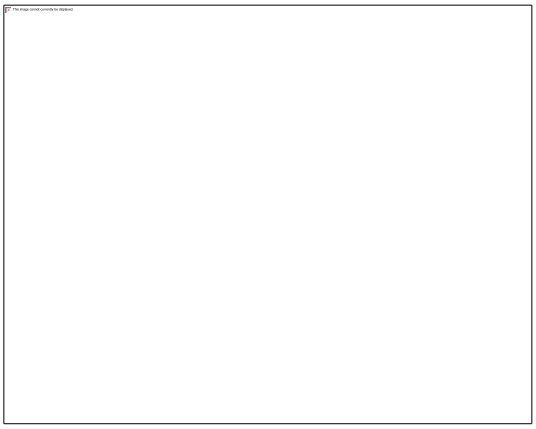

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DEPARTMENT OF SCIENCE AND MATHEMATICS EDUCATION

BACHELOR OF SCIENCE EDUCATION HONOURS DEGREE IN MATHEMATICS

(HBSc Ed MATHS)

CAUSES OF POOR PERFORMANCE IN MATHEMATICS AT GRADE 6 LEVEL, A CASE STUDY OF NYAMAMBIZI CLUSTER IN HURUNGWE DISTRICT.

BY

MUNATSI JUSTICE TICHAONA

REG NO. B225772 B

A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE

REQUIREMENTS OF THE BACHELOR OF SCIENCE HONORS DEGREE IN MATHEMATICS EDUCATION

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Title of the dissertation: Causes of poor performance in mathematics.

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Registration Number: B225772B

Dissertation Title: Causes of poor performance in mathematics at grade 6, a case study of Nyamambizi Cluster in Hurungwe district.

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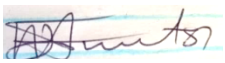
Signed…  Date 01/12 /2024

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DEDICATION

This study is dedicated to my lovely wife Zorodzai Makanga who encouraged me through all circumstances to reach beyond the stars, I am so thankful. To my son Witness Tatenda Munatsi and the Munatsi family at large you are the reason I have so much courage to move on when the roads get tough. To my dear friends and colleagues, I am thankful for all the encouragement you have given me in the process

ABREVIATIONS/ACCRONYMS

STEM- Science, Technology, Engineering and Mathematics

SACMED- Southern and Eastern Africa Consortium for Monitoring and Educational Quality

HBScEd- Honours Bachelors Science Education Degree ESAP-Economics and Structural Adjustment Programme

ABSTRACT

This study aimed to investigate the causes of poor performance in mathematics at Nyamambizi cluster schools in Hurungwe district. Poor performance in mathematics is a persistent concern in educational settings, and understanding its underlying causes is crucial. To address this issue, the study employed a mixed-methods approach, using questionnaires to explore the factors contributing to poor mathematics performance. The study examined three dimensions: learner-related, teacher-related, and school-related factors. The analysis of learner-related factors revealed that weak fundamental skills, mathematics anxiety, and ineffective learning habits significantly hinder academic success. Teacher-related factors, including inadequate teacher training, tardiness, absenteeism, and delayed feedback, compromise instructional quality. Furthermore, school-related factors such as overcrowded classrooms, inadequate resources, and poor school leadership exacerbate the problem. This research highlights the interconnected nature of these factors, emphasizing the need for a comprehensive approach to address poor mathematics performance. By identifying and addressing these causes, educators and policymakers can develop targeted interventions to enhance mathematics education and foster a culture of numeracy. Ultimately, this can lead to improved learner outcomes and a stronger foundation in mathematics

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CHAPTER ONE: INTRODUCTION OF THE STUDY

1.0 INTRODUCTION

This chapter provides the background to the study, offering a comprehensive overview of the context and history surrounding the poor performance in mathematics. Specifically, it examines the underlying causes of this phenomenon, setting the stage for a deeper exploration of the issues at hand. Furthermore, this chapter articulates the problem statement, highlighting the challenges that this study seeks to address. The chapter also outlines the research questions, limitations, and delimitations of the study, providing a clear framework for the investigation that follows.

1.1 BACKGROUND

Mathematics is inherently a demanding subject that requires higher-order thinking skills, making it a notoriously challenging subject at various educational levels (Watson, 2012). While this assertion is widely acknowledged, it remains a topic of debate globally. Amidst this backdrop, education technology (EdTech) has become an integral part of school classrooms worldwide, driven by the need to enhance educational standards in an increasingly globalized and technology-driven era. Mathematics learning is a complex process that demands a unique combination of cognitive skills, including short- and long-term memory recall, visual-spatial perception, and problem-solving abilities (Chinn, 2004). Despite these demands, many learners continue to struggle with mathematics, citing environmental, affective, and cognitive factors that ultimately impact their academic performance (Ginnoulas & Stampoltzis, 2022). At its core, mathematics is the science of reasoning, computation, and problem-solving. It provides a language to describe relationships, patterns, and ideas derived from the environment (Kitta, 2004). By leveraging mathematical concepts and principles, individuals can uncover hidden patterns, solve complex problems, and make the invisible visible.

The mathematical demands on learners escalate as they progress through school and transition into adulthood, impacting their personal and professional lives (Lambdin, 2009). To navigate a rapidly changing world, learners require a robust foundation in mathematics. This foundation extends beyond mere procedural knowledge, encompassing a deep understanding of mathematical concepts, patterns, and connections (Ministry of Education, 2004). Research

highlights the significance of teacher quality in shaping learners' mathematical achievement. A study by Iheadnqchor (2007) revealed a positive correlation between teachers' mathematical background and learners' academic performance. Specifically, learners taught by mathematically qualified teachers tend to excel in mathematics.

Tata's (2023) investigation in Nigeria uncovered pivotal factors contributing to poor mathematics performance. These factors include learners' negative attitudes and fear of mathematics, inadequate qualified teachers, and insufficient teaching materials. Conversely, fostering positive attitudes, motivation, and providing proper guidance, supplemented with relevant teaching materials, can substantially enhance learners' mathematical performance. Globally, governments have invested heavily in public education to improve academic standards. For instance, the United States spent approximately $200 billion over four decades on elementary and secondary education (Eren & Henderson, 2008). Similarly, Japan and China allocated 3.6% and 4.0% of their GDP, respectively, to education in 2014 and 2016 (World Bank Group, 2014; Government of China, 2016). Despite these substantial investments, some studies have reported negligible improvements in academic achievement (Hoxby, 1999). For example, Malaysian learners have consistently struggled with mathematics compared to their international peers (Liew & Pong, 1994).

