



FACULTY OF SCIENCE EDUCATION

Analysing students performance in mathematics at Ordinary Level. A case of three selected schools in Gutu East with zero percent pass rate in mathematics in the Zimbabwe schools examination council (ZIMSEC) November 2023 national examinations.

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RELEASE FORM

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DEDICATION

This research is dedicated to my son Akudzwe V Mukavhi. You are the source of all my hope and joy in life.

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May God Bless You All.

ABSTRACT

High failure rate in mathematics at ordinary level is a cause of concern. The aim of this study was to analyse students performance in mathematics at ordinary level. The research is a case study of three selected schools in Gutu East with a qualitative approach . Questionnaires and interviews were used to gather data. The target population consisted of ordinary level students and mathematics teachers, all taken from three selected schools. The sample group was accessed through purposive sampling consisting of three mathematics teachers and twenty four mathematics students. Data collected was presented through the effective use of tables, pie charts and bar graphs. The study established that students performance in mathematics is influenced by learners attitudes, availability of resources, teacher qualifications ,teaching methods among others. Recommendations were made to mathematics teachers, schools administration and the curriculum planners on strategies that can be adopted to improve students performance in mathematics. In this study, it was recommended that the ministry of primary and secondary education should organize in-service training for mathematics teachers, provide resources and revise the curriculum of teacher training institutions.

CONTENT

PAGE

CHAPTER 1: INTRODUCTION

1.1. Introduction	1
1.2. Background to the study.	1
1.3. Statement of the problem.	3
1.4. Research questions.	3
1.5. Assumptions of the study.	3
1.6. Research objectives.	4
1.7. Significance of the study.	4
1.8. Limitations of the study.	4
1.9. Delimitations of the study	5
1.10. Definition of key terms.	5
1.11. Summary.	6

CHAPTER 2 : LITERATURE REVIEW

2.1. Introduction.	7
2.2. Teaching methods.....	7
2.3. Teachers qualifications.....	8
2.4. Instructional materials.....	9
2.5. Teacher and students attitudes.....	10
2.6. Motivation.....	11

2.7. Curriculum factors-----	12
2.8. Discursive skills-----	12
2.9. Summary-----	12

CHAPTER 3. : RESEARCH METHODOLOGY

3.1. Introduction-----	13
3.2 Research design-----	13
3.3. Data collection instruments-----	14
3.4. Research population-----	17
3.5. Research sample-----	17
3.6. Sampling techniques-----	18
3.7. Data collection procedures-----	19
3.8. Pilot study of questionnaire-----	19
3.9. Data presentation procedures-----	20
3.10. Data analysis procedures-----	21
3.11. Summary-----	21

CHAPTER 4 DATA PRESENTATION AND ANALYSIS

4.1. Introduction-----	22
4.2. Data presentation and analysis-----	22
4.2.1. Responses from teachers questionnaire-----	23
4.2.2. Responses from students questionnaire-----	27
4.2.3. Responses from teachers interviews-----	31
4.3. Summary-----	32

CHAPTER 5 : SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Introduction-----	33
------------------------	----

5.2. Summary-----	33
5.3. Conclusion-----	34
5.4. Recommendations-----	35

REFERENCES

LIST OF TABLES

4.1. Teachers sex, highest professional qualification and teaching experience.. -----	21
4.2. Teachers responses on teaching methods they use. -----	22
4.3. Teachers responses on the most challenging branch of mathematics. -----	23
4.4. Teachers responses on distribution of textbooks-----	24
4.5. Teachers responses on resources that enhance students performance. -----	24
4.6 Teachers responses on other factors contributing to zero percent pass rate-----	25
4.7. Age of students. -----	-27
4.8 Students general performance in mathematics. -----	27
4.9. Students attitudes towards mathematics. -----	28
4.10. Resources which students have. -----	28
4.11. Other causes of poor performance -----	29

LIST OF FIGURES

4.1. Responses on teaching methods used by teachers-----	3
4.2. Teachers responses on other factors contributing to zero percent pass rate.-----	26
4.3. Age of students.-----	26
4.4. Students general performance in mathematics. -----	29
4.5. Resources which students have. -----	29.

4.6. Use of teaching aids by teachers.	29.
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APPENDIX

Appendix 1. Letter from provincial education director on permission to carry out research-----	
-----	40
Appendix 2. Confirmation letter from Bindura University of Science Education.	41
Appendix 3. Questionnaire for teachers .-----	42
Appendix 4. Questionnaire for students.	45
Appendix 5. Interview for teachers.	47

A

CHAPTER ONE: INTRODUCTION

1.1. Introduction

This chapter focuses on the background information to the study, statement of the problem, purpose of the study, research questions, and objectives. The scope of the study, significance of the study, limitations and definitions of key terms is also highlighted.

1.2. Background to the study

Globally, students performance in mathematics has been a cause of concern. Peteros et al (2020) noted that the majority of students in Phillipines performed below average, in mathematics in the year 2020, Khan et al (2018) also indicated that students in Pakistan are struggling with mathematics. Ndume et al (2020) also noted that the pass rate of Tanzania in mathematics form four national examinations was 16%. Mazana (2018)), also added that studies have indicated that the trend of failure in mathematics in many parts of the world. Society believes that secondary schools mathematics is directly linked to the nations competitive strength. However majority of learners struggle in mathematics.

As noted by Yeh et al (2019), mathematics is an abstract subject, hence it causes many students to loose interest, this might contribute to dismal performance. There is a growing concern over zero percent pass rate in ordinary level mathematics in some Zimbabwean secondary schools. The issue of zero percent pass rate has been a subject of debate in the parliament of Zimbabwe. As highlighted in the Sunday mail (2024), the Honourable Speaker of Parliament (Jacob Mudenda) said that some schools continually have zero percent pass rate, he further said that zero percent pass rate is usually scored by schools in rural areas and satellite schools as there are serious disparities between urban and rural schools. Despite the permanent secretary's view that there is shortage of resources in rural areas including vehicles for supervision, in the parliament, it was suggested that heads of schools with zero percent pass rate to be demoted among other punitive measures the government should impose.

As noted by Luphahla (2015), it is a painful reality that the majority of schools with zero percent pass rate are in rural areas and some are satellite schools. Among the three schools under study, all are in rural areas and one of them is a satellite school which is continually having zero percent pass rate. Rural learners are lagging behind. The ZIMSEC national examination pass rate in mathematics has been below twenty percent over the past five years except in 2022 when it went up slightly. Such performance and zero percent pass rate in particular motivated the researcher to carry out the research analysing students performance in mathematics. The researcher was also approached by a mathematics teacher from a neighboring school continually attaining zero percent pass rate for the past four years on how best to teach mathematics to get rid of zero percent pass rate. The researcher once taught at several schools in Masvingo province where she discovered that most of the learners in rural areas struggled in mathematics. The researcher is also a full time mathematics teacher and is the Head of Department with two mathematics teachers. The records of results analysis and examination scripts done by the mathematics department indicated that learners sometimes get zero percent.

Pass rate at the researchers school have been below fifteen percent for the past twelve years. The researcher was also inspired to carry out the research after she attended several workshops at cluster and district level where issues on how to improve pass rate in mathematics were discussed.

The role of mathematics in science and technology is unquestionable. Despite the highly recognized importance by of mathematics, the fact of poor performance remains the same. Zero percent pass rate pushed the researcher to analyze students performance in mathematics at ordinary level mathematics. Pressure from the school administration on mathematics teachers to write reports on causes of the zero percent pass rate is a cause of concern to the researcher.

1.3.Statement of the problem

Ordinary level students are facing challenges to pass mathematics over years and poor performance in mathematics is globally known. Pass rate at the schools under study has been a cause of concern as of many other schools in rural areas. Mathematics is a compulsory subject and teachers colleges, universities and most job opportunities require a pass in mathematics for one to be considered. Against that backdrop, some schools are getting zero percent pass rate in mathematics. Zero percent pass rate becomes a trend in some rural schools in Gutu East. This have an amplifying effect that Zimbabwe may not achieve the goal of economic growth as expected in vision 2030. Teachers are trained to teach, whenever there is dismal performance they are the immediate persons to be blamed. Therefore the researcher was provoked to examine in detail the causes zero percent pass rate with a view of suggesting mitigation strategies to ease the situation.

