

Survey on Causes of Students Mass Failure in Mathematics Senior School Certificate Examination in Yobe State, Nigeria

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Abstract

The research examined the mass failure of student in SSCE mathematics as viewed by students and teachers in yobe state based on four factors namely; government cause, student cause, teachers cause and parental cause. Radom sampling techniques were used to select 500 respondents from 20 publics secondary schools in which 400 students and 100 teachers are used for the purposed of these researched from all the three zone of the yobe state, Nigeria. Statistical package for social science was used to analyse the mean of the respondents. Finding of these research revealed that Government have immensely contribute to the cause of mass failure of Mathematics which include insufficient number of teachers and qualified teachers in mathematics, lack of teaching instructional materials and over use of old curriculum. finding also shows that student, teacher and parents contribute to the cause of mass failure of students in Mathematics. Finally, the study recommends that governments should provide adequate funding of schools and employed qualified teachers, Students should develop interest in learning of mathematics, teacher should adopt more practical and modern techniques in method of teaching and parent should monitor all academic activity of the students at home.

Keyword: *Mass failure, Mathematics, SSCE Examination.*

Introductions

This research work was on the survey on the causes of mass failure of students in SSCE examination in mathematics in some selected secondary schools in Yobe state as viewed by students and teachers.

Mathematics is the science of number and space and is the language of science and technology. It is an essential requirement by every field of intellectual endeavour and human development to cope with the challenges of life. It is also described as the queen and servant of all school subjects, since it cuts across the school curricula (Fajemidagba, 1986; and Akpan, 1987). Mathematics as a school subject affects all aspects of human life at different degrees. For instance, mathematics is relevant in economics, political science, geographical, scientific and technological aspects of man because it centred on the use of numbers which is an integral component of every aspect of knowledge. Other areas where the use of numbers is predominant include: statistics, accountancy, arithmetic, engineering, and so on. For example, the earliest civilization of mankind came through mathematical manipulations through the use of numbers. It became extremely disturbing to stakeholders since it is the key to the educational development.

The performance of students in Senior Secondary Schools examination in Nigeria has remained an issue of concern to all stakeholders. The report by Education Resource Centre's of the state (2020) on the survey of the performance of candidates in science subjects in the region over the years revealed a discernible decline. This perennial decline has remained a source of concern to science educators, mathematicians and mathematics educators. The trend of performance of students in mathematics for the past five consecutive years (2019 – 2022). was range

between 30% to 40%. This has strong implications for the study of science subjects at institutions of higher learning. It is assumed that Yobe state students would be able to demonstrate these skills in their SSCE but what was observed in the last five years shows there need for the stakeholder to do more on education especially in mathematics. Despite the slight improvement on the performance of student in mathematics SSCE in 2023 comparing their performance with other state still yobe state remained at the bottom line. Mathematics remain the key factor or is the backbone of the general knowledge of both science and humanity of which all the students from the grassroots to the tertiary institution need it.

Statement of Research Problem

The National Policy on Education 2004 revised edition stated that education given to children between the ages of 15 – 17 years is very important. It is also the level of education in which the future career of a child is determined. Educating young children will help them cope with sudden step up on the concepts they will have to learn in institutions of higher learning. The importance of location to a successful academic achievement cannot be overemphasized; where the school is located determines to a very large extent the patronage such a school will enjoy. Similarly, the entire unattractive physical structure of the school building could de-motivate learners to achieve academically. This is what Isangedighi (1998) refers to as learner's environment mismatch. According to him, this promotes poor academic performance. The means or strategies employed by teachers in an attempt to impact knowledge to the learners are referred to as methodology which is another factor that could influence the students' academic performance. Sometimes when a

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teacher teaches and at the end of the lesson, evaluation is carried out and it is discovered that students are unable to carry out the behavioral or instructional objectives, what the teacher needs to do is to examine his teaching methods rather than looking at students as the cause. Most untrained teachers point accusing fingers on students rather than on themselves when the students are unable to carry out the expected behavior at the end of the lesson or in examinations. Therefore, teachers planning should include: Choice of appropriate teaching material.

- I. Choice of appropriate teaching method
- II. Intensive research on the topic to be taught.
- III. Determination of the objectives for the lesson generally, peer group means a group of equals.

Research Questions

The following research questions were raised to guide the conduct of the study.

1. What are the views of teachers and students on the role of government as a cause for mass failure in SSCE Mathematics examinations?
2. What are the views of teachers and students on the role of students as a cause for mass failure in SSCE Mathematics examinations?
3. What are the views of teachers and students on the role of teachers as a cause for mass failure in SSCE Mathematics examinations?
4. What are the views of teachers and students on the role of parents as a cause for mass failure in SSCE Mathematics examinations?