Mathematics performance remains a pressing concern in African countries, with both teacher and learner-centered factors contributing to poor outcomes. In Ghana, learners cited lack of interest and self-doubt as primary reasons for their dismal mathematics performance (Fokuo, Lassong, & Kwasi, 2022). Similarly, studies by Mabena, Makgosi, and Ramapela (2021) and Sa'ad, Adumu, and Sadiq (2024) identified learners' negative attitudes towards mathematics as a major contributor to poor performance. Additional factors, such as fear of mathematics and inadequate resources, also played a significant role.

The Southern and Eastern Africa Consortium for Monitoring and Educational Quality (SACMEQ) has consistently reported poor mathematics performance in countries such as Zimbabwe, Botswana, Namibia, and Zambia. Notably, none of these countries' inclusive education policies have addressed learners' inherent cognitive challenges, such as dyscalculia or mathematics learning disabilities (February, Hamukwanya, Hamukwanya, & Jatileni, 2022).

In Zimbabwe, rural education is often undermined, resulting in significant disparities in mathematics performance (Vurayi, 2020). Mathematics proficiency at the ordinary level (secondary) is a critical determinant of learners' progression to further studies or the job market (Chinanon, McLeish-Smith, Head, Macrae, & Chakasara, 2011). Consequently, poor mathematics performance is often concentrated in marginalized rural areas, where poverty, lack of resources (Nziramasanga, 1999; Mupa, 2015), and limited opportunities for academic remediation exacerbate the issue. Zimbabwe's economic hardships, which began with the failure of the Economic and Structural Adjustment Programme (ESAP) in the late 1990s, have led to increased school dropout rates and declining academic achievement (Kangongo, 2005; Mabhoyi & Seroto, 2019). As a result, at-risk learners have become prevalent across Zimbabwean schools, highlighting the need for targeted interventions to address the complex factors underlying poor mathematics performance.

Rural areas in Hurungwe, particularly the Nyamambizi Cluster, are home to numerous government primary schools that cater to large, densely populated communities. Classrooms are often overcrowded, with a single subject teacher responsible for teaching 50 to 60 learners. For subjects like Mathematics and English, which are taught to entire streams, teacher-learner ratios can be even more skewed. Despite efforts to modernize education through the adoption of blended learning and digital platforms like social media, government schools in the area continue to face significant resource challenges. Teach for Zimbabwe, a children's education advocacy organization, reports that inadequate funding and low teacher morale have severely impacted the quality of education, rendering it an unattainable goal for high-need schools (Teach for Zimbabwe, 2023).

1.2 PROBLEM STATEMENT

The underlying causes of poor performance in mathematics among Grade 6 learners in Hurungwe District remain unclear, hindering the development of evidence-based strategies to improve mathematics education at the primary level. The national pass rates for primary level mathematics from 2017 to 2018 were alarmingly low, standing at 29.79%, 45.10%, and 20.36%, respectively (Zimbabwe Schools Examination Council, 2019). Furthermore, the pass rates have

continued to decline, underscoring the need for research into the causes of poor performance in mathematics.

The persistently high failure rates among learners necessitate an investigation into the factors contributing to this trend. Identifying and addressing these factors is crucial to mitigating the detrimental effects on learners' academic performance and ultimately improving mathematics education outcomes.

1.3 RESEARCH QUESTIONS

The study is anchored on the following questions.

1] What are the teacher's related factors leading to the learner's failure in mathematics?

2] What are learners' related factors leading to the failure in mathematics?

3] What are schools related factors leading to the failure in mathematics?

1.4 SIGNIFICANCE

The issue of poor performance in mathematics has sparked widespread concern among stakeholders in Zimbabwe. Despite ongoing debates and speculations, the underlying causes of this phenomenon remain unclear. In Hurungwe District, educators, parents, learners, and the responsible authorities are particularly concerned about the persistent poor performance in mathematics.

Notwithstanding efforts by the responsible authorities to address this issue, including providing qualified staff, staff development programs, and initiatives like the Performance Lag Address Program (PLAP), mathematics performance remains a pressing concern. This study aims to investigate the causes of poor performance in mathematics to inform strategies for improving the teaching and learning process. The findings of this study will contribute to the existing body of knowledge, providing valuable insights for future research in mathematics education. Furthermore, this study will offer practical guidelines for parents and teachers to create a more supportive learning environment, both at home and in school.

1.5 DELIMITATIONS

1. Geographical scope: The study is limited to Nyamambizi Cluster in Hurungwe district, Zimbabwe, and does not represent other districts or regions.
2. Grade level: The study focuses exclusively on Grade 6 learners and does not explore mathematics performance at other grade levels.
3. Subject area: The study is confined to mathematics performance and does not examine performance in other subjects.
4. Sample size: The study involves a specific number of participants (e.g., learners, teachers, parents) and may not be representative of the larger population.
5. Methodology: The study employs a specific research design (e.g., qualitative, quantitative, mixed-methods) and data collection methods (e.g., surveys, interviews, observations).
6. Data sources: The study relies on specific data sources (e.g., learner records, teacher interviews, parental surveys) and may not incorporate other relevant data sources.
7. Cultural context: The study is conducted within a specific cultural context (e.g., rural Zimbabwean community) and may not be generalizable to other cultural contexts.

1.6 LIMITATIONS

1. Limited generalizability: The study's findings may not be generalizable to other districts, regions, or countries due to differences in context, culture, and education systems.
2. Biased sampling: The study's sample may be biased towards specific groups (e.g., learners from affluent families, teachers with certain qualifications) and may not represent the broader population.
3. Measurement errors: The study's data collection instruments (e.g., surveys, tests) may contain measurement errors, which could impact the validity and reliability of the findings.
4. Resource constraints: The study may be limited by resource constraints (e.g., funding, access to participants, equipment) which could impact the quality and scope of the research.

1.7 DEFINITION OF KEY TERMS

Learners

Learners are individuals who acquire knowledge, skills, and attitudes through experience, instruction, or study (Merriam-Webster Dictionary, 2020). Cambridge Dictionary, (2020) say that a learner is someone who is actively engaged in the process of learning, whether formally or informally. Therefore in this study, learners refer to Grade 6 learners who are learning mathematics in Nyamambizi Cluster, Hurungwe district.

Performance

According to Business Dictionary (2020), Performance refers to the accomplishment of a given task measured against preset standards of accuracy, completeness, and speed. Performance is the execution or accomplishment of a task, function, or role, often evaluated in terms of quality, efficiency, or effectiveness (Oxford English Dictionary, 2020). However in this study, performance refers to the academic achievement of Grade 6 learners in mathematics, measured through standardized tests and assessments.

Motivation

Psychology Today, (2020) say, Motivation is the reason or reasons one has for acting or behaving in a particular way, often driven by needs, desires, or goals. Motivation refers to the internal or external factors that stimulate desire and energy in individuals to achieve their goals (MindTools, 2020). In this study, motivation refers to the internal or external factors that influence Grade 6 learners' desire to learn and achieve in mathematics.

