Performance of Sokoto State Junior Secondary School Students III in Basic Education Certificate Examination (BECE) in Mathematics from 2007-2017.

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Abstract

This study examined the Performance of Sokoto State Junior Secondary School Students III in Basic Education Certificate Examination (BECE) in Mathematics from 2007-2017. The design was Ex-po factor design. All Sokoto State Junior Secondary Schools JSS III students in the 2007-2017 academic session with fifty one thousand and twenty four students (51,024); with twenty thousand two hundred and fifty nine (20,259) boys and thirty thousand seven hundred and sixty five (30,765) girls formed the target population of the study. The study examines the Poor Performance of Sokoto State Junior Secondary School Students III in Basic Education Certificate Examination in Mathematics from 2007-2017. This study was guided by one objective. The findings of this study indicated that in the following years there were poor performance of students in mathematics, these include 2007, 2008, 2009, 2012 and 2013 respectively. and in the years 2014, 2015, 2016, and 2017 students' performance was improved compeer to the previous years. Based on the findings of the study the researcher recommends that 1. Government should recruit qualify teachers to teach mathematics 2. Government should provide conducive learning environment for the teaching of mathematics 3. Proper supervision and constant monitoring should be put in place to insure proper deliberation.

Introduction

Mathematics is the common knowledge that is required in taking admission for engineering, technical, social sciences and even musical education. Mathematical knowledge plays a crucial role in understanding the contents of other school subjects such as science, social studies and even music and art (Jameel, and Ali, 2016). Mathematics serves almost in all fields of science and technology (Sarma and Ahmed, 2013).
According to Jameel and Ali (2016) it is common belief of educationists that no one can make progress in any field until having the basic knowledge of mathematics. Mathematics plays its vital role in all the multi disciplines of societal development and can be called as 'the queen of science' the main driving force behind all scientific discoveries. The universe can't be read until we become familiar with the characters in which it is written and surely

it is written in mathematical language, and the letters are triangles, circles and other geometrical figures, without which means it is humbly impossible to comprehend even a single word. Mathematics explores new patterns of facts by its reasoning and logics. It is the foundation of science and technology and no enterprise can escape the mathematical applications. High level of achievement in mathematics enables the complex democratic states to be done critical technological functioning properly (Jameel, and Ali 2016).

Mathematics is considered as part and parcel of human thought and logic, and integral to attempts at understanding the world and ourselves. Researchers know that mathematical knowledge is fundamental, but alas, it is poorly taught in elementary schools and ultimately mathematical performance remains down to mark leading towards lower ability of individuals in accordance with their actual abilities (DeCaro, Rotar, Kendra, 2010). Students, particularly girls run away from mathematics. This difficulty reaches at its peak when it is taught by un-qualified, non-professional and absence of qualify Mathematics female teachers in the teaching and learning of Mathematics (Jameel, and Ali 2016; & Isah 2021). Attractive and impressive are not used to teach mathematics and ultimately its results are shown in the failure of students. Several factors such as learner's interest, lack of qualified teachers, improper curricula and school environment are responsible for the poor achievement in the mathematics by the students. This is buttress with the assertion of Isah (2021) that some of the factors attributed to poor performance of students in mathematics in Sokoto State include: Poor method of teaching, lack of interest, poor motivation, un qualify teachers among others. According to Grouws and Cebulla (2000) Teaching mathematics is a complex matter while lack of student's interest on the other hand probably overwhelms the abilities of adults and ultimately causes as one of the most important factors for poor performance in mathematics.

By developing and raising level of student's interest and involvement means how much time, energy and effort they devote towards achieving high goals in mathematics as learning process is fast and instinctual on one hand while on the other hand the belief that supports the idea based on working without strategy and planning for the sake of improving mathematical abstract and logical fundamental concepts works efficiently in most situations (Aikins, Duel and Hutter, 2005).

