise in specified time situations which can be calculated by final average at the end of the school year (Mehr, 2008). Based on the aforementioned factors, the researcher investigated self-esteem as correlates of academic performance in Mathematics among secondary school students in Dutsin-Ma Zonal Education Quality Assurance, Katsina State.

## Statement of the Problem

It has been observed that most students in Nigerian secondary schools are at a greater risk of poor academic performance in Mathematics both in internal and external examinations (WAEC & NECO). For instance, the available records of WAEC result analysis from 2017- 2021 show a continuous decline in students' overall performance in school certificate examinations. In fact, a number of factors such as school-related factors, teacher-related factors, home-related factors and student-related factors have been identified as contributing to the poor performance of students in West African Senior Secondary Certificate Examinations (WASSCE) (Adane, 2013). The high rate of failure in Mathematics has been a nightmare to teachers, parents, researchers, educationalists and examination bodies. In 2023 and 2024 are 17.8% and 21.5% respectively. The students who sat for WASSCE failed Mathematics and this is the highest failure rate since 2024 due to poor interpretation of question (Chief Examiners' WAEC 2024). Therefore, it against this background that, the researcher intends to investigate the self-esteem as correlates of mathematics students' academic performance among secondary school students in Dutsin-ma Zonal Education Quality Assurance, Katsina State, Nigeria.

## Objectives of the study

Generally, the purpose of the study was to investigate self-esteem and academic performance of students in Mathematics among senior secondary schools in Katsina state Nigeria.

Specifically, the objectives of the study are to:

1. find out the level of self-esteem among secondary school students in Dutsin-Ma Zonal Education Quality Assurance in Katsina State.
2. examine the level of academic performance in mathematics among secondary school students in Dutsin-Ma Zonal Education Quality Assurance in Katsina State.
3. determine the relationship between self-esteem and academic performance in mathematics among secondary school students in Dutsin-Ma Zonal Education Quality Assurance, Katsina State.
4. ascertain the gender difference in the Self-esteem of secondary school students in Dutsin-Ma Zonal Education Quality Assurance, Katsina State
5. examine the gender difference in the academic performance in mathematics of secondary school students in Dutsin-Ma Zonal Education Quality Assurance, Katsina State

## Research Questions

The following research questions were asked to guide the study.

1. What is the level of self-esteem among secondary school students in Dutsin-Ma Zonal Education Quality Assurance in Katsina State?
2. What is the level of academic performance among secondary school students in Dutsin-Ma Zonal Education Quality Assurance in Katsina State?

## Hypotheses

The formulated hypotheses below are in line with the objectives of the study.

H<sub>01</sub>: There is no significant relationship between self-esteem and academic performance in mathematics among secondary students in Dutsin-Ma Zonal Education Quality Assurance in Katsina State.

H<sub>02</sub>: There is no significant difference in the self-esteem of secondary school students based on gender in Dutsin-Ma Zonal Education Quality Assurance in Katsina State

H<sub>03</sub>: There is no significant difference in academic performance in mathematics of secondary school students based on gender in Dutsin-Ma Zonal Education Quality Assurance in Katsina State.

**Methodology**

The study adopted a correlation research design, it is used to analyze the degree of which two or more attributes or measurements on the same group of elements shows a tendency to vary together. The population of this study consists of 4,129 Senior Secondary School students from Dutsin-Ma and Kurfi Local Governments of Katsina State. The sample size of this study is 351 students, which comprises 180 male and 166 female students. The sample size estimation is in line with recommendations offered at a confidence level of 95% and a Margin Error of 5.0% (Research Advisor, 2006). The study was carried out in Dutsin-Ma Zonal Education Quality Assurance, Katsina State. It comprises of two (2) Local Government Area, namely Dutsin-ma and Kurfi LGA in all public senior secondary schools. It is delimited to senior secondary school (SSS II) students.

A multistage sampling technique was adopted to select the participants for the study. The participants were selected in four stages. At the first stage, a stratified sampling technique was used to select the schools based on Local Government Area from Dutsinma ZEQA. At the second stage, purposive sampling technique was used to select ten (10) Senior Secondary Schools on the bases of gender, which comprises of five (5) from each LGA. At the third stage, proportionate sampling technique was used to find the number of percentages to the given population of students from each school. At the final stage, simple random sampling technique was used to select respondents for each selected schools. This technique was used because it was not possible to cover all because of the large number, location and other problems inherent in data collection.