Subject

A subject is a branch of knowledge or a field of study, often taught as a separate course or discipline (Cambridge Dictionary, 2020). A subject is a topic or area of study, such as mathematics, science, or language arts." (Merriam-Webster Dictionary, 2020). According to this study, the subject refers to mathematics, which is a branch of study that involves the learning of numerical, spatial, and logical concepts.

Regular

Oxford English Dictionary, (2020) states that, Regular refers to something that happens or is done at fixed intervals, following a consistent pattern or schedule. According to Merriam-Webster Dictionary, (2020) Regular means occurring or done at consistent intervals, often in a predictable or routine manner. In this study, regular refers to the consistent and systematic approach to teaching and learning mathematics in Grade 6 classrooms.

Monitoring

Monitoring refers to the systematic observation and recording of progress, often to identify areas for improvement or to track performance (Business Dictionary, 2020). Monitoring involves the ongoing observation, supervision, and evaluation of activities, processes, or systems to ensure quality, safety, or effectiveness. (Oxford English Dictionary, 2020). In this study, monitoring refers to the systematic observation and evaluation of Grade 6 learners' progress in mathematics, often to identify areas for improvement or to track performance.

1.8 SUMMARY

This study's foundation was established in the background chapter, which highlighted the significant global investments made by governments to enhance academic standards. The background also explored the underlying causes of poor mathematics performance, providing a framework for the study. Observations of mathematics performance challenges in Nyamambizi Cluster informed the development of the problem statement and research questions. The significance of the study was emphasized, particularly in relation to the concerns of Responsible Authorities, parents, educators, and learners regarding the causes of poor mathematics performance in Nyamambizi Cluster. Additionally, the chapter addressed the study's limitations and proposed strategies to overcome them.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.0 INTRODUCTION

This chapter provides a comprehensive overview of existing research on the underlying reasons for subpar mathematics performance. Specifically, it delves into the complex dynamics between instructors and learners, exploring how their mutual perceptions and attitudes influence mathematics learning outcomes. The chapter examines how instructors' teaching approaches, expectations, and interactions with learners can either foster or hinder mathematics engagement and understanding. For instance, teachers' beliefs about learners' abilities, their use of praise or criticism, and their level of emotional support can all impact learners' motivation and self-confidence in mathematics. Furthermore, this chapter investigates learners' attitudes, beliefs, and emotions towards mathematics, including their motivation, confidence, and anxiety levels. Learners' perceptions of mathematics as a subject, their past experiences with mathematics, and their goals and aspirations all play a role in shaping their engagement and achievement in mathematics. In addition, the chapter scrutinizes the instructional strategies and resources employed by mathematics teachers, including teaching methods and pedagogical approaches, assessment techniques and feedback mechanisms, use of technology and digital resources, availability and quality of instructional materials, and classroom management and learning environment. By examining these factors, the chapter aims to provide a nuanced understanding of the multifaceted factors contributing to substandard mathematics performance, ultimately informing strategies for improvement.

2.1 LEARNERS RELATED CAUSES OF POOR PERFORMANCE IN MATHEMATICS.

Numerous factors contribute to poor performance in mathematics. According to Grouws (2007), one primary cause is a weak foundation in the subject. Mathematics builds upon a series of concepts and skills, and gaps in understanding from previous years can hinder progress. Additionally, mathematics is often perceived as abstract or disconnected from real-life applications, leading to a lack of motivation among learners. When learners fail to see the relevance and importance of mathematics, it can negatively impact their performance. The teaching methods employed in mathematics also play a significant role. Traditional approaches

focusing on rote memorization and procedural understanding may impede deeper conceptual understanding (Grouws, 2007).

Mathematics anxiety is another common phenomenon that can significantly affect learners' performance. Feelings of fear, stress, and self-doubt can hinder learners' ability to think clearly and solve problems effectively. A learner's perception of mathematics greatly influences their performance. Bekee (1987) posits that learners' positive perceptions of mathematics are essential for academic success in the subject and related fields. Learners who consistently perform poorly in mathematics often lose faith and enthusiasm, while those who excel cultivate favorable attitudes and consider careers in mathematics. Bekee suggests that effective teaching tactics and improved learner performance are greatly influenced by the learner's attitude. Encouragement from teachers can consequently improve a learner's success in mathematics. Newbill (2005) notes that learners' attitudes towards mathematics are complex psychological, emotional, cognitive, and behavioral constructions that serve various purposes, including expression, defense, and utilitarian functions.

According to Newbill, altering learners' perceptions requires the removal of existing attitudes. To achieve this, instructors should prioritize instructional designs that foster supportive learning environments and promote positive attitudes. Research in social psychology highlights the significant role of emotional domains, such as attitudes, in motivation (Bandura, 1977). A positive attitude towards mathematics is essential for academic success in the subject (Barton, 2000). Incorporating support structures into instructional approaches can positively impact learners' attitudes towards mathematics.

Studies have shown that learner' attitudes towards objects, learning materials, and subjects are influenced by their perceptions (Furinghetti & Pekhonen, 2002). Learners' perceptions of a topic can significantly impact their behavior and performance in school. Teachers' attitudes and instructional methods also play a crucial role in shaping learners' views and academic performance (Burton, 2000; Furinghetti & Pekhonen, 2002). Research emphasizes the importance of promoting positive attitudes towards mathematics to enhance academic achievement (Schenkel, 2009). Moreover, studies have revealed gender disparities in mathematics performance, particularly in advanced mathematical tasks, which can be attributed

to differences in attitudes (Shiefele & Csikszentmihalyli, 1995). Age-related differences in value beliefs also underlie an individual's attitude, influencing behavior and outcomes. A learner's negative attitude towards mathematics can significantly impact their ability and success in the subject. Therefore, a learner's attitude and interests are critical in determining their academic performance and success in mathematics.

2.2 TEACHERS RELATED FACTORS LEADING TO THE LEARNER'S FAILURE IN MATHEMATICS.

Teacher absenteeism can have a detrimental impact on learner learning outcomes in mathematics. According to Clotfelter (2007), frequent teacher absences disrupt the continuity of instruction, preventing learners from receiving comprehensive curriculum coverage. This can lead to gaps in understanding, making it challenging for learners to keep pace with the subject. Research has consistently shown a strong correlation between teacher absenteeism and lower learner achievement in mathematics. Furthermore, the timely provision of constructive feedback on learners' mathematics assignments and exercises is crucial for their skill development. When teachers fail to provide such feedback, learners are deprived of the opportunity to identify and address their weaknesses, ultimately hindering their performance.