Significance of The Study

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1. The finding of this study will enable the teacher focus on mathematics education at the senior secondary level
2. It will help parents in contributing to their children education because of the interest of parents in education influence in the learning process. Parental encouragements serve as a forum of reinforcement.
3. It will enable the government to provide basic tools for the educational advancement of child curriculum in order to determine the amount of teaching and learning that go on in school administration which takes between the teacher and the students.
4. It enables the government to provide adequate educational service such as libraries, laboratories etc. for the students.
5. It will also serve as a base for further advanced research in future.

Review of Related Literature

Mathematics seen as the language used to describe the problems arising in most branches of science, technology and humanity. Mathematics It is a subject that is related to other school subjects in areas like number and numeration, variation, graphs, fractions, logarithms and indices, algebraic processes, solution of equation and also in area and volume. Inspire of its importance, the performance of students in the subject has been a great concern to the society. Awokoya (1975) and Fafunwa (1980) revealed in their different research studies that everyone lives in a world where science and technology have become an integral part of the world culture, therefore for any nation to be relevant; it must not overlook the importance of mathematics in her educational system. Adebule (2004) submitted that there is a consensus of opinion about the fallen standard of education in

Nigeria. He further stated that parents and government are in total agreement that their huge investment on education is not yielding the desired dividend. Teachers also complain of students' low performance at both internal and external examinations (Ashiaka, 2010).

Aremu and Sokan (2003) submitted that the search for the causes of poor academic achievement in Mathematics is unending. Some of the factors identified by them are: motivational orientation, self-esteem/self-efficacy, emotional problems, study habits, teacher consultation and poor interpersonal relationships among students. The National Mathematical Centre, Abuja (NMC, 2009), in an attempt to revamp Mathematics teaching and learning at Secondary Schools, has successfully researched into the causes and remedies for the abysmal failure in WAEC, SSCE and JAMB Mathematics examinations. It has discovered that poor performance in the promotion/public examinations in Mathematics has more to do with the teachers' method of teaching than the content of curricular of the school Mathematics (NMC, 2009). It was this empirical background that necessitated and spurred the Center's Mathematics Improvement Programmed (MIP) project to create a new teaching methodology to enhance students' performance in Mathematics. Bolaji (2005) in a study on the influence of students' attitude towards Mathematics found that the teachers' method of teaching and his personality greatly accounted for the students' positive attitude towards Mathematics.

Similarly, Oluremi (2012), subscribe to the view that infrastructure which include save learning environment, lab etc. play a substantial role in the teaching and learning and their insufficiency. He concludes that proving basic school infrastructure should be part of plan to improve student's performances at all levels.

In the same vein, Njemanze (2012) highlights that one of the major determinants of learner

performance as poor teacher performance affects learners' performance'. Some additional problems identified are inconsistency on the part of government, the emergence of Nigerian English (NE), mother tongue interference, (Maduekwe 2017) poverty (Lacour & Tissington, 2011) imbalance in learner/teacher ratio, learner readiness/maturity, poor teacher/learner motivation, indiscipline among learners and teachers as well as examination malpractice (Njemanze, 2012). Kpolovie, Ololube and Ekwebelem (2017) carried out a research on the performance of secondary school students in WAEC and NECO from 2004 to 2006 and discovered that the students were not performing as expected. Shehu Lawan (2020) found out that implementation any curriculum depends on the teacher, conducive environment, and student's teacher ratio. Mzomwe yahaya(2020) highlights that most of the failure in mathematics include fear of mathematics and cultural background.

Methodology

Research Type

The study intended to adopt descriptive survey type using frequency count and simple arithmetic mean for the analysis.

Sampling Technique

The target population comprised of senior secondary two and three (SS2 & SS3) students and their teachers in public secondary schools in state. A total of 200 SS2 students and 200 SS3 students and 100 teachers are to be sampled from 20 senior secondary Schools by stratified sampling technique of 20 students and 5 teachers of each schools disrespectful of gender and field of study. The reason for selecting these variables was because the teacher and the students are the major stakeholders in teaching and learning processes.