1.4.Research questions

1. What are the possible causes of zero percent pass rate in mathematics in the November 2023 Zimbabwe schools examination council (ZIMSEC) national examinations?
2. To what extent do teachers and students contribute towards zero percent pass rate in mathematics.
- 3.What strategies can be adopted to improve performance in mathematics at Ordinary Level mathematics?

1.5. Assumptions of the study

Certain assumptions were taken into account for the findings to be valid. The assumptions are stated below:

All learners have equal opportunities to learn mathematics.

All schools are using the same syllabus.

Learners and teachers used in the study are assumed to be cooperative so that they provide true responses on the research questions.

Time frame allowed would guarantee the research that produce valid results.

1.6. Research objectives

To establish strategies that can be adopted to improve pass rate in mathematics at ordinary level.

Find out whether there's a relationship between teachers and learners factors contributing to zero percent pass rate in mathematics.

Explore factors contributing to zero percent pass rate in mathematics at ordinary level.

1.7. Significance of the study

The major goal of this study was to provide information which will be used by mathematics educators to improve performance in mathematics at Ordinary Level, mathematics educators policy makers, curriculum developers, classroom teachers and researchers.

Policy makers to consider remote schools when designing policies.

Mathematics educators will be provided with guidance on selection of suitable methods and instructional materials for teaching and learning mathematics.

Mathematics researchers will use this study as basis for further studies in mathematics education.

As the researcher gather more information and facts, the scope of the researcher is going to widen. The researcher also practice wider reading. Apart from teachers, learners also gain an insight on how to boost achievement.

1.8.Limitations of the study

A number of constraints will be encountered during the course of the study, these range from factors such as time, finance, transport and lack of cooperation from some of the learners. The research will be carried out in a limited time and during this period, the researcher will be at work as a full time teacher with a load of thirty -six periods and the learners involved in the research also have their normal lessons with fully packed time tables. Learners will be involved in co curriculum activities hence leaving them with little time to participate fully in the study. Financial constraints may also disturb some of the activities which have been lined up for this study. Testing instruments may not be valid enough to meet the learners area of difficulty. Problems generated may not be a generalisation of the rest of learners in other schools. The research is confined to only three schools which cannot represent schools in Masvingo and other provinces.

1.9. Delimitations of the study

The study will be carried out at three selected schools which are 100km away from Gutu town. The researcher chose the three schools for the research because the schools were convenient since the teacher will be working at one of the schools school during the time of the study. The researcher is a mathematics teacher so the research will not consider other subjects other than mathematics.

1.10. Definition of key terms

- 1. Pass rate** is the proportion of candidates who succeed in passing an examination or other assessment.
- 2. Zero percent pass rate** is when no learner sitting in an examination achieved a pass grade.

3. A student is a person formally enrolled at a school and in this research a student is a form four learner.

4. Performance refers to a result of learning prompted by the teaching activity by the teacher and produced by a student (Lamas 2015). It can also be defined as the extent to which a student or teacher or institution has attained goals.

1.11.Summary

This chapter highlighted the statement of the problem, research questions, limitations, delimitations, definition of key terms. It also opened a piece of research on students performance in mathematics. The next chapter will look at the literature review.

CHAPTER 2: LITERATURE REVIEW

2.1: Introduction

This chapter seeks to extract in detail related literature on students performance in mathematics at ordinary level mathematics. Previous literature relevant to specific objectives in this research is also highlighted in this chapter. A number studies link students performance to teaching strategies, teaching experience, limited resources, inadequate practice, students attitudes and curriculum factors, (Otoo et al, 2018). Mazana (2018) also reported factors associated with poor achievement in mathematics is the perception that the subject is complex, discouraging marks attained in classroom tests, poor background and irrelevance of subject content in real life situations. Mathematics occupy a critical position in the school curriculum. Ordinary level students are required to take at least five subjects in which mathematics is one of the core subjects. Despite the relative importance of mathematics, a number of students struggle to understand mathematics, (Wong and Wong 2019). This struggle is reflected with the ordinary level students performance in the ZIMSEC national examinations. The ZIMSEC mathematics result analysis achievement is not improving throughout the country. The ZIMSEC national examination pass rate in mathematics was below 20% for the past five years.

2.2: Teaching methods

As noted by Mosha (2018) without suitable teaching methods, many students fail to improve their academic achievements. There are various techniques and methods of teaching mathematics. There is no best or most effective method therefore the teacher should carefully

select and use the method which suit the occasion. According to Nicholas et al (2015), several studies have linked poor academic achievement of students to the deficiency of teaching methods employed by teachers. As noted by Johnson and Johnson (2015), teachers employ wrong teaching methods, which results in general hatred of the subject by students. Johnson and Johnson further concluded that if students are to appreciate mathematics, teachers must use new teaching approaches and technologies that can stimulate students to gain interest in mathematics.

The teacher plays an important role in selecting the appropriate teaching strategies that cater for students diverse learning needs. Suleiman and Hammer (2019), noted that students are scared from mathematics by some teaching methods. Reddy et al (2020), noted that in this modern world, students are encouraged to discover and build their knowledge through active participation. Methods that involve active participation include group work and problem solving. As noted by Nicholas et al (2015), mathematics is a subject demanding practice to develop problem solving skills therefore inadequate practice hinders students progress. Kashefi et al (2017) also added that, teachers are failing to implement learner centered teaching approaches due to limited resources and huge workloads. On the other side, background issues act as challenges to students (Wong et al 2019). Ndume (2020), noted that due to the exam-oriented education system, teachers are mainly concerned with finishing the syllabus and coaching students with examination questions and answers. Reddy et al (2020), further noted that the workload of teachers does not allow teachers to focus on the key role so as to enhance learning among students .He further stressed that teachers are hesitant to use teaching approaches that are time consuming.

2.3: Teachers qualifications.

As highlighted by Majid (2018), great teachers are quality and better performing teachers who inspire people around regardless of any obstacles. Qualification of mathematics teachers significantly influence achievement of mathematics students. As noted by Lal (2016), the

achievement of students is strongly linked to qualified teachers. A study by Suleiman (2019) showed that a number of students indicated that their teachers did not have enough potential to teach mathematics. Most of mathematics teachers do not make the teaching of mathematics exciting and practical due to inadequate training or lack of in-service training which contribute to poor achievement in mathematics among students. Chaudhary et al (2017) noted that there is need to blend technology in mathematics. Teachers play a crucial role in integrating technology in the curriculum, without proper training, competency and knowledge of teachers, technology fail to deliver its expected outcome in education. Ittigson et al (2015) noted that the use of ICT mobiles, laptops, internet, videos and other assistive technologies enhance students understanding of basic concepts more rapidly and effectively. However mathematics teachers in most rural schools are not using ICT in mathematics classrooms. Sa'ad(2015) insisted that most mathematics teachers do not make the teaching and learning of mathematics practical and exciting.

Raj (2015) revealed that a large percentage of rural schools lack properly trained teachers and have to accept unqualified teachers who may not be aware of modern trends in teaching methods. Khan (2017) noted that shortage of competent mathematics teachers leads to failure of students in mathematics. Mji (2016) also added that teachers background knowledge of the content have a significant contribution towards academic achievement. Mathematics teachers need to give clear explanations to students about mathematical concepts to ensure each student understands rather than left confused. Arends (2017) noted that teachers communication skills, content knowledge and procedures for assessment impact students achievement in mathematics. Suleiman (2019) attributed students low performance in mathematics to lack of qualified mathematics teachers teaching in secondary schools and some teachers teaching mathematics are qualified to teach other subjects.

2.4: Instructional materials.