Teachers' perceptions of their learners also significantly influence mathematics learning outcomes. These perceptions determine the degree of planning, quality of instruction, and dedication to grading learners' work. Charalambos, Philipou, and Kyriakides (2002) emphasize that the approach to teaching mathematical topics substantially impacts learners' accomplishments. Negative perceptions can discourage learners from engaging with the material, while positive perceptions can pique their interest and foster understanding. Askew (1997) concurs that teachers' perceptions of their learners' learning capacities affect mathematical performance. Teachers who believe in their learners' abilities can inspire confidence and self-belief, leveraging learners' natural tendencies to achieve academic success. Conversely, teachers who lack confidence in their learners' abilities can transmit negative energy, demotivating learners and undermining their potential.

A teacher's work ethic has a profound impact on a learner's capacity to learn, according to Abuseji (2007). The degree of dedication exhibited by teachers influences learners' perceptions and success in their academic endeavors. Furthermore, a teacher's level of commitment affects their susceptibility to burnout, defines their work performance, and has a significant bearing on learners' academic achievement.

The manner in which teachers communicate mathematical concepts plays a pivotal role in determining learners' success in mathematics. A study by Schmidt, Houang, and Cogan (2002) revealed that American educators often engage in "textbook teaching," prioritizing the completion of extensive and challenging assignments within the allotted teaching time. This approach compromises learners' understanding of essential concepts, as teachers are unable to delve deeper into mathematical concepts. The study identified several teacher-related characteristics that contribute to ineffective teaching strategies, including a lack of expertise, a weak background in mathematics, and negative attitudes. However, the study also suggested that mathematics teachers can enhance learner achievement through ongoing professional development initiatives.

According to McBer (2000), teacher efficacy is a crucial factor in teaching. Teacher efficacy encompasses perseverance, dedication, enthusiasm, and instructional conduct. The evaluation of teacher efficacy also considers learners' outcomes, including motivation, self-efficacy beliefs, and achievements. Effective teachers foster a positive classroom climate, which, in turn, influences learners' attitudes toward learning. To enhance their effectiveness, teachers should be encouraged to develop problem-solving skills, plan and set expectations, adapt to change, and collaborate with others. The capacity of instructors extends beyond knowledge, as their backgrounds, personalities, and nature also significantly impact their classroom instruction. Interestingly, instructors with similar educational backgrounds can report varying classroom outcomes, highlighting the complexity of teacher efficacy.

2.3 SCHOOL RELATED FACTORS LEADING TO POOR PERFORMANCE IN MATHEMATICS.

According to Boaler (2006), the school environment plays a pivotal role in shaping learners' motivation and dedication to mathematics. When the school culture actively promotes and values

mathematics, it fosters a positive attitude and motivation among learners. Conversely, a school environment that neglects or undervalues mathematics can undermine learners' efforts and dedication to the subject. The availability of resources is also crucial in facilitating meaningful mathematical learning. Schools with adequate resources, such as high-quality textbooks, manipulatives, technology, and well-equipped mathematics laboratories, provide learners with the necessary tools to engage in interactive and hands-on learning experiences. In contrast, a lack of resources and facilities can limit learners' opportunities for engaging and interactive learning, ultimately hindering their mathematical understanding. Effective school leadership is essential in prioritizing mathematics education, allocating sufficient resources, and fostering a culture of excellence. This, in turn, can have a positive impact on learners' mathematical performance, according to Boaler (2006). Moreover, school policies and practices, such as tracking, ability grouping, and high-stakes testing, can also shape the school environment and influence learners' mathematical experiences and outcomes.

The delivery of a lesson significantly influences learners' comprehension of the material. When lessons are structured from the known to the unknown, learners are more engaged and receptive to learning. In contrast, lessons that begin with unfamiliar concepts can disengage learners. The way teachers structure their lessons can impact learners' attention spans and levels of focus. Butty (2001) emphasizes that teachers' instructional methods and strategies have a profound impact on learners' academic achievement. While teaching methodologies have evolved, the National Council of Teachers of Mathematics (2000) suggests that traditional instructional methods still have value and should not be entirely discarded. Instead, combining conventional approaches, such as group discussions and problem-solving, with newer methods, like peer teaching and learner discovery, can be beneficial.

Teachers should be mindful of the instructional strategies that are most effective for their learners, according to Butty (2001). Uusimaki and Nason (2004) concur, stating that instructional strategies influence learners' cognitive growth and capacity. The quality of instructional tactics affects learners' perceptions of a subject and their engagement with related assignments. Research by the National Council of Teachers of Mathematics (NCTM, 2000) suggests that inquiry-based teaching strategies significantly enhance learners' focus and engagement with the material. Therefore, teachers should encourage learners to explore and investigate mathematical concepts. This study assumes that learners learn by solving problems they encounter. Stein, Grover, and Henninssen (1996) conducted research on

the impact of improved teaching approaches on learners' academic achievement, highlighting the importance of effective instructional strategies.

Stein, Grover, and Henninssen (1996) conducted a study to investigate the impact of improved teaching approaches on learners' academic achievement. Their findings suggest that the application of enhanced techniques can significantly improve learners' problem-solving abilities and capacity to explore mathematical concepts. The researchers emphasize that teachers should adopt a facilitative role, guiding learners rather than dictating how they learn. This approach enables learners to acquire knowledge through active engagement in cognitive activities and critical thinking. The incorporation of mathematical exercises in the classroom fosters the development of problem-solving and socio-cognitive abilities. To promote this growth, many mathematics teachers employ questioning strategies. Jacqueline, Wanda, and Berry (2010) highlight the importance of using culturally responsive and socially just instructional strategies, which enable learners to acquire knowledge and skills in a more profound and lasting manner. Effective teaching techniques are essential for learners to master mathematics. Educators have a critical responsibility to provide learners with the necessary tools and support to overcome obstacles and access mathematical concepts. By employing pertinent teaching strategies, teachers can facilitate learners' pursuit of knowledge and promote a deeper understanding of mathematics.

2.4 RESOURCES AND TEACHING OF MATHEMATICS

The availability of necessary materials and resources significantly enhances the effectiveness of mathematics classes. These resources include textbooks, instructional aids, computers, time, and human resources. According to Baldacchino and Farrugia (2002), increasing the time teachers and learners spend together, along with providing tangible resources like textbooks, can improve the quality of education and its utilization. Teachers play a crucial role in providing a supportive learning environment and assisting learners in making the most efficient use of available resources. Marshalls (1995) emphasizes the importance of having a solid understanding of mathematics, as it is essential for contributing to society. Mathematics proficiency impacts performance in various subjects, including geography, making it a fundamental aspect of education. Marshalls notes that Plato incorporated mathematics into his pursuit of knowledge.

Butler-Por (1987) suggests that some learners deemed weak may be intelligent, but their environment, including their teachers, can erode their confidence and create self-doubt about their ability to understand mathematical concepts. With minimal guidance and support, struggling learners can prove to be exceptionally intelligent. The Zimbabwean curriculum, as observed by Ngetich, Wambua, and Kosgei (2014), includes various subjects designed to enhance learners' problem-solving skills in real-world situations. Learners are influenced by the mathematics materials and illustrations in textbooks. Access to sufficient resources and time is essential for learners to comprehend and develop an interest in the subjects they are studying.

