

Influence of Shyness on Mathematics Achievement: Evidence from Senior Schools in North Central Nigeria

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Abstract

In this study, the influence of shyness on mathematics achievement: evidence from senior schools in North Central Nigeria was investigated. The study employed the correlation research design. One research question and one formulated hypothesis guided the study. Two research instruments namely, Social Withdrawal Scale (SWS) and Mathematics Achievement Test (MAT) were used to collect data for this study. These were administered to 1200 students drawn from 54 schools across North-Central Nigerian States of Benue, Plateau and Kogi. The research questions were answered using Pearson product moment correlation on the basis of the values of the coefficient of correlation, r where a correlation coefficient value below 0.50 was considered low and those above 0.50 was considered high. To test the formulated hypothesis, the 0.05 significance level was used by comparing the p-value (probability values) of Pearson's product moment correlation obtained from SPSS application with the significance level at 0.05. Results of the study reveal that there is a significant relationship between shyness and Mathematics achievement among in-school adolescents in North Central Nigeria. This implied that there is urgent need to nurture shy students to increase academic achievement. Based on these results, it was recommended that parents and schools should collaborate in the effort of monitoring the emotions of learners with symptoms of social withdrawal (shyness) and mathematics achievement among in-school adolescents so that they can be properly guided towards improving their academic achievement.

Keywords: Shyness, Mathematics, Achievement, Senior school, Students.

Introduction

Education remains the backbone of any societal development. It is the fabric that enables people to express themselves and the lack of this expression often, portrays some traits that depict flaws in the whole educational process. It is well known that certain sociological factors such as isolation and shyness have enormous impact in the academic achievement of students (Eduwem, Umoinyang and Otu, 2013).

Shyness is defined as an affective-behavioural syndrome characterised by social anxiety and interpersonal inhibition which results from the prospect or present of others of interpersonal evaluation

(Oguzie, et al., 2019). Shyness is the tendency to feel awkward, worried or tense during social encounters, especially with unfamiliar people. People who are severally shy may have symptoms like withdrawing from social interactions, feeling worried about how people think about them and how physically symptoms like blushing, sweating and a pounding heart or an upset stomach (Kanzah et al., 2018). Shyness can also be understood in terms of its characteristic symptoms and how they impact one's performance. Kanzah et al. (2018) opined that the behavioural component of shyness refers to a pattern of behaviour including withdrawal, avoidance, and fear of unfamiliar situations during social interactions. Hence, as compared to less shy individuals, shy people are generally identified as talking less, making less eye contact and sitting further away from others.

Students' persistence poor academic performance in Mathematics has been characterized by different psychological variables such as mental health, personality, emotional imbalance, home and environmental factors, socio-economic crisis, self-esteem and sociological factors such as isolation, shyness and phobia (Eduwem, Umoinyang and Otu, 2013). Many students get frightened when asked to do mathematics work or undertake courses related to mathematics or involving mathematics (Chukwu, 2018; Dagaylo et al., 2016; Eze, 2020; Gradwohl and Eichler, 2018).

Studies have shown that the consequences of shyness among students are enormous. For instance, Oguzie, et al. (2019) indicated that shyness leads to decreased levels of happiness, lower academic performance, lowered self-esteem and negative self concept and social and emotional maladjustment. Furthermore, Oguzie, et al., (2019) investigated the effect of self-management technique on shyness among Secondary School Students in Aboh Mbaize Local Government Area of Imo State. The results equally showed that self management technique was more effective in reducing shyness among the female participants than that of their male counterparts. However, it was found that the gender difference in the effectiveness of self management technique in reducing the participants' shyness was not significant. Similarly, Kanzah, et al., (2018) examined the relationship between shyness and academic achievement among adolescents. It was assumed that there would be a significant relationship between shyness and academic achievement in adolescents. The results indicated that there is a significant negative relationship between shyness and academic achievement. In view of these observations, influence of shyness on mathematics achievement: evidence from senior schools in north central Nigeria is investigated.

Research Questions

The study is guided by the following research question:

1. What is the relationship between shyness and Mathematics achievement of senior secondary school students in North Central, Nigeria?

Research Hypotheses

The following research hypothesis was formulated to guide the study:

1. There is no significant relationship between shyness and Mathematics achievement of senior secondary school students in North Central, Nigeria.

Research Method

In this study, the correlation research design was adopted. Correlation research is concerned about the relationship or association between two or more variables. The main emphasis in a correlational study is to discover or establish the existence of a relationship/association between two or more aspects of a situation/variables. Two research instruments titled Social Withdrawal Scale (SWS) and Mathematics Achievement Test (MAT) were used to collect data for this study. These were administered to 1200 students drawn from 54 schools across North-Central States of Nigeria, namely Benue, Plateau and Kogi using simple random sampling technique of open balloting. The research question was answered using Pearson product moment correlation on the basis of the values of r (coefficient of correlation) where a correlation coefficient value below 0.50 was considered low and those above 0.50 was considered high. Additionally, the 0.05 significance level was used to test the hypothesis by comparing the p -value (probability values) of Pearson's product moment correlation obtained from SPSS application with the significance level at 0.05. Hypothesis with p -value less than 0.05 was rejected while for those greater than 0.05 was accepted.