Use of appropriate materials in teaching and learning of mathematics have an impact on students performance in mathematics at ordinary level. A good number of researchers noted that the use of appropriate concrete resources in teaching and learning mathematics plays a crucial role in enhancing students' performance in mathematics. Students must use materials in a meaningful way rather than being limited to teachers demonstration. According to Visser et al (2015), effective instruction depends on both the quality of the resources and the skills of the teacher. Many studies have indicated that use of concrete resources can boost students' concept development. As noted by Douglas and Kristine (2015), the use of manipulative resources yields greater achievement gains. This concurs with Visser et al (2015) who also noted that the availability of textbooks and achievement have a position correlation. Boerst (2018), also put forward that materials, textbooks technology shape students' mathematics learning experiences. Wong et al (2019) noted that resources are necessary to support and ensure the effectiveness of teaching methods. He further noted that schools have plans underway to integrate technology in every classroom but such initiatives prove to be expensive for many schools. Technology tools like computers and projectors make the learning of mathematics enjoyable.

2.5: Students attitudes.

Both teachers and students' attitudes towards mathematics have an impact on students' performance. According to Raj et al (2015), attitude refers to someone's liking or disliking the subject. Attitude determine the effort which a student is likely to put in a subject and mathematics in particular. Several studies carried out in many countries have indicated that student attitude is a significant factor influencing students' performance. Raj et al (2015)blinked challenges in teaching mathematics to attitudes and perceptions of students as mathematics is perceived as a difficult subject to pass. Michael (2015) noted that students just fear mathematics. Prolonged anxiety and fear of students in mathematics ultimately yield a negative attitude that becomes permanent in future. Students with a positive attitude tend to perform well in an examination compared to those with a negative attitude. Students register

mathematics for the sake of it being a compulsory subject even without interest. Mji (2016) noted that interest is a significant cause of motivated behavior therefore before a student is motivated in learning, one must be interested first. However, Wong and Wong (2019), found no relationship between students performance and students interest in the subject but his view received little support from scholars.

2.6: Teachers attitudes

Teachers attitudes and perceptions about mathematics can influence students perceptions about mathematics. Teachers should encourage and motivate students in class since this will motivate them towards changing their attitude. According to Michael (2015), teachers negative perceptions about mathematics have a strong influence on students attitude and performance in mathematics. Mazana noted that the significant determinant of negative attitudes among students are teachers attitude. Tuimavana (2017) insisted that, teachers characteristics affect students attitudes towards mathematics. The teachers professional and personal characteristics play a role in students liking or disliking mathematics. Mazana noted that boring teachers and students failure to understand mathematics relate to teachers negative attitude. However Otoo (2018) indicated that the majority of secondary mathematics teachers display a positive attitude towards mathematics though there are no recorded observations

2.7 : Motivation.

Motivation plays a critical role in enhancing students' performance in mathematics. As noted by Peteros et al (2020), recognizing and awarding students for their performance helps them boost their confidence and interest in mathematics. Yeh et al (2019) noted that low level of motivation contribute to low interest in learning mathematics and hence low achievement. This contradicts with Otoo et al (2018) who had the opinion that motivation have no significant impact in promoting students interest in mathematics, but the assertion have received little support from scholars. Mazana et al noted that many teachers fail to make the learning of

mathematics enjoyable for students. However Kashefi et al (2017) noted that teachers use motivation strategies such as rewards, encouragement and praise to boost students interest in learning mathematics

2.8: Curriculum factors.

Curriculum factors also contribute much in students performance in mathematics. As noted by Khan (2017), the curriculum in developing countries is too compact and exam- oriented. For teachers and other stakeholders, examination results of schools are of great concern to them. Lal (2016) also added that because of the exam- oriented system teachers are much concerned with finishing the syllabus and drilling students with examination questions and answers.

2.8: Discursive skills

From the literature, we have so discovered that students performance in mathematics is influenced by several factors. The major cause of dismal performance in mathematics was students attitude towards mathematics. There is need for teachers to motivate students in learning mathematics. The teacher also need motivation. There is also need for teachers to vary teaching methods and use learner centered teaching methods that encourage students participation.

2.9: Summary

This chapter looked at content produced by other authors and researchers in their work on students performance in mathematics at ordinary level. It is noted that various sources of zero percent pass rate in mathematics are teaching methods, students attitudes , shortage of teaching materials among others. The next chapter will focus on the research design and methodology. Using some of the ideas in the previous literature the researcher is going to be

guided in contacting the research methodology which is going to be undertaken in the next chapter.

Chapter 3 : Research methodology.

3.1 Introduction

This chapter focus on the main methods of collecting data that is, the research design, population, sample, sampling techniques, research instrument, data collection procedures, data presentation and analysis procedures in the analysis of students performance in mathematics in mathematics.

3.2 :Research design

A research design, according to Akhtar (2016), is an advanced planning of methods to be adopted for collecting the relevant data and the techniques to be used in analysis, keeping in view objectives of the research. Akhtar further explains that a research design is a clue that holds all elements in a research project as it is a plan of the proposed research work. This was also supported by Creswell (2015), who defines research design as plans, strategies and procedures for the research, comprising decisions from the underlying world views to the detailed methods of data collection and analysis. Hamed (2016), supported the above definitions by saying that the research design is a road map of how the research will be conducted. Therefore, research design is the framework of research methods and techniques chosen by a researcher to conduct a study. This research is a case study with a qualitative approach. Qualitative approach is a holistic and emergent strategy that is exploratory in nature and which is used to answer questions about the complex nature of phenomena, with the purpose of describing and understanding the phenomena from the participants' point of view, (Fouche &

Schurink, 2014). Qualitative research enable systematic description and observation of the study, (McMillan and Schumacher). This design addresses problems and creates a consistent and logical model for data analysis, focusing on explaining and understanding experiences and perspectives. The qualitative aspect of the research design includes the use of one-on-one interviews on teachers as well as questionnaires on both teachers and students.

Since this research is a case study, the qualitative research design is particularly useful in analysing students performance in mathematics. Though a case study research designs heavily rely on accessible and cooperative respondents, the researcher made frantic efforts to make sure that every sampled person was conducted through follow-ups. In order to gather reliable information, the researcher thoroughly explained to the respondents before responding that their responses were purely on voluntary bases and that all their responses were going to be highly private and confidential. Through qualitative research, this case study fit the needs of small research. However, this strength has also its weakness. In other words, you cant generalise the findings from a case study to the broader population. Some disadvantages include negotiating access to case study settings which can be a demanding part of the research process. Research can flounder if permission is withheld or withdrawn i.e. access to documents, people and setting can generate ethical problems in terms of issues such as confidentiality.

3.3: Data collection instruments

Canalas (2017) described data collection instruments as methods that creates interactions between the researcher, students as well as teachers. As noted by Creswell (2016), a data collection instrument is an information gathering tool whose crucial role is in supporting the researcher's findings and claims. In gathering data for this project, the researcher used questionnaires for the three teachers and students as well as one-on-one interviews for the three teachers only.

3.3.1 : Questionnaire

This was the major instruments. According to Roopa and Rani (2015), a questionnaire is a document with systematically, sequentially and technically constructed questions aimed at soliciting information directly from the respondent. In Roopa and Rani (2015)'s view, accurate analysis, meaningful conclusions and recommendations for future researches solely depends on how perfect a questionnaire has been designed. Questionnaire designing, therefore, is the most important part of any research. A respondent, on the other hand, is a special observational unit essential in observing data that is beyond the physical reach of the observer. In this research, two separate questionnaires, one for teachers and the other for learners, will be designed so as to gather research information.

The respondents were teachers and students. Questions are precise, clear, short, logical, valid, and reliable and not negative. Questionnaires are so comprehensive that they enable one to get detailed data. The questionnaire was also found suitable since the respondents are literate enough and capable of completing the questionnaire with little or no assistance.

The researcher assumed that all the respondents were going to respond individually, willingly and giving honest and true responses. Though the questionnaire method, in the researcher's view, is a cheaper, and important source of background information as well as a source of information not revealed in any source, the information could be biased as learners could discuss. Some questions may not be answered for the reasons best known by respondents while some questionnaires may not be returned. Despite all these drawbacks of the method, the researcher used them and even put up some measures to maximize the effectiveness of using the questionnaire. The researcher therefore will make a follow up of questionnaires and collecting from individual respondents. On this research, all questionnaires will be returned with all sections answered though reliability of the responses all depended entirely on the reliability, cooperation and honesty of the respondents.