The mathematics curriculum is structured to enable learners to integrate different scalable topics comprehensively. According to the Ministry of Higher Education, Science, and Technology (2010), mathematical concepts are logically ordered, allowing learners to become more capable and organized. The curriculum provides teachers with the flexibility to create new subjects and build upon previous lessons. Strong teacher presence, sufficient resource allocation, and a close connection between the curriculum and instructional instructions are the foundations of optimal academic success (Republic of Kenya, 2005). Ngala (1997) and Obwocha (2005) emphasize that inadequate resources and teachers contribute to low academic achievement. The integration of information and communication technology (ICT) into mathematics education can demystify the subject and enhance learning. Technology, such as touch screens, digital projectors, and interactive whiteboards, makes teaching and learning more dynamic and learner-centered.

In conclusion, various factors, including teaching strategies, resource availability, learner attitudes, and teachers' perceptions, significantly impact learners' success in mathematics. Addressing these factors, particularly attitude problems, is crucial for improving performance in mathematics.

2.5 SUMMARRY

Identifying the root causes of poor mathematics performance is a multifaceted challenge, as various factors intersect and impact learner outcomes. However, by acknowledging and understanding these factors, educators, policymakers, and stakeholders can collaborate to develop and implement targeted interventions, evidence-based instructional strategies, and tailored support systems for struggling

learners. Ultimately, enhancing mathematics education necessitates a comprehensive approach that tackles the underlying causes, fosters a positive and inclusive learning environment, and promotes academic success for all learners.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 INTRODUCTION

This chapter provides an overview of the methodology employed in conducting the research. It outlines the systematic approach used to collect, analyze, and interpret the data. The chapter is divided into twelve sections, each addressing a critical aspect of the research methodology. The chapter begins by discussing the research philosophy, which underpins the entire study. This section explores the fundamental principles and assumptions that guided the research. Next, the research paradigm is examined, providing insight into the theoretical framework and approach adopted for the study. The research design section outlines the overall plan and structure of the investigation. This includes the type of research, the research questions, and the objectives of the study. The research population and sample are then discussed, describing the target group and the selection process used to identify participants. The chapter continues with a description of the data collection instruments and procedures. This section explains the methods and tools used to gather data, including surveys, interviews, or observations. The data presentation procedures are also outlined, detailing how the collected data was organized and formatted for analysis. The data analysis procedures section discusses the statistical and analytical techniques employed to examine the data. This includes the methods used to identify patterns, trends, and relationships within the data. Ethical considerations in research are also addressed, highlighting the measures taken to ensure the study was conducted in an ethical and responsible manner. Furthermore, the chapter examines research validity and reliability, discussing the strategies used to ensure the accuracy, consistency, and dependability of the findings. Finally, the chapter concludes with a summary of the research methodology, providing an overview of the key aspects of the study.

3.1 RESEARCH PHILOSOPHY

This research is grounded in a post-positivist philosophy, which is defined by Phillips (2014) as the belief in a reality governed by natural laws, yet understood imperfectly due to human and environmental factors. This perspective diverges from pure positivism, which posits that reality is a single, knowable entity that can be accurately measured and described.

The justification for employing post-positivism in this research is rooted in the philosophy's emphasis on the conjectural nature of human knowledge. As Trochim (2006) notes, scientists can never ascertain truth absolutely, but instead strive to approximate it through multiple methods. This philosophy offers flexibility in research methods, acknowledging the importance of context and human interpretation in understanding data. The use of post-positivism is particularly suited to this research, as the factors influencing mathematics performance are complex and multifaceted. These factors encompass not only empirical measurements but also personal experiences, socioeconomic and cultural factors, and educational philosophies. Given the nuanced nature of these elements, a post-positivist approach enables the researcher to adopt multiple perspectives and methods, providing a more comprehensive understanding of the research phenomenon.

3.2 RESEARCH PARADIGM

This research adopted a qualitative methodology, a research approach that seeks to understand the meanings and interpretations that individuals or groups assign to a particular social or human issue. This paradigm typically employs in-depth data collection methods, including interviews, focus groups, observations, and content analysis, to gather rich, narrative data. The qualitative research paradigm is characterized by its flexibility and sensitivity to the social context in which data is collected (Cohen et al., 2000). Data analysis in qualitative research involves various methods, such as thematic analysis or grounded theory, to uncover patterns, themes, and meanings within the data.

While qualitative research provides valuable insights into specific contexts, its findings may not be generalizable to a broader population (Polit & Beck, 2021). Nevertheless, this approach is particularly suited to exploring complex, nuanced issues and gaining a deeper understanding of the meanings and experiences of individuals or groups.

3.3 RESEARCH DESIGN

This research utilized a case study design, grounded in an interpretivist paradigm. As defined by George and Bennett (2004), a case study involves process tracing, which enables a detailed examination of a specific phenomenon. Yin (2003) categorizes case studies into three types: explanatory, exploratory, and descriptive. This design was selected to provide an in-depth

understanding of the factors contributing to poor performance in mathematics among primary learners. The case study approach allowed for a nuanced exploration of the complex issues surrounding mathematics performance, providing rich contextual insights. However, as Flyvbjerg (2006) notes, case studies are inherently context-dependent, which may limit the generalizability of the findings to other settings, such as different regions, provinces, or countries.

3.4 RESEARCH POPULATION

The research population for this study consisted of learners, Teachers-In-Charge (TICs), mathematics teachers and heads from primary schools in the Nyamambizi Cluster, Hurungwe district. The unit of analysis was one school. Specifically, this research targeted four Grade 6 primary classes, with a focus on understanding the factors that contribute to poor performance in mathematics. The target population comprised 26 mathematics teachers, 4 headmaster, 4 Teachers, and 188 Grade 6 primary learners. This sample was selected to provide insights into the complex issues surrounding mathematics performance among primary learners.

3.5 RESEARCH SAMPLE

This study employed a mixed sampling approach, combining both purposive and convenience sampling techniques. Purposive sampling was used to select participants who possessed the most relevant information and insights, thereby enhancing the study's validity. The sample was strategically selected to include Teachers-In-Charge (TICs) from the chosen schools, as they provided valuable perspectives on the implementation of educational policies and practices. Heads and principals were also selected through judgmental sampling, based on their expertise and knowledge in overseeing the quality of education and resource allocation in schools.

Grade 6 mathematics learners were specifically targeted, as they represented the level of study relevant to the research. To ensure a representative sample, learners were grouped and selected using purposive sampling, with both boys and girls chosen for their ability to provide useful information. The sample comprised different categories of respondents, including principals, teachers, and learners, each offering unique perspectives on the factors contributing to poor performance in mathematics.