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Research Instrument

The main instrument to be used for this study was a researchers-designed questionnaire on teachers and students' views on the causes of students' mass failure in senior secondary certificate (SSCE) in Mathematics examinations. The questionnaire contains two (2) sections; section A sought information on personal data of the respondents and section B contains seven (4) probable causes of mass failure in SSCE

mathematics examinations. Such include: students cause (5 items); parents' cause (5 items); Teachers' cause (5 items); Government and school preparatory cause (5 items); that require responses of alternative options from the respondents. The response scale is: Strongly Agree, Agree, Disagree and Strongly Disagree. In all, the questionnaire contains (-----) items seeking information about the causes of students' mass failure in SSC Mathematics examinations.

Data Analysis

1.Government Factors: TO what extent do the Government and the preparatory of schools contribute to the mass failure of student in mathematics SSCE examination

Table 1: **Response on the Government that contribute to the mass failure of student in mathematics**

S/N	ITEMS	SD	A	D	SD	MEA N	GRAND MEAN
1	There insufficient funding of schools or poor supervision	236	204	47	13	1.67	1.83
2	Most schools Lacks proper mathematics laboratory and Instructional materials	133	237	87	43	2.08	
3	Schools Lacks conducive environment for learning	113	253	90	44	2.13	
4	Most curriculum are not reviewed	250	140	33	77	1.87	
5	Frequent transfer of teachers	227	130	60	83	2.00	

From the table above it shows clearly that the grand mean is 1.83 in Table 1 above, and all the mean Responses were above 1.5 with the mean ranging from 1.67 to 2.13 its indicate that lacks of proper funding of schools, lack of instructional materials, poor school environment, over use of old curriculum and also instability of teacher in

most school all these factor result to mass failure of students in mathematics.

2.Student Factors: TO what extent do students contribute to the mass failure in mathematics examination.

Table 2: Response on Students that contribute to the mass failure of student in mathematics.

S/N	ITEMS	SA	A	D	SD	MEAN	GRAND MEAN
6	Students spend much of their time on social media or watching movies	250	120	27	103	1.97	1.81
7	Students fear of mathematics contribute to the poor performance.	207	196	40	57	1.89	
8	Students are involve in more theoretical work than the practical	203	137	80	80	1.89	
9	Lacks of interest on parts of the students result to poor performance	276	75	76	73	2.07	
10	Students have less attitude in solving assignment or class work in mathematics	247	156	77	20	1.74	

The table above shows that the grand mean is 1.81. All the mean Responses were above 1.5 these indicates that with the mean range from 1.74 to 2.07 its shows that most of the students spend most of their times on social media or watching movies, lack of interest, fear of mathematics,

student have less practical than theory and less attitude in solving mathematical problems result to mass failure of students in Mathematics.

3.Teachers Factors: TO what extent do the Teachers contribute to the mass failure of student in mathematics SSCE examination

Table 3: Response on Teachers that contribute to the mass failure of student in mathematics

S/N	ITEMS	SA	A	D	SD	MEAN	GRAND MEAN
11	Teacher have problems or difficult in preparation or lessons Presentation in mathematics	242	118	53	83	1.96	1.83
12	Inadequate of teachers in terms of number and quality	213	197	37	53	1.86	
13	Teachers have less interest teaching profession	253	107	140	-	1.77	
14	Teachers have difficulty in adaptation of teaching method use in any lesson	237	152	64	47	1.84	
15	Lacks of instructional materials or poor administering of class activity	98	242	77	83	2.29	

From the table above the grand mean is 1.83, all the means of the response falls within the range that is from 1.77 to 2.29. This shows that most of the teachers have problems or difficult in preparation or lessons Presentation, Inadequate of teachers in terms of numbers and quality, Teachers have less interest teaching profession, Teachers have difficulty in adaptation of teaching method use in any lesson and lacks of

instructional materials and poor administering of class activity. All These roles have positive impacts on the mass failure of mathematic examination.

Parental Factors: TO what extent do the Parents contribute to the mass failure of student in mathematics SSCE examination

Table 4: Response on parents that contribute to the mass failure of student in mathematics

S/N	ITEMS	SA	A	D	SD	MEAN	GRAND MEAN
16	Parents have less concern on necessary Mathematics learning materials for thier children	250	111	37	102	1.98	1.81
17	parents lacks proper monitoring of children notes books and assignment at home	214	147	77	62	1.97	
18	Parents have difficulty in assisting of their children in solving some of mathematics class work	234	81	74	111	2.12	
19	Parents engage their children in other activity at homes than school activities during holidays and after school hours	279	83	49	89	1.90	
20	Most parents lacks awareness and Interest on the role of mathematics	324	97	15	64	1.64	

From the table above the grand mean is 1.81, all the means of the response falls within the range that is from 1.64 to 2.12. This shows that Parents have less concern on necessary Mathematics learning materials for their children, parents lack proper monitoring of children notes books and assignment at home, Parents have difficulty in assisting of their children in solving some of mathematics class work, Parents engage their children in other activity at homes than school activities during holidays and after school hours, most parents lack awareness and Interest on the

role of mathematics. This shows parental factors have contributed to the mass failure of student's mathematics examination.