3.3.2 : Interviews

Interviews were done to probe teachers at three selected schools in analysing students performance in mathematics . They were used as a follow up to teachers who gave responses

to the questionnaire. The researcher decided to use interviews because they create an opportunity to meet the respondents to get in-depth information relevant to the study, gives room for probing and nonverbal responses were noted through gestures and facial expression. An interview according to Aliyu et al (2014), is a process of collecting data by asking questions, listening to individuals, making recordings, filming their responses or a combination of those methods. Creswell, (2014), further defines an interview is an expandable conversation between partners aimed at having an in-depth information about certain topics, concepts or phenomenon. From these definitions, an interview consists of an investigator and a participant and there is a two-way verbal communication associated with constant questioning and answering of questions.

In this research, face-to-face verbal interviews were carried out by the researcher on sampled teachers. All interviews were conducted during school hours and within the school premises after seeking permissions from responsible authorities. To avoid asking questions not essential to the problem at hand, the researcher adhered to questions which he prepared in advance. Some questions were simply read to the responded though some were simplified through paraphrasing and interpretation by interviewer but without altering the demands of the questions. This was done so as to standardize the questions so that understanding of questions were the same with differences only existing in respondents' experiences. In some cases, the researcher used semi-structured questions during the interview so as to clarify some section items. All interviews were conducted for a period of not more than twenty minutes.

The interview was mainly centered on gathering information where questionnaires could not yield much information especially where probing was required. The interview was conducted in such a way that respondents were given room to freely express their views so that as much information as possible is gathered. The researcher used probing in cases where the responses were not satisfactory in terms of information. The researcher recorded the respondents' opinions using two methods namely audio (using a phone) as well as writing on paper.

Throughout the interviews, the researcher was guided by interview questions which were set prior to the interviews. For respondents to have a feeling of privacy and being secure, no name was asked for.

However interviews have their own weaknesses in that they are time consuming therefore the researcher decided to interview teachers only.

3.4: Population

Majid et al (2018), defines population as all individual units of interest to the researcher. Population, as described by Fricker (2017), is a complete set of all items with common characteristics that meet the researcher's specified criterion which strictly depends on the research objectives. Population can therefore be viewed as the totality of all items having at least one common characteristic that is crucial to the researcher in as far as a particular research is concerned. The target population of the research consist of all mathematics teachers from the three schools and 94 form four learners which includes thirty-one one repeaters and sixty- three non- repeaters . Research findings from this population is expected to gather useful information.

3.5: Research Sample

According to Anfara and Mertz (2018), a sample is a sub group drawn from a population by a specified procedure. This is the exact number of learners and teachers involved in the study chosen from the population. Purposive sampling was used to select learners and teachers in this study. Purposive is intentionally selecting participants based on their knowledge or experiences. The respondents were selected on the basis that they are mathematics teachers who taught examination classes in 2023 and students for the academic year 2022 to 2023. The sample consist of three mathematics teachers and twenty-four learners.

3.6. Sampling techniques

Purposive sampling was used to select teachers and students According to Saunders et al (2018), purposive sampling is a sampling method where the researcher deliberately chooses who to include in the study based on ability to provide necessary data. By this sampling, the researcher hoped to gather all information. He further noted that purposive sampling refers to a group of non-probability sampling techniques in which units are selected because they have characteristics that you need in your sample. In other words, units are selected on purpose in purposive sampling. It is also called judgmental sampling, this sampling method relies on the

researcher's judgment when identifying and selecting the individuals, cases, or events that can provide the best information to achieve the study's objectives.

Purposive sampling is common in qualitative research. It is particularly useful if you need to find information-rich cases or make the most out of limited resources, but is at high risk for research biases like observer bias. In a qualitative study, a relatively small and purposively selected sample may be employed (Miles and Huberman, 2014), with the aim of increasing the depth of understanding (Palinkas et al., 2015). Purposive sampling is used to select respondents that are most likely to produce appropriate and useful information. Palinkas et al., (2015) also added it is one of the best way of identifying and selecting cases that will use limited research resources effectively.

In order to select the twenty-four students who are representatives of the entire population, the researcher cut small pieces of paper to give a total of thirty-one and they were placed in a hat. Twenty-four were written yes and seven were written no. Each student was given a chance to pick one paper from the hat. Those who picked yes were considered for the research.

3.7: Data collection procedures

Data collection procedures are steps that are followed in administering data collection instruments. In this research, the research used qualitative data collection techniques with the aim of maximizing the information collected for the problem under study. Murdock (2019), defines data collection procedures as the use of a combination of methodologies during data collection leads to increased validity and reliability of the data collected.

Before administering and gathering data using designed instruments, the researcher first asked for permission from various responsible authorities using a letter of introduction given to him by Bindura University of Science Education (BUSE). In this research, the researcher used an introduction letter from BUSE to seek for permission to conduct a research at three selected schools. The permission was granted from the provincial education director, headmasters,

mathematics head of department, mathematics subject teachers, class teachers as well as well as learners themselves.

These two data collection instruments were technically designed by the researcher and were administered by her which meant that the researcher worked extra hard to collect this data. Prior to administering the instruments, the participants (students and teachers) were informed that their participation were purely voluntary without any monetary returns from the researcher. It therefore called for the participant's self-motivation during the study.

Questionnaires and interviews were carried out in strict confidence and privacy with no names to be indicated. As for interviews, the researcher used a one-on one interview so as to get responses that were free from other people's influences. Questionnaires were, however, issued to the 28 students to complete during the afternoon time of co-curricular activities and were collected before other students have influenced the responses. Teachers were interviewed as a follow-up of questionnaires. Though the researcher thanked the respondents in advance before administering the instrument, he also thanked each participant at the end of each session.

3.8. Pilot study on questionnaire and interviews

According to Eldridge et al (2016) pilot study may be referred to as dress rehearsals. This implies that it encompasses all procedures and materials that are applied in data collection before the actual collection is done. Pilot study is, therefore, a mini-research or a rehearsal of the main project activities aimed at singling out the challenges that that the actual project will encounter. It is usually targeted at determining the feasibility and challenges and strengths associated with methodology, sampling instruments and even data presentation and analysis.

The researcher pre-tested the designed questionnaires, tests as well as the interview process on just five learners and one teacher of the targeted research population at one school.

3.9. Data presentation procedures

Casper et al (2016), says that all types of data, whether qualitative or quantitative, need to be presented in a form that enables accurate communication of real information which then enables exact and real conclusions to be drawn. Data presentation methods, therefore, need to be clear, accurate and operational. Clear and accurate presentation methods are essential ways of reporting back the obtained results as well as facilitating more sound decision making procedures.

The researcher used both statistical graphs as well as non-graphical ways of presenting the research findings. Statistical graphs that were used include bar graphs and pie charts. These graphs were used to represent qualitative data which was gathered from the two instruments. Some represented data gathered from learners while others represented the data which was gathered from teachers or both. Tables, which are non-graphical ways of presenting large quantities of data arranged in labelled rows and columns were also used. Descriptions were also used.

3.10. Data analysis procedures

Data analysis, as defined by Flick (2013), involves classifying, interpreting and summarizing the gathered data with the aim of arriving at general statements. Data analysis, therefore, involves reduction, refinement and synthesis of collected data into smaller manageable sizes as well as extracting summaries, trends, pattern as well as conclusions.

In this research various data analysis methods were used which included the inductive technique, comparison of different data so as to identify similarities and differences, classification of various data sets into various categories, deductive technique and a lot more. The inductive method involved using a single collected data unit about a certain information to draw out wide conclusions. In doing this, the researcher used more logical calculations emanating from those observational units until more detailed conclusions were arrived at. These conclusions were again used to revisit the accuracy, truth and validity of the collected data as well as its source in as far as learners performance in mathematics was concerned.

The researcher will make a comparison of interviews and responses from questionnaire to identify similarities and differences all of which led to essential conclusions to be arrived at. The

different data sets as well as responses were analysed separately. Those linked to each other were either analysed together so as to draw up conclusions.