3.6 DATA COLLECTION INSTRUMENTS

To collect relevant data for this research, open ended questionnaires had been distributed to learners. The researcher also conducted in-depth interviews and document analysis with the teachers and school heads.

3.6.1. QUESTIONNAIRE

Data collection for this study was facilitated through the use of a questionnaire, comprising close-ended questions. The questionnaire was selected as the primary data collection tool due to its ability to reach a large number of respondents across diverse locations, while maintaining respondent anonymity (Borg & Gall, 2009). This anonymity can encourage respondents to provide more honest and candid responses. However, as Borland (2011) notes, questionnaires also have limitations. One notable drawback is the potential for low response rates, which can impact the validity and reliability of the data. Additionally, questionnaires can be inflexible, as they do not allow for in-depth exploration of respondents' ideas or comments. This can result in unanswered questions and a lack of nuance in the data collected.

3.6.2 NON-PARTICIPANT OBSERVATION

Classroom observations were conducted during mathematics lessons to gain a firsthand understanding of the instructional strategies employed by teachers. These observations focused on various aspects, including instructional strategies, learner-teacher interactions, use of learning resources, and the overall school environment. The observations examined the methods and techniques used by teachers to deliver mathematics content, the dynamics between teachers and learners, the types and effectiveness of resources utilized in the classroom, and the physical and social atmosphere of the school. By observing mathematics lessons in their natural setting, this study aimed to gather rich, contextual data that would provide a deeper understanding of the factors influencing learner performance in mathematics.

3.6.3. DOCUMENT ANALYSIS

In addition to observations and questionnaires, documentary evidence was also examined to gain insight into the curriculum implementation and learner performance in mathematics. Specifically, class registers, school syllabuses, teachers' lesson notes, and learners' mathematics books were reviewed. These documents provided valuable information on the stated curriculum versus the implemented curriculum, revealing any discrepancies or gaps between the intended and actual teaching practices. Furthermore, the documents offered numerical evidence of learner performance in mathematics, including grades, test scores, and other assessment data. By analyzing these documents, the study aimed to obtain a more comprehensive understanding of the factors influencing learner performance in mathematics.

3.7 DATA COLLECTION PROCEDURE

To ensure the smooth execution of the research, the researcher obtained an introductory letter from Bindura University of Science Education. This letter facilitated the process of seeking permission from the relevant authorities, including the Ministry of Primary and Secondary Education, the District Schools Inspector, and the school heads. Obtaining these permissions enabled the researcher to clearly identify the respondents who would receive the questionnaires. Prior to administering the questionnaires, a pilot test was conducted to assess their validity and reliability. This exercise helped identify the strengths and weaknesses of the questionnaires, allowing for necessary corrections to be made before the actual data collection.

Once the questionnaires were finalized, the researcher made appointments with the school head and mathematics teachers to conduct observations and gather data. The researcher personally distributed the questionnaires to the selected respondents and later collected them using the same method. As scheduled, the researcher visited the school to conduct lesson observations and analyze documents, ensuring that all data collection activities were carried out as planned.

3.8 DATA PRESENTATION PROCEDURES

The researcher meticulously collected and compiled the data from various sources, including the completed questionnaires, observational notes, and document analysis records. To ensure data integrity, the researcher systematically organized and cleaned the data. A coding scheme was

developed based on emerging themes, concepts, and categories, and relevant codes were assigned to the data. The researcher then analyzed the coded data to identify patterns, relationships, and trends. Codes with related data were grouped into broader themes, which represented the key findings of the research.

The demographic data was presented in a clear and concise manner using tables and pie charts. The remaining research findings were described in narrative form, providing a detailed and contextualized understanding of the results. This approach enabled the researcher to present a comprehensive and nuanced picture of the research findings.

3.9 DATA ANALYSIS

The responses collected during the study were transcribed and subjected to thematic analysis, guided by the methodological framework of Braun and Clarke (2006). This approach involved a systematic process of identifying, organizing, and interpreting common themes that emerged from the data. The thematic analysis was used to uncover patterns and meanings related to learners' performance in mathematics, thereby addressing the research questions. Thematic analysis, as noted by Braun and Clarke (2012), is a versatile method that facilitates the categorization of data into meaningful themes. Its flexibility allows researchers to adapt it to various theoretical approaches and priorities, making it an ideal choice for this study. By employing thematic analysis, the researcher was able to identify and interpret the emerging themes that shed light on the factors influencing learners' performance in mathematics.

3.10 ETHICAL CONSIDERATION IN RESEARCH

Maintaining strict ethical standards is paramount when collecting research data to safeguard the rights and welfare of participants. This study adhered to the ethical guidelines governing educational research, ensuring that the highest standards of integrity and respect for participants were upheld throughout the data collection process.

3.10.1 CONFIDENTIALITY

The data collected for this research was handled with utmost care and confidentiality, in line with the ethical principles outlined by Christians (2003). To ensure anonymity, participants were requested to withhold their names and those of their school during interviews. Furthermore, the school's name was not referenced during data analysis, thereby protecting its reputation and image, regardless of the research findings. The fundamental ethical principle of "do no harm" was upheld, ensuring that participation in the research did not result in any adverse consequences for the respondents.

3.10.2 INFORMED CONSENT

Prior to participating in the research, all participants provided their informed consent. As emphasized by Cornwell (2000), informed consent is a crucial legal procedure that ensures research participants are fully aware of the potential risks, costs, and consequences involved. In accordance with this principle, the researcher explicitly informed participants about the research procedures, potential outcomes, and any other relevant details. With this knowledge, participants made an informed decision to participate in the research.

3.10. 3 PRIVACY

The privacy of participants was a paramount concern in this research. As Smith (2005) notes, researchers must develop strategies to approach sensitive topics with participants without causing them undue discomfort or embarrassment. To address this issue, the researcher provided participants with a clear explanation of the research purpose and procedures, ensuring that they understood the reasons for the study and what was expected of them. This transparent approach enabled participants to make informed decisions about their involvement and to volunteer their participation willingly, thereby respecting their autonomy and privacy.

3.14 RESEARCH VALIDITY AND RELIABILITY

To ensure the validity and reliability of the research findings, rigorous measures were implemented. This study employed a multi-faceted approach to enhance credibility and validity, incorporating four key strategies: triangulation, audit trail, member checking, and peer-debriefing. Each of these methods is discussed in detail below to provide a comprehensive understanding of the steps taken to guarantee the trustworthiness of the research findings.