Parents and government both agree that the investment on education especially on adults is not giving desired output due to their lacks in understanding mathematical terms and its concepts along with deficiencies in representing and retrieving fundamental numerical facts and figures that ultimately hinder in the way of gaining improvement in mathematics by the perspective of adult students and acquiring high standards in mathematics by the perspective teachers and its country as well (Geary, 2011)

Low performance in mathematics may be dealt with special instructions and programs designed to meet the special or additional needs of individual's for developing essential mathematical skills (Chiesa and Robertson, 2010).Teachers of mathematics are also not satisfied with the performance, retention and attitude of students in the mathematics, particularly here in Sokoto State, due to the poor results students produced in the internal and external examinations. Low achievement in mathematics is a great matter of disappointment (Ramírez, 2006). Poor mathematical academic performance is also seen in secondary school students in. Failure in mathematics at elementary and secondary levels is really frustrating for all. Most of the students at all levels find mathematics as a difficult and boring subject and develop feelings of inferiority, hesitation and complex (Jameel, and Ali 2016).

They have outright fear when they confront mathematics. Such a situation directly hinders in the way of their learning progress as they actually do not actually learn the stuff meant of mathematics while motivational studying environment and level of interest play vital role in achieving high goals especially in mathematics. Student's learning environment and the way of stimulating them in accordance with their interests and tendencies will automatically lead them towards their performance based destination that will surely reduce the level of frustration amongst all (Aunola, Leskinen and Nurmi, 2016). The main reason for failure in mathematics is directly related to the development of curriculum and the ways teachers teach mathematics in the classes. Different teaching approaches, techniques, methods and ways can influence the outcomes in mathematics. The students who study through boarding schools perform better in mathematics than those students who study non boarding schools in spite of having adequate facilities with enough resources (Nyatanga and Ndudzo, 2015).

Study of Sa'ad and Adamu (2014) states that teachers who teach mathematics have no or little training in mathematics and the school managements either lack funding or do not spend their budgets wisely considering mathematical trainings for their mathematical teachers a matter of utmost importance and ultimately mathematical teachers neither come to know the underlying meanings behind mathematical terms nor teach them when their students confront with the mathematics. According to Jameel, and Ali, (2016) Mathematics is not taught by giving proper understanding of reasoning and logics to the students and it is because of shortage of mathematical equipment in the class rooms.

No wonder, Sa'ad, Adamu and (2014) assert that most of the mathematics teachers do not make the teaching of mathematics practical and exciting as they do not have competencies to teach mathematics dynamically which leads towards negative attitudes amongst pupils implying improper guidance by the teachers as well. This agrees with Isah (2021) who states that students in ability to have trained and competent mathematics teacher could lead to negative attitude toward learning the subject.

Parent's desire of seeing their children with prosper understanding and application of mathematical concepts does not come true because they directly put all the responsibility of teaching mathematics on the shoulders of teachers and they themselves do not make much of their efforts to develop and draw their kid's interests towards learning of mathematics either by using analogies or by magical activities thus kids automatically find mathematics as a daunting subject. This may significantly related to mathematical caricature from the parents and the society in general (Isah, 2021).

Study of Tshabalala and Ncube (2013) showed that Lack of fundamental mathematical conceptual based play materials, lack of basic guidelines, typical teaching methodologies, poor mathematical background sand excessive use of advanced computation systems lead student's down to mark achievement in mathematics. This is agrees with the study of Isah (2021) the results of the study indicated that there is still poor performance of students in mathematics in Sokoto State. This is some of the reasons enticed the researcher to investigate the poor performance of students in mathematics in Sokoto State.

Statement of Problems

Despite the relative importance of Mathematics in Science and information based courses, as well as in Medicine and Social Sciences, students' [attitude, retention and] performance in Mathematics in both internal and external examinations have remained consistently poor (Aburime, 2007; Isah, 2015; and Idowu, 2018). Most students cannot comprehend mathematics problems couple with students' negative attitude and low retention ability in learning the subject (Idowu, 2018). These cause tremendous consequences on the students understanding and performance. Thus, it has become necessary to search for a teaching method which is proficient of improving students' attitude level, retention and academic performance in mathematics.

Consequently, some researchers have tested the impact of STAD and Inquiry methods on students' attitude, retention and performance in mathematics in the different schools in Nigeria, specifically in Sokoto state, the researcher have not yet come across any study that have been done in this area. Hence, the researcher carried out this study to see whether there is poor performance of students in mathematics in Sokoto State. Percentages of students' performance for ten years have been calculated in this study, and the results indicated that yes there is still poor performance of students in mathematics in Sokoto State.