3.11.Summary

This methodological chapter dwells much on giving a detailed explanation of the different procedures that the researcher used during data collection, presentation and analysis processes in the project. In this chapter, a discussion of the data collection instruments used throughout the project in terms of how, where, when and why they were used was also critically done which included questionnaires and interviews. The chapter also focused on different research aspects that were central to the project such as the research design, data gathering procedures, target population, sample, sampling methods, validation, reliability as well pre-testing procedures together with their strengths and weaknesses. The next chapter will be concentrating on the presentation of the data that have been collected.

CHAPTER 4 : DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter focus on presenting, analysing and discussing the data that was gathered using the two data collecting instruments (questionnaire and interview) using various methods as outlined in chapter three. The data will be presented in form of tables, pie charts , bar graphs and descriptions. The analysis and interpretation will be based on the responses from the participants of the research study who were three teachers and twenty four students. The analysis will be important for analyzing students' performance in mathematics at ordinary level.

4.2 Data presentation and analysis from questionnaires.

4.2.1 Questionnaire for the teacher.

Questionnaires were distributed to three teachers.

Table 4.1. : Teachers sex, highest qualification and teaching experience.

Teacher	Sex	Highest qualification	Teaching experience
X	Female	Diploma in education in mathematics.	Five to ten years
Y	Male	Diploma in education in mathematics.	Five to ten years
Z	Male	Diploma in education in biology.	Less than five years

Two of them were males and one was a female. Two of them were trained to teach mathematics and the other one was a biology teacher. All the three teachers highest qualification is the diploma in education. All the participant teachers have a minimum requirement.

4.2.2: Teachers responses on learners performance in mathematics.

All the three teachers said that none of the candidates passed the ZIMSEC, November 2023 examinations. They also indicated that none passed form four mid- year examinations. This clearly indicated that students were struggling in mathematics.

4.2.3: Teachers responses on teaching methods.

Table 4.2 : Responses on teaching methods used by teachers.

Teaching method	Number of teachers
Demonstration	3
Class discussion	3
Group work	3
Lecture method	0
Guided discovery	2

The responses show that all the three teachers demonstration, discussion and, group work. Two indicated that they also use the guided discovery in teaching mathematics. None of the teachers used the lecture method since this method discourage learner participation. Learners need to be involved in learning activities so that they get motivated to grasp the concepts. All the three teachers also indicated that they frequently use the demonstration method. The finding concurs with Ndume (2020) who noted that teachers fail to implement learner centered teaching methods due to limited time and huge workloads. Some students and slow learners who can hardly discover concepts on their own. Responses on teaching methods used by teachers can be represented using a bar graph as below.

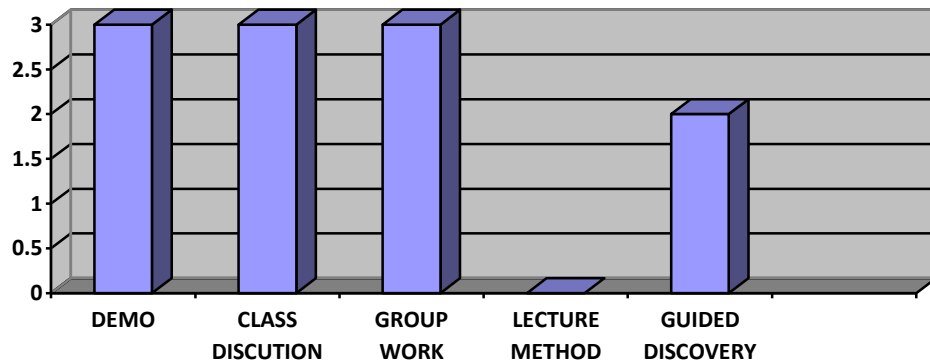


Fig 4.1: Responses on teaching methods used by teachers.

4.2.4:. Teachers responses on the most challenging area in mathematics.

Table 4.3: Responses on the most challenging branch of mathematics.

Teacher	Challenging branch
X	Algebra
Y	Algebra
Z	Algebra

Responses show that students struggle most in algebra. All the branches of mathematics depends on algebraic concepts, therefore it is hardly possible for learners to perform well in mathematics without knowledge in algebra.

4.2.5: Teachers distribution on textbooks.

Table 4.4: Responses on distribution of textbooks.

Textbook	Frequency	Percentage
New general mathematics	2	66.7
Focus on mathematics	1	33.3
Mathematics today	0	0
Total	3	100

From the table all the two teachers are relying heavily on one textbook (New general mathematics), since mathematics need a variety of examples and approaches, there is need to use various sources to get rid of zero percent pass rate in mathematics. One of the teachers is relying on focus on mathematics textbook. Content provided in textbooks play a significant role by promoting learners relational knowledge and conceptual understanding.

4.2.6:. Teachers responses on resources that enhance students performance.

Table 4.5: Responses on resources that might help students in learning mathematics.

Rulers	Number of teachers
Textbooks	3
Graph books	3
Geometrical instruments	3
Past examination papers	2
Calculators	3

Coloured chalks	3
Plain paper	1

The table above shows that all teachers recommend that calculators, graph books, past examination papers, rulers, construction instruments and coloured chalks can help learners improve their performance in mathematics. Most students from the schools under research are from poor families, they can't afford to buy resources to aid their learning of mathematics so there is need for them to be provided with such resources. Wong et al (2019) noted that the ability of teachers to apply pedagogical innovations in class depends on resources available. Only one of the teachers agreed that plain papers enhance students performance in mathematics.

4.2.7 : Teachers responses on other factors that might have contributed to zero percent pass rate.

Table 4.6: Responses on other factors contributing to zero percent pass rate.

Factor	Number of teachers
Students attitudes	2

Poor mathematical background	3
Shortage of time	2
Lack of students motivation	1
Administration not supportive	2

Table 4.7

Table 4.7 indicates that all the sampled teachers believe that poor mathematical background is an important factor that affects students performance in mathematics. From the teachers responses, it can be seen that lack of students motivation, lack of support from the administration, shortage of time and students' attitudes also influence students' performance in mathematics. Other causes of zero percent pass rate can also be represented as a bar chart below.

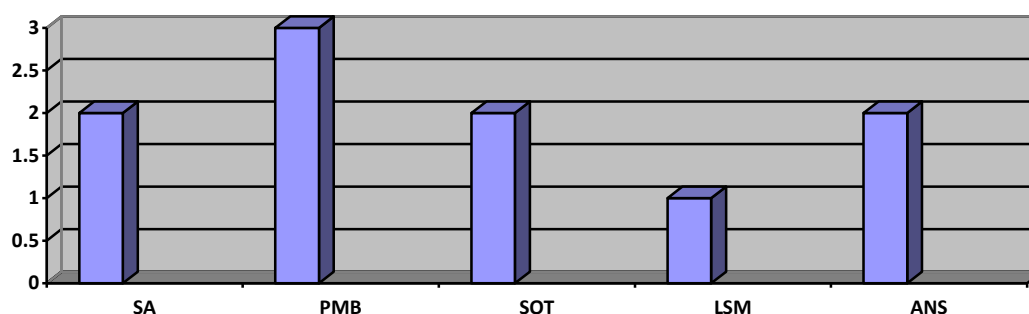


Fig 4.2: Responses on factors that might have contributed to zero percent pass rate.

4.3 : Responses from students questionnaire.

Quesnnaires were distributed to twenty four students and they all managed to return them filled with the information that was being researched by the researcher.

4 3.1: Responses on students age.

Table 4.7: Age of students

Students age	Frequency
Below 15	0
16-18 years	18
Above 19	6

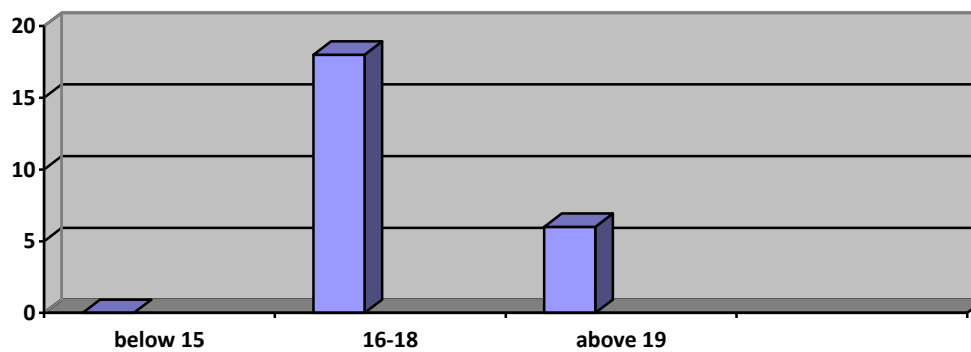


Fig 4.3: Age of students (yrs)

The modal age was 16 to 18 with 18 students. None was below 15 years and 6 were above 19. So the influence of age on performance was insignificant since all learners were mature.