3.14.1 TRIANGULATION

To gain a nuanced understanding of the factors influencing mathematics achievement in schools, this study employed a multi-method approach, incorporating multiple data sources and methods. This triangulation strategy enhanced the validity of the findings by providing a more comprehensive and accurate picture of the research phenomenon. By leveraging several sources and methods, the researcher ensured that the data converged to tell a consistent story, thereby strengthening the coherence, reliability, and overall credibility of the research outcomes.

3.14.2 AUDIT TRAIL

Throughout the research process, the researcher maintained a meticulous audit trail, documenting all research activities, decisions, and interactions. This detailed record enables other researchers to track and verify the research procedures and findings, thereby promoting transparency, accountability, and replicability of the study.

3.14.3 MEMBER CHECKING

The researcher engaged in member checking by presenting the research findings back to the participants, soliciting their feedback and confirmation. This iterative process ensured that the researcher's interpretations and conclusions accurately reflected the participants' experiences, perspectives, and meanings, thereby enhancing the validity and credibility of the research findings.

3.14.4 PEER-DEBRIEFING

The researcher engaged in peer-debriefing, presenting the research data and findings to colleagues for their constructive feedback and critique. This collaborative process facilitated the identification of potential biases, errors, or omissions, allowing the researcher to refine and strengthen the research, ultimately enhancing its credibility, validity, and overall rigor.

3.19 SUMMARY

This chapter has provided a comprehensive overview of the research methodologies employed in this study. The subsequent chapter will delve into the analysis and interpretation of the data gathered through the various methods outlined above. Specifically, Chapter 4 will present the findings from the questionnaire, observations, and document analysis, and discuss them in relation to the research questions. The chapter will also examine the causes of poor performance in mathematics, exploring the relationships between the variables and identifying patterns and themes that emerge from the data. Ultimately, the analysis and discussion in the next chapter will provide insights into the complex issues surrounding mathematics performance, informing strategies for improvement and contributing to the existing body of knowledge on this topic.

CHAPTER FOUR: ANALYSIS AND INTERPRETATION

4.0 INTRODUCTION

This chapter presents the data analysis, results, and discussion of the study's findings, which aimed to explore the causes of poor performance in Mathematics among learners in Hurungwe District. The study employed a mixed-methods approach, utilizing both structured and unstructured questions to collect data. The quantitative data generated from the structured questions are presented in frequency tables and percentages, providing a statistical overview of the trends and patterns that emerged. Conversely, the qualitative data from the unstructured questions offered rich insights into the research phenomenon. The analysis of the data provided the foundation for interpreting the findings, facilitating discussions, and drawing conclusions and recommendations that address the research objectives, which are outlined below.

Table 4.1 Interviews and Questionnaires response rate

Research instruments	Instruments	%	Response	%
Questionnaires	214	100	214	100
Interviews	6	100	6	100

A total of 214 questionnaires were distributed to participants in Nyamambizi Cluster schools in Hurungwe District, with 188 administered to Grade 6 primary school learners and 26 given to teachers, selected using random sampling techniques. Notably, all 214 questionnaires were returned and utilized in the study, yielding a 100% response rate. Furthermore, in-depth interviews were conducted with 3 learners and 3 teachers, also achieving a 100% response rate. This exceptionally high response rate facilitated the generation of reliable and valid results for the research. According to Saunders (2009), a response rate exceeding 60% is considered sufficient to ensure a representative sample of the target population; thus, the 100% response rate achieved in this study far exceeds this threshold.

4.2 DEMOGRAPHIC DATA FOR TEACHER'S QUALIFICATIONS

Table 4.2 shows demographic information for the teachers who participated in the research.

Demographic Items	**Description**	Number of participants
Gender	Male	6
	Female	20
	Total	26

The findings reveal that Mathematics teachers in the Nyamambizi Cluster possess considerable experience, with 50% of teachers having extensive teaching experience and a significant number of years

of service at their current school. This level of experience suggests that the teachers have developed a strong foundation in their subject area and are well-equipped to provide effective instruction.

An analysis of the respondents' qualifications shows a varied range of educational backgrounds. Notably, none of the teachers held a National Certificate in Education. However, 57.69% possessed a Diploma in Education, while 26.92% held a Bachelor's degree in Education. Furthermore, 15.38% had a Master's degree, indicating a significant proportion of teachers with advanced qualifications. These findings suggest that the respondents had a moderate to high level of educational background, providing a solid foundation for understanding the perceptions of Mathematics teachers in Nyamambizi Cluster, Hurungwe District.

4.3 Gender for learners

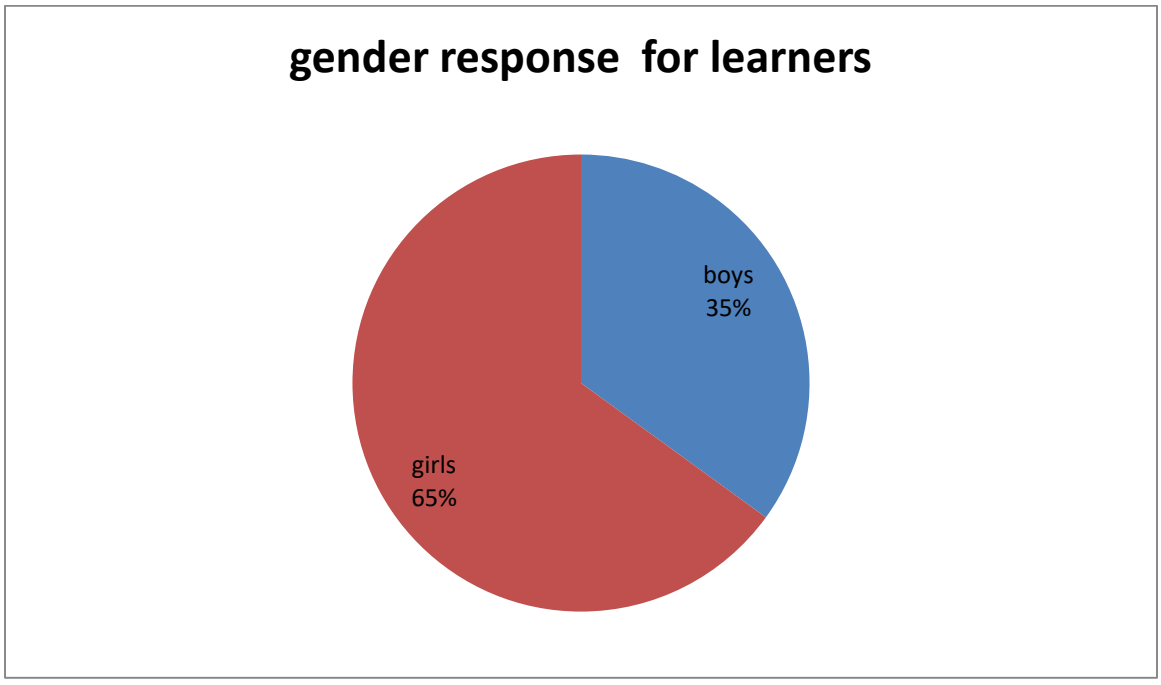

Fig 4.3 Percentage of participating learners by gender.