Hence there is the need to develop a strategy or approach that might enhance students' active participation, positive attitude, high retention ability and academic performance in mathematics at JSS levels. This is the problem that prompted the researcher to conduct this study

Objective of the study

The study sought to investigate the Performance of Junior Secondary School Students III in Mathematics in Sokoto State and thereby proffer solution to the problems.

Methodology of the study

The methodology of this study is ex-post facto research design. The population of this study include six educational zones in Sokoto State with one hundred and forty nine (149) junior secondary schools distributed among twenty three (23) local governments in the state in the year 2018/2019 academic session. The target population was all JSS III students with fifty one thousand twenty four (51,024) students. Twenty thousand two hundred and fifty nine (20,259) male and thirty thousand, seven hundred and sixty five (30,765) female. The average age of the population is 15 years. Only state public schools were considered, because of their uniformity of socio-economic background, and admission policy, staffing and availability of instructional materials. The following Table showed the population of the students in their respective educational zones during the period under study.

S/N	Educational Zones	Number of Public Schools	M	F	Total
1	A	22	2961	1065	4026
2	B	33	1858	8504	10362
3	C	27	3215	928	4143
4	D	18	4808	2907	7715
5	E	28	13798	5924	19722
6	F	21	4125	931	5056
Total		**149**	**20,259**	**30,765**	**51,024**

Sample and sampling procedure, all junior secondary schools in the year from 2007-2017 academic sessions were considered in this study. The researcher used all public junior secondary schools III (JSS III) Basic Education Certificate Examination (BECE) results in the 2018/2019 academic session. Procedure for data collection; the data was collected through Exams unit of Ministry of Education Sokoto State. All the marked scripts of JSS III in the years 2007-2017 academic sessions were collected and categorised in to A-C as credits, and D-F as pass. Data analysis, the data was analysed using descriptive statistics of frequency and percentage.

Results

Mathematics Performance of JSS III Students in Sokoto State 2007-2017

Summary of Sokoto State Junior Secondary School III Basic Education Certificate Examination (BECE) in Mathematics from 2007-2017

Years	Total	Credit Percentage (A1-C6)	Percentage with pass and bellow (%) (D7-F9)
2007	11486	28.443	71.556
2008	17030	16.483	83.517
2009	16367	34.270	67.221
2011	20812	54.233	45.967
2012	17957	34.372	53.312
2013	39118	23.301	76.699
2014	22335	48.368	52.160
2015	23731	50.846	49.154
2016	31145	66.768	33.232

2017	25219	77.212	22.788

Source: Monitoring and Evaluation Division of Sokoto State Education Resources Department (2018).

Based on the analysis on the Table 1.1, the researcher discovered that in 2007 out of 11, 486 students, 28.443% scored credits and 71.556 students scored pass. In the 2008 results the researcher found that out of 17 030 students, 16. 483 scored credits while 83.517 scored pass. In the year 2009, the researcher discovered that out of 16, 367 students 34. 270 scored credits and 67.221 scored pass. In the year 2011, out of 20 812 students 54.233 scored credits and 45.967 scored pass. In the year 2012, out of 7957 students, 34.372 students scored credits while 53. 312 students scored pass. In the year 2013, out of 39 118 students, 23.301 students got credits and 76.699 students scored pass. In the year 2014, out of 22 335 students, 48.368 students got credits while 52.160 scored pass. In the year 2015, out of 5731 students, 50.846 students got credits and 49.154 scored pass. In the year 2016, out of 31145 students, 66.768 students got credits and 33.232 got pass. In the year 2017, out of 25 219 students, 77.212 got credits and 22.788 got pass respectively.

Discussion of Results

Based on the analysis on the Table 1.1, the researcher discovered that at 2007 out of 11, 486 students, 28.443% scored credits and 71.556 students scored pass, this shows that students with pass out numbered the students with credits. This showed in the year 2007 there was poor performance of students in Mathematics in Sokoto Students; this is agrees with the findings of Aburime (2007). In the year 2008 results, the researcher found that out of 17 030 students, 16. 483 scored credits while 83.517 scored pass. The results showed that students with pass outnumbered students with credits this results support the earlier findings of Idowu (2018).

In the year 2009, the researcher discovered that out of 16, 367 students 34. 270 scored credits and 67.221 scored pass. This showed that students with pass were more than those with credits in mathematics, hence there is poor performance of students in mathematics in Sokoto State, this agrees with the results of Jameel, and Ali (2016). In the year 2011, out of 20 812 students 54.233 scored credits and 45.967 scored pass, this results agrees with the results of Isah, (2015), who found that there was no significant different among male and female students in terms of locations in terms of attitude and performance in Sokoto State.