Data was collected using two research instruments, the study used adapted questionnaire. These are Self-Esteem Questionnaires (SEQ) and Mathematics Performance Test (MPT) adapted from WAEC past questions. This study adapted the Likert four-point rating format of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) respectively for SEQ. Positive items would be scored simply as Strongly Agreed, Agreed, Disagreed, Strongly Disagreed with 4, 3, 2 and 1 respectively, while negative items were scored in reverse order as 1, 2, 3 and 4; while MPT was scored dichotomously for study

To ensure face and content validity of the instruments, the instruments were validated by three research experts from Department of Educational Psychology and Counselling, Faculty of Education, Federal University Dutsin-Ma, Katsina State. Test-re-test reliability of the instruments was done, using Cronbach Alpha, the correlation coefficients of the questionnaires were obtained: SEQ and MPT are 0.84 and 0.78 respectively. The research questions were answered using descriptive statistics frequency counts and percentage and inferential statistics; person product moment correlation (PPMC) and t-test were used to analysis hypotheses

**Results**

**Answering of Research Questions**

**Research Question One:** What is the level of self-esteem among secondary school students in Dutsin-Ma Zonal Education Quality Assurance in Katsina State?

**Table 1: Level of Self-Esteem among Secondary School Students**

Variable	Level	Frequency	Percentage	Decision
Self-Esteem	High	242	69	High
	Low	109	31	
	Total	351	100	

The analysis in Table 1 revealed that out of 351 respondents, 242(69%) had high level of self-esteem while 109(31%) had low level of self-esteem. This implies that there was a high level of self-esteem among secondary school students in Katsina State.

**Research Question Two:** What is the level of academic performance among secondary school students in Dutsin-Ma Zonal Education Quality Assurance in Katsina State?

**Table 2: Level of Academic Performance among Secondary School Students**

Variable	Level	Frequency	Percentage	Decision
Academic Performance	High	104	30	Low
	Low	247	70	
	<b>Total</b>	<b>351</b>	<b>100</b>	

The analysis in Table 2 revealed that out of 351 respondents, 104(30%) are experiencing high level of academic performance while 247(70%) are experiencing low level of academic performance. This implies that there was a low level of academic performance among secondary school students in Dutsin-Ma Zonal Education Quality Assurance in Katsina State.

**Testing of Hypotheses**

**Hypothesis One:** There is no significant relationship between Self-esteem and Academic performance in Mathematics among secondary students in Dutsin-Ma Zonal Education Quality Assurance in Katsina State.

**Table 3: r-value of Self-esteem and Academic performance**

Variable	N	Mean	SD	Df	r-value	p-value	Decision
Self-esteem	351	54.73	12.82	349	.512*	.032	Rejected
Academic Performance	351	17.25	8.25				

\*Significant at 0.05 level (2-tailed)

Table 3 indicated the relationship between self-esteem and academic performance in mathematics among secondary students in Dutsin-Ma Zonal Education Quality Assurance in Katsina State, the finding revealed that the r-value is .512 and the p-value .032 which is less than .05 level of significance. The above stated null hypothesis is rejected. It implies that, there is significant relationship between self-esteem and academic performance in mathematics among secondary students in Dutsin-Ma Zonal Education Quality Assurance in Katsina State.

**Hypothesis Two:** There is no significant difference in the self-esteem of secondary school students based on gender in Dutsin-Ma Zonal Education Quality Assurance in Katsina State,

**Table 4: t-test Analysis on Self-esteem of Students based on Gender**

Variables	Gender	N	Mean	SD	df	Std Error	t <sub>tal</sub>	P-value	Remarks
Self-esteem	Male	160	53.49	7.314	349	0.79	4.04	0.001	Reject Ho
	Female	191	56.71	7.531					

The results in Table 4 showed that the calculated t-value of 4.04 was greater than the critical t-value of 1.97 when tested at 0.05 level of significance with 349 degree of freedom. This shows that the result is significant. Therefore, the null hypothesis which states that there is no significant difference on Self-esteem of students based on gender is thereby rejected. This implies that, there was significant difference in the self-esteem of secondary school students based on gender in Dutsin-Ma Zonal Education Quality Assurance in Katsina State.