4.3.3: Students responses on their general performance in mathematics.

Table 4.8 : showing students overall performance in mathematics.

Performance	Number of students
Fair	18
Good	5
Excellent	1
Total	24

The table shows that the majority of students are aware that they are poor in mathematics. Eighteen indicated that their performance is fair and five indicated that their performance is good. Surprisingly only one indicated that his performance is excellent. Learners perceptions on their performance in mathematics have a contribution in their final examinations. Students performance can be represented in a pie chart as below.

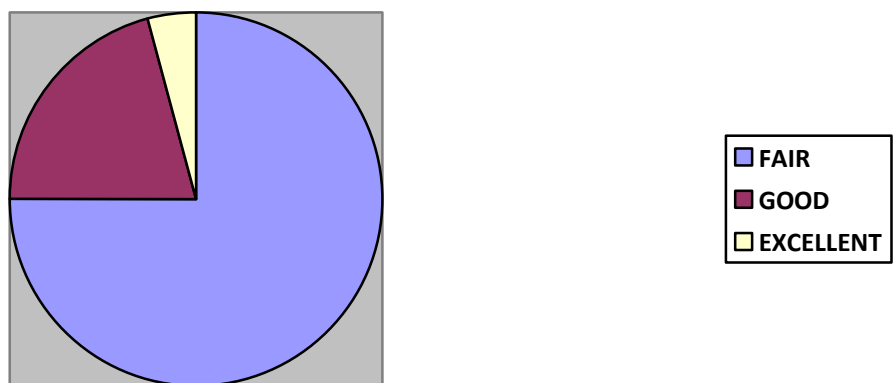


Fig 4.4 : Students general performance in mathematics.

4.3.4: Students responses on their attitudes towards mathematics

Table 4.9: Responses on students attitudes towards mathematics..

Response	Number of students
I like it	6
I hate it	18

The table above indicates that two thirds of the students hate mathematics, which also show that they have a negative attitude towards mathematics. Only one third indicated that they like

mathematics. The finding concur with Otoo (2018); students performance in mathematics begins with students interest in liking the subject.

4.3.5: students responses on resources.

Table 4.10: Responses on resources which students have

Resources	Yes	No
Graph book	8	16
Ruler	9	15
Pencil	20	4
Plain paper	10	14
Calculator	8	16
Construction instruments	6	18
Textbooks	0	24

None of the students have a textbook. The table clearly indicate that a large number of students do not have resources to aid them in learning mathematics. There is need for students to have resources for effective learning of mathematics. Responses on resources can also be presented as a bar graph below.

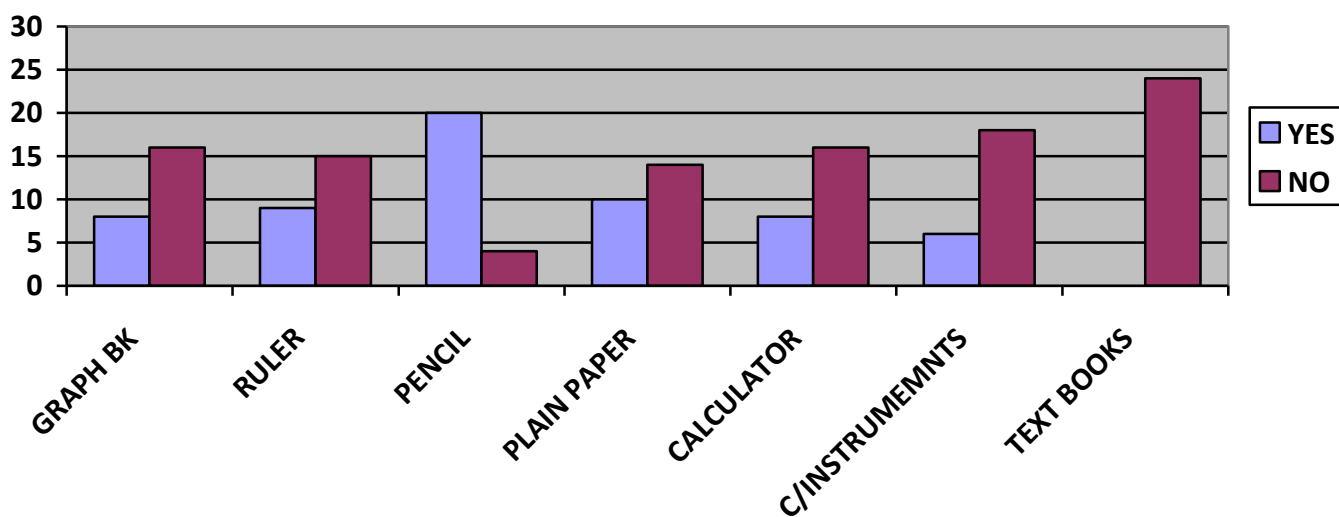


Fig 4.5: Showing resources which students have.

4.3.6: students responses on the use of teaching and learning materials.

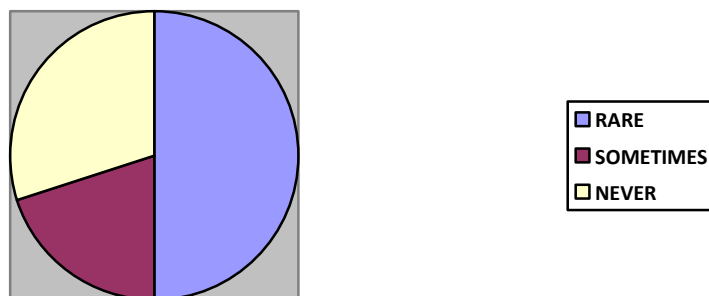


Fig 4.6. Students responses on use of teaching and learning materials by the teacher.

Students respondents were asked to indicate whether their teachers often use teaching aids in class. Their responses are as presented in the pie chart above. The findings presented above indicated that teachers do not quite make use of teaching aids adequately. This is evidenced by the fact that 50 percent of the students who reported that the teacher rarely used teaching aids, while 20 percent indicated that the teacher sometimes use teaching aids. It is worthy to note that 30 percent indicated that their teacher have never used teaching aids. The findings contradicts with Wong et al (2019) who noted that not using teaching aids at all promote rote

learning. Perhaps because of limited resources and time, teachers resort to rote learning possibly to cover the syllabus because inspection requires them to complete the syllabus at specified times.

4.3.6: students responses on what may have caused their failure in mathematics examination.

Table 4.11: Students responses on other causes of poor performance in mathematics.

Cause	Number of students
Shortage of resources	8
Teachers teaching strategies	3
Shortage of time	4
Negative attitude	5
Not aware	4

A good number of students indicated that shortage of resources contributed to their failure. A few mentioned teaching methods, attitudes and shortage of time as some of the factors that contributed to their failure.

4.3.7: students responses on measures that can be put in place to improve pass rate in mathematics. .

A good number of students (40%) indicated that holiday lessons may improve pass rate in mathematics. A few also added that weekend lessons may also be helpful in improving students performance in mathematics. A few students also pointed out that they must be given time to study at home. About 50%of the sampled students agreed that the school must provide them with textbooks for them to study mathematics during their spare time. A very few students also noted that the teacher should teach well.

4.4. Responses from teachers interviews.

Three teachers were interviewed. All the three teachers said that none of their students passed mathematics. Teaching experience was considered to be vital. Two of the teachers have served for eight years and one indicated that he had served for only two years. Teachers who serviced long are assumed to have more experience. Two of the teachers said they have been teaching at the schools for only one year.