Discussion of Findings

The data obtained and result of the analysis has led the researcher to some findings that government and school preparatory has contributed immensely in the region to the mass failure of students. Insufficient funding of schools or poor supervision and over use of old curriculum are the most contributory factors

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followed by the other factors like inadequate mathematics teaching materials, overcrowded of mathematics classes, lack of libraries and mathematical laboratories, lack of supervision and inspection of mathematics teachers. Provision of adequate mathematics teaching materials, provision of more classrooms and furniture, provision of libraries and mathematical laboratories, proper supervision and inspection of mathematics teachers include the monitoring of mathematics lessons, completion of syllabus as well as administering more examinations and quizzes as ways of improving performance in mathematics in students.

The researcher has also find out that students have less attitude in solving assignment or class work in mathematics and spend much of their time on social media or watching movies than concentration on solving of mathematical problems The result of the analysis of research question one showed that students' negative attitude toward mathematics, anxiety and fear who found out that students' negative attitude toward mathematics, anxiety and fear of mathematics student in their own way see Mathematics as subject that is difficult and this impression has made them to develop hatred for the subject which invariably contribute to their poor performances in the subject area.

Furthermore, researcher find out the extent to which teacher factor contributed to mass failure of secondary school students in mathematics. This indicates that: Inadequate of teachers in terms of numbers and quality and ineffective teaching methods lead to mass failure of students in mathematics to a great extent. This implies that teacher-factor contributes to mass failure of secondary school students in mathematics. the findings also revealed that repeated failure of SSCE Mathematics could lead to loss of interest in education. And mass failure of SSCE Mathematics could lead to lack of Mathematics teachers in the education sector which is not

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healthy for a developing nation. This implied that repeated failure of SSCE Mathematic will lead to shortage of Mathematics teacher in the near future to come.

Finally, lack of parental participation in the education of children are some of the main causes and parents lacks proper monitoring of children notes books and assignment at home. lack of parental participation in the education of the children are some of the main factors indicates that lack of encouragement of students by parents affects students' performance to a great extent; lack of parental involvement in students' class activities to a great extent, and; poor motivation and poor supervision by parents lead to mass failure of students in Examinations. This implies that parents contribute to mass failure of secondary school students in mathematics to a great extent.

Conclusions

The mass failure of mathematics SSCE examination in yobe state has become the pressing problems of all the stake holder despite the state of emergency declared on education by the state governor SSCE result from 2015 to 2022 shows less than 40% pass mathematics at pass level. This shows The perennial decline has remained a source of concern to science educators, mathematicians and mathematics educators (Nnaka and Anaekwe, 2014).

The sample population of four hundred (400) students and one hundred (100) teachers in twenty schools were drawn for respondents in this study, Using the statistical package (spss) the researcher employed the mean method of data analysis and came out with the following conclusions: Government and school preparatory are responsible for mass failure of secondary school students in mathematics to a great extent. Students are engage in social media or watching movies with their phones than solving mathematical problems result to mass failure.

Poor quality and inadequate teachers contribute to mass failure of secondary school students in mathematics to a great extent over-burdening home activities by parents contribute to mass failure of students in secondary school mathematics; parents' action and inaction contribute to mass failure of secondary school students in Mathematics to a great extent.

Recommendations

Based on the conclusion reached from the data investigation and analysis, the researcher makes the following recommendations:

1. Government should provide adequate funding of schools so that basics educational facilities like instructional materials, standard laboratories, class rooms in order to enhance teaching and learning.
2. Frequent transfer of mathematic teachers from school should be discouraged
3. Parents and Teachers should monitor student to concerted on their studies not to waste time social media or watching movies.
4. Students should be encouraging to developed interest in mathematics so that would have less fear of mathematics.
5. There is need for the employment of qualified teachers who are knowledgeable in mathematics to teach.
6. Mathematics teachers should constantly employ appropriate methods for teaching mathematics so as to stimulate students' interest in mathematics.
7. Parents should limit the level of domestic chores done by their children at home in order to enable them devote more time to their studies.
8. Parents should serve as mentors to their children by encouraging them in classwork. They should be involved in

students' activities in schools and encourage them, not just paying school fees.

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