Results and Discussion

Research Questions: What is the relationship between shyness and Mathematics achievement of senior secondary school students in North Central Nigeria?

Table 1. Correlation between Shyness and Mathematics Achievement of Senior Secondary School Students in North Central zone, Nigeria.

Variables	N	$\bar{X}$	Std.D	Df	r	Remark
Shyness	1200	23.06	4.421	1,199	.585	Moderate
Mathematics Achievement	1200	51.57	5.240			Correlation

Table 1 shows the correlation between shyness and mathematics achievement of senior secondary school students in North Central zone, Nigeria. The result revealed a moderate positive correlation value ($r = .585$) between shyness and students' academic achievement. This implies that there is a moderate correlation between shyness and mathematics achievement of senior secondary school students in North Central Nigeria.

Testing of the Hypothesis:

The formulated hypothesis was tested at 0.05 level of significance.

Hypothesis: There is no significant relationship between shyness and Mathematics achievement of senior secondary school students in North Central Nigeria.

Table 2. Correlation between Depression and Mathematics Achievement of Public Senior Secondary School Students in North Central, Nigeria.

Variables	N	$\bar{X}$	Std D.	df	r	r^2	P-value	Decision
Shyness*	1200	23.06	4.421	1119	.585	.342	.016	Reject
Mathematics Achievement	1200	51.57	5.240					HO ₄

Level of significance Alpha (α) < 0.05 shows significant relationship

Table 2 revealed that there is a significant relationship between shyness and mathematics achievement of senior secondary school students in North Central, Nigeria. The result is given as N = 1200, r = .585, (p-value = .016), while the coefficient of determination (r^2) = .342, which indicates that only 34.2% of shyness is accounted for, while 65.8% of the variation between shyness and mathematics achievement is not accounted in the study. The formulated hypothesis was therefore rejected since the p-value is less than .05.

Discussion of Results

Findings from the study on the formulated hypothesis revealed a significant negative relationship between shyness and Mathematics achievement of senior secondary school students in North Central Nigeria. Findings of this study is in agreement with the study by Oguzie, et al., (2019) which indicated that self-management technique was significantly effective in reducing shyness among the participants. The results equally showed that self-management technique was more effective in reducing shyness among the female participants than that of their male counterparts. Study by Kanzah, et al., (2018) indicated that there is a significant negative relationship between shyness and academic achievement. Kabiru et al. (2021) findings uncovered that an insignificant relationship exists between shyness disorder and the academic achievement of the participants, hence it is concluded that shyness does not affects academic achievement whether negatively or positively. The implication of the current study highlights the needs for nurturing shy students to increase academic achievement.

Conclusion

The study concludes that there is a significant relationship between shyness and Mathematics achievement among in-school adolescents in North Central Nigeria. Findings further reveal the urgent need to nurture shy students to avert the negative impact of shyness to their academic achievement. Based on these results, it was therefore recommended among others that stakeholders such as school principals, teachers, parents, professional counsellors and psychologists should give more attention to students with withdrawn

behaviour so as to recognize the signs of shyness early before it interferes with the students daily functioning which could also indirectly impact on achievement of students. Furthermore, parents and the school should collaborate in the effort of monitoring the emotions of learners with symptoms of social withdrawal (isolation, shyness & social phobia) and mathematics achievement among in-school adolescents so that they can be properly guided towards improving their academic achievement.

References

- Chukwu, A. B. (2018) - Examined the association between peer isolation and mathematics achievement among secondary school students in public schools in Enugu State, Nigeria.
- Dagaylo, M. B. AN & Tancinco, N. P., (2016). Mathematics Anxiety and the Academic Performance of the Freshmen College Students of the Naval State University. *International Journal of Engineering Sciences & Research Technology (IJESRT)*. [http:// www.ijesrt.com](http://www.ijesrt.com) 5(7): July, 2016; pp 1125 - 1136.
- Eduwem, J.D., Umoinyang, I.E. & Otu, B.D. (2017). Psychological factors and secondary schools students academic performance in mathematics. *Journal of Research and Method in Education*, 7(2), 06–13.
- Eze, E. F. (2020) - Explored the relationship between psychological isolation and mathematics achievement among senior secondary school students in public schools in Anambra State, Nigeria.
- Gradwohl, J.; Eichler, A. (2018). Predictors of Performance in Engineering Mathematics; INDRUM Network; University of Agder: Kristiansand, Norway, 2018.
- Kabiru, M., Inuwa, M., & Umar, B. U., (2021). Relationship between Shyness Disorder and Academic Achievement of NCE Students of Jigawa State College of Education and Legal Studies, Ringim. *Kano Journal of Educational Psychology (KaJEP)*; 3 (1), 76-81; June, 2021
- Kanzah, C., Faiza, A., & Tahira, Y., (2018). Relationship between Shyness and Academic Achievement among Adolescents in Karachi. *Bahria Journal of Professional Psychology*, January 2018, Vol. 17, No. 1, 83-98
- Oguzie, A. E., Obi, J.S.C., & Nnadi, G.C., (2019). Effect of Self-Management Technique on Shyness among Secondary School Students in Imo State, Nigeria. *International Journal of Education and Research* Vol. 7 (5); 241-252 May 2019

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