One of the teachers said they obtain 0% for the past four years. The other teacher said they obtain 0% in 2022 and 2023 and the other teacher said they only obtained 0% in 2023. All the three teachers complained about their teaching load per week, two of them said they have 36 lessons per week and one of the teachers said he has a teaching load of 42 in which 12 of the lessons are science lessons.

All the three teachers indicated that they give their students a daily exercises and one test per fortnight and this is done as per requirement of the mathematics curriculum.

All the three teachers said that they mainly use instructional materials when teaching geometric concepts and in some concepts of trigonometry. 100% of the sampled teachers pointed out that they do not have computers and projectors that they hope may enhance the teaching and learning of mathematics.

The teachers interviewed indicated several factors that might have contributed to zero percent pass rate. The majority of the teachers pointed out that they had no textbooks for learners, they only have teachers copy. They also indicated that the learners have a negative attitude towards mathematics and learners also have a poor background in mathematics. 33% of the sampled teachers also indicated that the students have no teacher for almost a year in form

three which means they only did mathematics at ordinary level in only one year . 100% of the sampled teachers indicated that they were overloaded with more than thirty teaching periods per week.

4.5. Summary

The chapter was concerned with data presentation, analysis and interpretation of data from questionnaires and interviews. The data was presented in form of frequency tables, graphs and narrative descriptions. From the findings, there is a clear indication that teaching methods, attitudes and resources stands as some contributing factors in poor performance by students in mathematics. The next chapter will focus on the summary, conclusion and recommendations of this study.

CHAPTER FIVE : SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.

5.1 Introduction

This chapter focus on summarizing the project's research findings from the questionnaires and interview with both mathematics teachers and students, as well as making some recommendations and conclusions about learners performance in mathematics at ordinary level. Recommendations will be made hoping that they shall be of benefit to all interested parties in the study of mathematics and for future studies.

5.2 Summary of the study

The research sought some demographic characteristics of the population by gender of students and teachers, qualification of teachers, length of time teachers have served. However the prime concern were the findings of the study as per objectives of the study. The purpose of this study was to analyse students performance in mathematics at ordinary level. The researcher examined in detail what might have contributed to zero percent pass rate in mathematics at ordinary level in selected schools. The summary of findings is therefore presented below.

Regarding teacher qualification, all the teachers have a minimum requirement for a secondary school teacher. In addition, none of them have serviced for more than ten years. With regards to teacher availability, the study concluded that there are not enough mathematics teachers since in one of the schools it is taught by a biology teacher. At the same time, in terms of suitability and availability of teaching and learning materials, more than 50% of the sampled

teachers and students indicated that they do not have the materials especially students textbooks.

The researcher reviewed other researchers findings pertaining learners performance in mathematics at ordinary level. The literature reviewed showed that factors like shortage of resources, teaching methods, teachers qualifications, attitudes of both teachers and students and poor mathematical background influence students' performance in mathematics.

The researcher used a case study in carrying out the research. The method enabled the researcher to obtain data which was relevant and accurate to answer the research subproblems. The targeted sample of this study comprised 3 mathematics teachers and 24 learners from 3 different schools. Purposive sampling was used to select participants.

The questionnaire and interviews were the data gathering instruments used. Data collected was presented in tables, pie charts, bar charts and descriptions.

Mathematics teachers in the sampled schools use several teaching methods but they mainly use the demonstration method which limits students participation.

With regards to instructional materials, the use of instructional materials in the class was minimal, most resources that enhance students understanding of mathematics like textbooks and technology tools were never used by students. Although mathematics teachers believe teaching resources are important in teaching mathematics, they rarely use them.

Concerning students attitudes towards mathematics, most students selected for this study had negative attitudes towards mathematics for they indicated that they hate mathematics and some never practiced mathematics at home

5.3 Conclusion

The study found that there are several obstacles in the teaching and learning of mathematics that hinders students performance though there are strategies that can be put in place to remedy the challenges. Interactive teaching methods that improve students performance in mathematics were absent. While most teachers were qualified but did not use teaching aids yet they are aware that teaching aids impact students performance. In schools, efforts should be

made by administration teachers on providing materials needed for effective teaching and learning for students to acquire mathematics knowledge.

Students are aware that mathematics is important in their lives for their careers would be determined by mathematics results. However students feel mathematics is difficult for them.

Unless meaningful action is taken, students performance in the sampled schools will be very low. For this reason, recommendations below were being made.

5.4 Recommendations

In light of the conclusion mentioned, the researcher found it worth to make the following recommendations:

There is need to conduct further research in areas in students performance in satellite and rural schools. This study was done in a period of less than six months, students performance in mathematics could be better researched over a long period of time. Another recommendation would be a large sample size. Since this study was carried out in rural schools with a limited amount of ethnic diversity, economically disadvantaged, the results of the study could be contingent on the type of population in the particular schools setting. Further research need to be conducted in a more diverse school setting.

Subject specialists should teach the subjects they have specialized in at teacher training institutions.

1. The Ministry of Education should provide teaching and learning resources.
2. The Ministry of Education should organize in-service training for mathematics teachers in connection with teaching methods and students assessment.
3. The curriculum of teacher training institutions need revision.
4. Schools should provide resources that can enhance the teaching and learning of mathematics.
5. Schools should allocate minimum number of minutes for mathematics lessons (45 minutes per lesson).

6. Guardians should give their children time to study at home especially during weekends and holidays.

REFERENCES

Akhtar, I. (2016). Research design. New Delhi: Jamia Millia Islamia.

Arends, F. Winnaar, L. and Mosimege, M. (2017). Teachers classroom practice and mathematics performance in southern African schools: a reflection on TIMSS. South Africa journal of education.

Canalas , L. (2017). Instruments for gathering data. Barcelona: University of Catalunga.

Chaudhary, K, Dai, X, and Grundy, J.(2017). Experience in developing micropayment systems for peer to peer networks :Uppsala, Sweden.

Creswell, J. W. (2014). Research design: Qualitative. quantitative and mixed methods approaches.fifth edition. Sage: Los Angeles.

Flick, U. (2018). Qualitative data analysis. sage: London.

Hamed , M. (2015). Validity and reliability of research instruments. Kualar Lumpur: Helvetic editions limited.

Ittigson, R.and Zewe, J. (2015). Technology in mathematics classroom: challenges of teaching with technology across the curriculum: Issues and solutions. Pennysylvania, United States

Johnson, D. Johnson, R (2015). Cooperate learning: improving university instruction by basing practice on validated theory.J Excell college

Kashefi, H.Ismail, Z. Mirzaei, F. Tak, C. C ,and Ching, T.Y. (2017). Teaching and learning theories applied in mathematics classrooms among primary school teachers. STEAMEC.

Khan, MIL.(2017) .The need for reforms in education assessment in primary schools in Fiji for the 21st century. University of South Pacific.Pretoria.

Majid, I. (2018). Undergraduate research in natural and clinical science and technology. Journal 2022, accessed on <https://doi.org/1026885/urnest16>.

Mazana, M. Suero Montero, C.and Casmir, R. (2028). Investigating students'attitudes towards learning mathematics. International Electron journal of mathematics education.

Mji, A,. and Makgato, M. (2016). Factors associated with high school learners poor performance. Southern African journal of education.

Ministry of primary and secondary education,MOPSE (2015) . Curriculum framework for primary and secondary Education.CDU .Harare.

Ndume, V. Songoro, M. Kisanga, D. (2020).Enriching performance of mathematics in secondary schools using mobile learning. International journal of education in ICT.

Nicholas , L Mack, J, and Wilson, R. (2015). Mathematics preparation for university entry, pathways and impact on performance in first year science and mathematics subjects. International journal of education.

Otoo, D. Iddrisu, W.A. Kessie, J.A. and Larbi, E. (2018). Structural model of students interest and self motivation in learning mathematics. Education research international. vol 2018, pp. 1- 10.

Peteros, E.Gamboa, A, Etcuban., J O. Dinauanao,A. Sitoy, R. and Arcadio R (2020). factors affecting mathematics performance on junior high school students. International electronic journal of mathematics education. volume 15.

Raj, J. (2015) . autonomous controllers for quadrotors. IEEE Access.