**Hypothesis Three:** There is no significant difference in academic performance in mathematics of secondary school students based on gender in Dutsin-Ma Zonal Education Quality Assurance in Katsina State

**Table 5: t-test Analysis on Mathematics Academic Performance of Students based on Gender**

Variables	Gender	N	Mean	SD	df	Std Error	t <sub>tal</sub>	P-value	Remarks
Academic Performance	Male	160	50.23	8.43	349	0.85	3.51	0.001	Reject Ho
	Female	191	48.52	7.31					

The results in Table 5 showed that the calculated t-value of 3.51 was less than the critical t-value of 1.96 when tested at 0.05 level of significance with 349 degree of freedom. This shows that the result is significant. Therefore, the null hypothesis which states that there is no significant difference on academic performance of students based on gender is thereby rejected. There was significant difference in academic performance in mathematics of secondary school students based on gender in Dutsin-Ma Zonal Education Quality Assurance in Katsina State,

**Discussion of the Findings**

Based on the research questions and hypotheses, the findings from the analysis of the data were discussed below:

The result of research question one states revealed that there was a high level of self-esteem among secondary school students in Dutsin-Ma Zonal Education Quality Assurance in Katsina State. The finding of this study is in support with Anyanwu and Emesi (2020) who study revealed that students’ high self-esteem recorded a medium positive relationship with students’ academic performance. In addition, the findings of findings this study is corroborate with the findings of Bada, et al (2021) who study revealed that there was a high level self-esteem based on gender among senior secondary school students. In the study Fakolade and Oloruntoba, (2017) who study revealed that self-esteem were high among learners with high ability learning outcomes.

The result of research question two revealed that there was a high level of self-esteem among secondary school students in Katsina State. The finding of this study is in support with the findings of Kpolovie, Joe, and Okoto (2014) asserted that student’s academic performance is averagely determined from the outcome of the test. In contrary, the finding of this study is in disagree with the findings of Meenu (2016) who study revealed that, the student’s level of interest in a subject influence their academic performance is high. Similarly, Uok and Langat (2015) who study found that, students had positive attitudes towards Mathematics.

The result of hypothesis one showed that, there is significant relationship between self-esteem and academic performance in mathematics among secondary students in Dutsin-Ma Zonal Education Quality Assurance in Katsina State. The finding is in line with the finding of Bada, et al (2021) who study revealed that, there is significant difference in self-esteem and academic achievement between Basic science and Mathematics. The finding is in line with the finding of Stephen and Hesborn (2017) who study showed that, the students who learnt in county boarding schools did not differ significantly in self-esteem from those who learnt in Sub-County day schools. The finding is in line with the finding of Muhammad, Syed and Khalid (2015) who study revealed that there was a significant relationship between self-esteem and academic performance.

The result of hypothesis two revealed that, there is significant difference in the Self-esteem of secondary school students based on gender in Dutsin-Ma Zonal Education Quality Assurance in Katsina State. The finding is in line with the finding of Bada, et al (2021) who study revealed that, there is significant difference in self-esteem based on gender among the students. The finding is similar with the finding of Anyanwu and Emesi (2020) who study revealed that students’ academic self-esteem recorded a very low significant difference between male and female students. The finding is in line

with the finding of Muhammad, et al (2015) who study revealed that, there was significant difference between male and female students on self-esteem scores, which indicate that male students have high scores on self-esteem as compared to female students.

The result of hypothesis three indicated that, there is significant difference in academic performance of secondary school students based on gender in Dutsin-Ma Zonal Education Quality Assurance in Katsina State. The finding is in line with the finding of Bada, et al (2021) who study revealed that, there is significant difference in academic performance based on gender in Basic science and Mathematics among the students. The finding is similar with the finding of Anyanwu and Emesi (2020) who revealed that students' academic performance revealed a significant difference between male and female students. The finding is in line with the finding of Muhammad, et al (2015) who study revealed that, there was significant difference between male and female students on academic performance scores, which indicate that female students have high scores on academic performance as compared to male students.

### **Conclusion**

In conclusion, this study has obviously shown that there is correlation between self-esteem and Mathematics academic performance among senior secondary schools in Dutsin-Ma Zonal Education Quality Assurance, Katsina State. The study revealed that there was a high level of self-esteem among secondary school students in Dutsin-Ma Zonal Education Quality Assurance, Katsina State and there was a low level of Mathematics academic performance among secondary school students in Katsina State. Also there is significant difference based on gender in Mathematics academic performance among secondary school students in Dutsin-Ma Zonal Education Quality Assurance, Katsina State.

### **Recommendations**

The following recommendations were made for the study:

1. Mathematics teachers should encourage students to develop high positive self-esteem by making them believe in their abilities to succeed.
2. Parents should encourage students to perform better and get them to be more exposed to strong love and counselling that will build their high positive self-esteem.
3. Teachers should give both sexes (male and female students) equal opportunities to work independently and improve themselves toward a particular task and avoid giving preference to one sex over another which could affect their self-worth in learning of Mathematics.

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