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INTEREST AS PREDICTOR OF NIGERIAN POLYTECHNIC STUDENTS' PERFORMANCE IN MATHEMATICS

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ABSTRACT

The study investigated interest as predictor of Nigerian polytechnic students' performance in Mathematics. Correlational survey research design was adopted. Population was 462 National Diploma one students offering basic mathematics course. Sample of 211 students who completed the questionnaire was obtained using Krejcie and Morgan table. Instrument for data collection was Students Interest in Mathematics Questionnaire (SIMQ). Validity of the SIMQ was ascertained by experts in Mathematics Education. Reliability coefficient of 0.76 was obtained for SIMQ using Cronbach's alpha. Finding revealed a significant positive relationship between interest and students' performance in mathematics. Adjusted R Square 0.79 indicated interest contributes about 79% to students' performance in mathematics. Additional result of the study indicates interest at t-value of 21.7 at p, 0.000 significantly predicts students' performance in mathematics. The study recommends school authorities to devising means of boosting students interest considering it positive influence on academic performance in mathematics.

Keywords: Students, Interest, Mathematics and Performance

Introduction

Nigerian polytechnic system is designed for the training of technical man power that could advance technology with mathematic serving as a major ingredient in achieving technological breakthrough, making it a compulsory subject at all level of education. In spites of this importance accorded to mathematics there has being public outcry among educators and parents on the continous students poor performance in mathematics driven by the recognition of mathematics to technological fundamentals.

Recently attention have been focused in identifying variables influencing students' poor performance in mathematics (Shahjahan *et al*., 2021). Studies such as (Shoaib & Saeed, 2016; Mazana *et al*., 2020); (Mazana *et al.*, 2019) and Summer (2020) have attributed students lack of interest, negative attitudes and anxiety as major causes of student performance in mathematics. Yeh *et al*., (2019) linked abstract nature of mathematics to students disinterest in mathematics. Azmider *et al*, (2017) advocated use of concrete pictorial approach arouse students interest in mathematics. Interest as a psychological variable exerts significant influence on students performance in mathematics (Renninger & Hidi, 2011; Sauer, 2012; Ahmed, 2016). Students who exhibit interest in mathematics often report higher competencies towards learning mathematics (Marsh *et al.*, 2005).

Toli and Kallery (2021) highlight attention, effort and experience as key characteristics associated with students interest. Fisher *et al*. (2012) further asserted that interest serves is a catalyst for successful learning and performance in mathematics. Kihwale and Mkomwa (2020)

stated that interest is a functional attitudinal variable in predicting students academic performance in mathematics. Boniface (2018) found that lack of interest discouraged most students from engaging in learning mathematics. Students who demonstrated interest in mathematics exhibit a discernment in decision to pursue further studies in mathematics (Renninger & Hidi, 2016; Azmidar et al., 2017). Interest is predictive of both motivation and engagement when students developed interest in subject they are motivated to learn and acquire knowledge more coherently (Schiefele, 1996).

Research Questions

i). what is the relationship between interest and students performance in mathematics?
ii). To what extent does interest predicts students performance in mathematics?

Hypotheses

H_{01}: There is no significant relationship between interest and students performance in mathematics.
H_{02}: interest does not significantly predict students performance in mathematics.

Literature Review

Theory of interest described learning as a unified activity and phenomenon that emerges from interaction with the environment (Hidi & Renninger, 2006). Construct of interest places emphasis on attributes such as emotion, perceive value, knowledge and engagement (Renninger & Hidi, 2011). Interest in the context of emerging empirical research promotes development of new psychological construct such as curiosity and intrinsic motivation (Hunt, 1965). Curiosity is an intrinsic motivation fosters active learning and it is categorized as diversive and specific curiosity. Diversive curiosity is one ability to take risks while specific curiosity is tendency to investigates specific object in order to understand it. Intrinsic motivation is the engagement of human behaviour to strive towards doing things they find interesting.

Muller and Louw (2004) stated that intrinsic motivation is associated with curiosity while extrinsic motivation is the willingness to attained end state. Students who are allow to choose their choice course of study are more committed to learning (Hidi & Harackiewicz, 2000). Motivation is the most important attribute of interest associated with the willingness to acquire knowledge (Schiefele, 2009). Interest as a stable disposition is activated in situation that triggers action (Hidi & Harackiewicz, 2000). Hidi and Renninger (2006) highlighted factors associated with development of interest to include emotion, knowledge and personal value. Interest influences students learning and performance in mathematics (Mohamed & Aron, 2017).