In the year 2012, out of 7957 students, 34.372 students scored credits while 53. 312 students scored pass. This showed that students with credits were less than students with pass, this also indicated that in the year 2012 there was poor performance of students in mathematics in Sokoto State, this is agreed with the findings of Jameel, and Ali (2016). In the year 2013, out of 39 118 students, 23.301 students got credits and 76.699 students scored pass, this study buttressed the study of Isah (2015). In the year 2014, out of 22 335 students, 48.368 students got credits while 52.160 scored pass. In the year 2015, out of 5731 students, 50.846 students got credits and 49.154 scored pass. In the year 2016, out of 31145 students, 66.768 students got credits and 33.232 got pass. In the year 2017, out of 25 219 students, 77.212 got credits and 22.788 got pass respectively. These studies concretised the earlier study of Jameel, and Ali (2016) and Isah (2021).

Summary of the Study

The study examines the Performance of Sokoto State Junior Secondary School Students III in Basic Education Certificate Examination (BECE) in Mathematics from 2007-2017. This study was guided by one objective.

Conclusion

The findings of this study indicated that in the following years there were poor performance of students in mathematics, these include 2007, 2008, 2009, 2012 and 2013 respectively. and in the years 2014, 2015, 2016, and 2017 students' performance was improved compeer to the previous years. During the process of this study, the researcher noticed that some of the problems attributed to the poor performance of students in mathematics include students in ability to answer more questions in the examinations, and the researcher relent this to the teachers in ability to cover the course contents completely, there by preclude students to have more opportunities to choose and answer different questions in the examinations.

Recommendations

Based on the findings of this study, the following points are recommended

1. Government should recruit qualify teachers to teach mathematics
2. Government should provide conducive learning environment for the teaching of mathematics

3. Proper supervision and constant monitoring should be put in place to insure proper deliberation.

References

Aikins, M. S., Duel, O. K. and Hutter, R. (2005) Epistemological Beliefs, Mathematical Problem-Solving Beliefs, and Academic Performance of Middle School Students,The Elementary School Journal, vol. 105, pp. 289-304.

Aunola, K., Leskinen, E. and Nurmi, J.-E. (2006) "Developmental dynamics between mathematical performance.Psychology, pp. 21-40, 2006.

Chiesa, M. and Robertson, A. (2010) Precision teaching and fluency training: Making maths easier for pupils and teachers, Educational Psychology in Practice: Theory, Research and Practice in Educational Psychology,vol. 16, pp. 297-310.

DeCaro, M. S., Rotar, K. E., Kendra, M. S., and Beilock, S. L. (2010). Diagnosing and alleviating the impact of performance pressure on mathematical problem solving, The Quarterly Journal of Experimental Psychology, vol. 63, pp. 1619-1630.

Geary, D. C. (2011) Consequences, characteristics, and causes of mathematical learning disabilities and persistent low achievement in mathematics, Journal of developmental and behavioral pediatrics: JDBP, vol. 32, pp. 250.

Grouws, D. A. and Cebulla, K. J. (2000). Improving Student Achievement in Mathematics. Educational Practices Series 4.

Idowu, O. O. (2018). An investigation of Mathematics Performance of higher School Students in Lagos State. Nigeria. Urban education Research and Policy annual. Vol. 4(1). Retrieved on 28/10/2021 from Google. Com.

Isah, A. (2015). *Impact of Cooperative Learning Strategy On students' Academic Performance and Retention among Junior Secondary schools Students of Sokoto State Nigeria.* (Unpublished Masters Dissertation). Submitted to the Science Education Department. Faculty of Education. Ahmadu University Zaria.

Isah, A. (2021). Effect of Students Team Achievement Division (STAD) and Inquiry Methods on Attitude, Retention and Performance, In Geometry Among Junior Secondary School in Sokoto State Nigeria. Un published PhD Thesis. Faculty of Education Ahmad Bello University Zaria.

Sarma, M. and Ahmed, M. (2013). A study on the difficulty of teaching and learning mathematics in under graduate level with special reference to Guwahati City , International Journal of Soft Computing and Engineering (IJSCE), vol. 3.