Reddy, E. Sharma, B. And Dakuidreketi, M. (2020). Mobile learning readiness and ICT competency: a case study of senior secondary schools in Pacific Islands.

Roopa, S. and Rami, M.S. Questionnaire design for survey :

Sa'ad, TU, Adamu,A. and Sadiq, AM. (2015) The causes of poor performance in mathematics among public senior secondary school students in Azare metropolis of Bauchi State, Nigeria. Google scholar.

Suleiman, Y. and Hammed, A.(2019). Perceived causes of students failure in mathematics in Kwara state junior secondary schools: implication of educational managers. International journal of education.

Tshabalala, T and Ncube, A.C. (2016)Causes of poor performance in ordinary level pupils in mathematics in rural secondary schools in Nkayi district: learners attributions.MED biological sciences.

Tuimavana, R. and Datt, N. (2017)Teachers attitude towards teaching mathematics at upper primary level in Fiji primary schools: a case study of western primary schools.Humanities and culture studies. ISSN.

Visser, M. Juan, A. and Feza, N . (2015).Home and school resources as predictors of mathematics performance in South Africa. South Africa journal of education.

Wong SL. Wong, S.L. (2019). Relationship between interest and mathematics performance in a technology enhanced learning context in Malaysia, Research in practice in technology enhanced learning.

Yeh, CY. Cheng,HN. Chen, ZH. Liao, CC. Chan, TW.(2019). Enhancing achievement and interest in mathematics learning through mathematics island. Research and practice technology enhanced learning.

ALL communications should be
addressed to
"The Provincial Education Director for
Primary and Secondary Education"
Telephone: 263585/264331
Fax: 039-263261



Ministry of Primary and Secondary
Education
P. O Box 89
Masvingo

17-05-24

MUCHIKA PRECIOUS
MUTAMBEI SECONDARY SCHOOL
P.O. BOX 599
GUTHRIE

RE: PERMISSION TO CARRY OUT RESEARCH AT

MUTAMBEI SECONDARY
MUCHEKAYAORA SECONDARY
MUTOMBWA SECONDARY

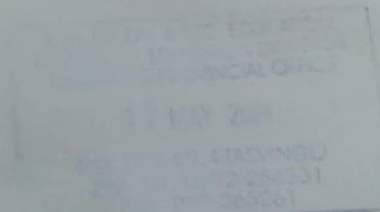
Reference is made to your application to carry out research at the above mentioned
schools in GUTHRIE District, Masvingo Province on the research topic
titled:

ANALYSING STUDENTS PERFORMANCE IN
MATHEMATICS
A CASE OF 3 SELECTED SCHOOLS IN
GUTHRIE DISTRICT WITH ZERO PERCENT PASS
RATE IN THE (ZIMSEC) NOVEMBER 2023 NATIONAL
EXAMINATIONS

Please be advised that permission has been granted to carry out your research.

You are therefore advised to liaise with the District Schools Inspector who is
responsible for the schools which are part of the sample for your research.

S. Mhike
Provincial Education Director
MASVINGO PROVINCE



APPENDIX 1. Letter from provincial education director

APPENDIX 2. Confirmation letter from Bindura University of Science Education

P Bag 1020
BINDURA
ZIMBABWE

SAMED

Tel: 0271 - 7531 ext 1038
Fax: 263 - 71 - 7616

 BINDURA UNIVERSITY OF SCIENCE EDUCATION

Date: 17-04-24

TO WHOM IT MAY CONCERN

NAME: ZIMKHA PRECKUS REGISTRATION NUMBER: B1025955

PROGRAMME: HBSCED MATHS PART: 2.2

This memo serves to confirm that the above is a bona fide student at Bindura University of Science Education in the Faculty of Science Education.

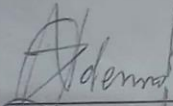
The student has to undertake research and thereafter present a Research Project in partial fulfillment of the HBSCED MATHS programme. The research topic is:

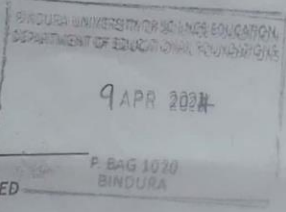
ANALYSING STUDENTS PERFORMANCE IN MATHEMATICS,
A CASE STUDY OF 3 SELECTED SCHOOLS IN QUTU EAST WITH ZERO PERCENT PASS RATE

In this regard, the department kindly requests your permission to allow the student to carry out his/her research in your institutions.

Your co-operation and assistance is greatly appreciated.

Thank you


Z. Ndemo (Dr.)
CHAIRPERSON - SAMED


9 APR 2024
P. BAG 1020
BINDURA

APPENDIX 3. Questionnaire for teachers

Name of school:

Sex:

Date:

My name is Zinyeka Precious, a HBSCED mathematics student from Bindura university. I am contacting a research titled ;analysing learners performance in mathematics at o level. A case of three schools in Gutu east with zero percent pass rate in ordinary level in mathematics for the November 2023 national examinations research is expected to have a positive contribution on learners performance in mathematics

Your participation in this questionnaire is voluntary. Write answers on the spaces provided.

Section A. (Demographic data)

Show your response by ticking inside the bracket

1. Gender: Male []

Female. []

2.Highest Professional qualification: certificate in education[.]

Diploma in education. []

BED :. [.]

Other specify :. [.]

3. Teaching experience. ∴ < 5 years. [.]

6 ro 10 years [.]

11 to 15 years. []

Above 15 years [.]

Section B

4. How many students passed the ZIMSEC November 2023 mathematics examinations. _____

5. How was the general performance of students in their mid year examinations? _____

6. Which textbooks do you use to deliver lessons? _____

7. Which teaching methods do you use? _____

8. Among the above, which teaching method do you frequently use? _____
.

9. What additional materials or resources would you recommend to help the learners improve performance in mathematics at ordinary level? _____

10. Is the school administration supportive in teaching and learning of mathematics?.....,
How?, explain the above_____

11. What other factors might have contributed to zero percent pass rate in mathematics at
ordinary
level?_____

.12. What measures do you suggest should be put in place to improve
learners performance in mathematics at ordinary level mathematics?

Thank you for taking your time to complete this questionnaire. Your cooperation is greatly
appreciated.

APPENDIX 4. Questionnaire for students

Date:

Sex:

My name is Zinyeka Precious, a HBSCED mathematics student from Bindura university. I am contacting a research titled ;analysing learners performance in mathematics at o level. A case of three schools in Gutu East with zero percent pass rate in ordinary level in mathematics for the November 2023 national examinations . This research is expected to have a positive contribution on learners performance in mathematics .

Your participation in this questionnaire is voluntary.

Section A : Demographic data.

Show your response by ticking inside the bracket.

- | | | |
|-----------------|---------|------|
| 1. Gender :. | Male. | [.] |
| | Female. | [.] |
| 2. Age range :. | < 15. | [.] |

16 to 18. . [.]

Above 18. [.]

Section B

3. Did you manage to pass your ZIMSEC examination? If no, what could have caused your failure.

3. How do you rate your overall performance in mathematics? Fair [.], Good [.], Excellent [.].

4. Do you practice mathematics outside school hours? Yes. [.]. No [.]

5. What is your attitude towards mathematics? I like it. [.], I hate it [.].

6. How often does your teacher use instructional materials when teaching? Rarely [.], Sometimes [.], Never. [.],

7. Do you have the following resources to assist in your mathematics ?

Resource.	Yes.	No
Graph book		
Ruler		
Pencil		
Calculator		
Textbooks		
Geometrical instruments		

8. Do you ask questions or seek help from your teacher when you encounter difficulties in mathematics? _____.

9. What strategies do you find helpful in improving your understanding and performance in mathematics? _____

Thank you for your participation.

APPENDIX 5. Interview for teachers

Name of school:

Date. :

1. How many students passed the ZIMSEC November (2023) mathematics examinations.?
2. For how long have you been teaching mathematics.?
3. How long have you been teaching mathematics at the present school?
4. How was the performance of students in mathematics ZIMSEC examinations from 2021 to 2023?
5. What is your teaching load per week?
6. How often do you give learners exercises and tests.
7. How frequent do you use instructional materials to deliver lessons?
8. What other factors affect students performance in mathematics for ordinary level?