Interest and Students Performance in Mathematics

Disha (2016) described interest as condition stimuli express as like or dislike of activities and see's as a powerful tool for students understanding. Tembe, *et al.,* (2020) investigated students' interest as correlate of achievement in mathematics the study found a significant positive relationship between students' interest and performance in mathematics. Oguche and Usman (2019) in their study examined the effect of improvise instructional materials on students' performance and interest in longitude and latitude finding revealed the use of improvise instructional materials improves students' performance and interest in longitude and latitude.

Wong and Wong (2019) investigated relationship between interest and students' performance in mathematics in a technology enhanced learning context found interest as significant correlate of performance in mathematics.

Nnachi, *et al.*, (2019) examined the effect of algebraic process board game on students' interest and performance in algebra the study found algebraic process board game improves students' interest and performance in algebra. Allahnana, *et al.*, (2018) conducted a study on assessment of gender and interest on mathematics achievement found no significant relationship between interest and students' performance in mathematics. Iji, *et al.*, (2018) examined the effect of geometers sketch approach on students' performance and interest in geometry the study found students taught geometry using geometers sketch performance better and shows more interest in geometry. Mohamed and Aron (2017) investigated students' interest and academic performance in mathematics the study found a significant positive effects of interest on students' performance in mathematics. Anigbo (2016) investigated factors predicting students' interest in mathematics his finding revealed interest significantly predicts students' performance in mathematics. Although studies were conducted on interest and students' academic performance however not much is known of interest as predictor of Nigeria polytechnic students' performance in mathematics.

Methods

Correlational survey research design was adopted in the study which measures the relationship between two or more quantitative variables without the researcher controlling the variables (Creswell, 2012). Population consist of 462 National Diploma one ND I students offering first semester Basic mathematics course. Sample of 211 students who completed the questionnaire was obtained using the Krejcie and Morgan table. Instrument for data collection was a 5-points Likert scale Students Interest in Mathematics Questionnaire (SIMQ) while students performance was determined from scores in basic mathematics course pro forma. Validity of the SIMQ was ascertained by experts in Mathematics Education. Reliability coefficient of 0.76 was obtained using Cronbach's alpha. Data collected were analysed using Pearson correlation and multiple regression at 0.05 significant level.

Results

H_{01}: There is no significant relationship between interest and students performance in mathematics.

Table 1: Correlational Matrix on Relationship between Interest and Students' Performance in Mathematics

		Interest	Students Performance in Mathematics
Interest	Pearson Correlation	1	.753**
	Sig. (2-tailed)		.000
	N	211	211
Students Performance in Mathematics		.	1

**. Correlation is significant at 0.05

Table 1 gives the r value of 0.75 significant at p, 0.000 < 0.05 indicating there is a significant relationship between interest and students' performance in mathematics meaning the more students shows interest in mathematics the higher their academic performance.

H_{02}: interest does not significantly predict students' performance in mathematic

Table 2: Regression Model on Interest and Students Performance in Mathematics

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.733[a]	.694	.793	.75457	.694	374.234	1	209	.000

a. Predictors: (Constant), Students Interest

Table 2 gives adjusted R Square as 0.79 indicating interest contributes about 79% to students performance in mathematics.

Table 3: Coefficient Beta on Interest and Students Performance in Mathematics

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.246	.107		2.295	.023
	Students Interest	.077	.004	.833	21.777	.000

a. Dependent Variable: Performance in Mathematics

- Significant at 0.05

Table 3 gives t-value 21.7 significant at p, 0.000< 0.05 indicating interest is a significant predictor of performance in mathematics.

Discussion

Significant positive relationship was found between interest and students performance in mathematics this agrees with Wong and Wong (2019) who reported significant relationship between interest and students performance in mathematics. Allahnana, *et al.,* (2018) who reported no significant relationship between interest and students' performance in mathematics however disagree with this study. Interest is a significant predictor of students' performance in mathematics this was in line with Anigbo (2016) who found interest as significant predictor of students' performance in mathematics.

Conclusion

In conclusion interest is a major determinant of performance in mathematics, students who shows interest in mathematics put in more efforts in learning. However, Lack of interest is a factor preventing students from learning mathematics. Students interest is a significant factor influencing performance in mathematics.

Recommendations

Based on findings the study recommends school authorities to devising means of boosting students interest in mathematics considering it positive influence on academic performance.

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