The demographic analysis of the research participants in Hurungwe District reveals a notable gender imbalance. The results indicate that a significantly higher proportion of girls (65%) participated in the research compared to boys (35%). This skewed representation is intentional, as the study aimed to oversample female learners to gain a deeper understanding of their

perspectives and experiences, particularly in relation to gender differences in mathematics performance.

However, the predominance of female participants in the sample may have implications for the interpretation of the results. The findings may be more heavily influenced by the experiences and perspectives of girls, potentially limiting the extent to which gender-based differences in the causes of poor mathematics performance are captured and analyzed. As a result, the study's conclusions may not be equally representative of both male and female learners.

4.4 LEARNERS RELATED CAUSES OF FAILURE IN MATHEMATICS.

The initial study aimed to investigate the learner-related factors contributing to poor performance in mathematics among primary school learners, specifically with Nyamambizi Cluster, Hurungwe District. To achieve this, questionnaires were administered to teachers, requesting them to identify the primary learner-related cause of mathematics failure. The responses to this inquiry are presented in Table 4.3.

Table 4.3: Responses on learners related factors leading to the failure in mathematics **(n=26).**

Learners related causes	**Frequency**	**Percentage**
Weak Fundamental Skills	4	15.38
Learning Difficulties and Disabilities	1	3.85
Mathematics Anxiety and Negative Attitude	14	53.85
Motivation and Effort	0	0
Socioeconomic and Family Factors	1	3.85
Time Management and Ineffective Study Habits	5	19.23
Poor Teacher-Learner Relationship	1	3.85

The study's findings reveal that a significant proportion of learners, 14 (53.85%), experience mathematics anxiety and harbor negative perceptions towards the subject. This indicates a high level of anxiety, fear, and dislike towards mathematics among learners. Furthermore, teachers' responses suggest that 5 (19.23%) of the learners struggle with ineffective study habits and time management. This implies that learners often lack sufficient practice and review of mathematical concepts, which can exacerbate their difficulties with the subject.

The study also highlights the importance of teacher-learner relationships in shaping mathematics performance and engagement. While some teachers exhibit a caring and supportive attitude towards their learners, others struggle to connect with and motivate them. Additionally, learners' mindsets and home environments play a significant role in influencing their mathematics performance. Addressing the diversity of teacher-learner relationships will likely be crucial in improving mathematics outcomes in the Nyamambizi Cluster, Hurungwe District. The perceptions of mathematics teachers towards their learners in primary schools in the Hurungwe District were mixed. Some teachers expressed concerns about learners' foundational skills, with one teacher noting, *"Our learners have weak foundational skills, they lack basic mathematical operations and have difficulties in understanding and applying fundamental concepts." (Teacher 3)* Another teacher observed, "*Our learners show signs of sweating, fidgeting, and avoiding eye contact when discussing maths." (Teacher 2*) These comments underscore the need for targeted support to address learners' mathematical difficulties and promote a more positive learning environment.

4.5 TEACHER RELATED CAUSES OF LEARNER'S FAILURE IN MATHEMATICS.

The second questionnaire administered in the study aimed to investigate the teacher-related factors contributing to poor performance in mathematics among learners in Nyamambizi Cluster Hurungwe District. To achieve this, learners were asked to identify teacher-related causes of mathematics failure. The respondents' answers provided valuable insights into this aspect, and the findings are presented in Table 4.4.

Table 4.4 Teacher related factors leading to learners' failure in mathematics (n=188).

Teacher related causes	Frequency	Percentage
Absenteeism	90	47.87
Not marking learners work	7	3.72
Late coming for work	20	10.64
Delayed Feedback	44	23.40
Lack of motivation	20	10.64
Inadequate teacher training	7	3.72

The results of the study revealed that a significant proportion of participants, 90 (47.87%), attributed poor performance in mathematics to teachers' frequent absences from work. Additionally, 44 (23.40%) of the participants believed that delayed feedback from teachers was a major contributor to poor mathematics performance. A smaller group of participants, 7 (3.72%), reported that teachers' failure to mark learners' work was also a contributing factor. These findings align with the research conducted by Haralambos, Phippou, and Kyriakides (2002), which suggests that teachers' perceptions and attitudes towards a subject can significantly influence learners' performance.

One learner's comment underscored the impact of teacher absenteeism on mathematics lessons: "*Our teacher is always late to school. He often complains about transport problems and sometimes walks to school. As a result, he frequently misses mathematics lessons." (Learner 1, pers. comm.)*

4.6 SCHOOL RELATED CAUSES.

Table 4.5 school related causes leading to the learner's failure in mathematics.

School related causes	**Frequency**	**Percentage**
Ineffective Teaching Methods	1	3.84
Lack of Individualized Support	13	50
Insufficient Practices and Feedback	2	7.69

Inadequate Maths Resources	7	26.92
Negative Classroom Environment	1	3.84
Overcrowded classrooms	4	15.38
Limited Teacher Training and support	1	3.84

The results presented in Table 4.5 highlight several school-related factors contributing to poor performance in mathematics. A significant proportion of respondents, 13 (50%), cited a lack of individual support as a major obstacle. This suggests that learners struggling with mathematics may not receive the personalized attention and targeted interventions necessary to overcome their difficulties. Other factors contributing to poor mathematics performance include overcrowded classrooms, inadequate mathematics resources, and insufficient practice and feedback. Specifically, 4 (15.38%) of respondents identified overcrowded classrooms as a challenge, while 7 (26.92%) cited inadequate mathematics resources. Furthermore, 2 (7.69%) of respondents noted that insufficient practice and feedback hindered learners' ability to develop proficiency in mathematics. One learner underscored the impact of overcrowding on mathematics education: *"One of the major problems is overcrowding in maths classes. With 55 learners in a single classroom, teachers struggle to provide personalized attention and support, leading to some learners falling behind." (Learner 3, pers. comm.)*

Teachers also shared their perspectives on the challenges they face in teaching mathematics. One teacher noted that lack of learner motivation and interest was a significant obstacle: *"Many learners seem uninterested and unmotivated to put in the effort required to excel in mathematics." (Teacher 1)*

Another teacher highlighted the impact of learners' home environments and lack of parental support*: "I try to make math engaging, but it's an uphill battle. Learners' home environments and lack of parental support play a big role." (Teacher 2)*

Learners also shared their experiences with mathematics teachers, highlighting the importance of teacher support and encouragement. One learner noted that their teacher's impatience made them dread attending mathematics classes*: "My maths teacher is always impatient and makes us feel stupid when we don't understand something." (Learner 4)*

In contrast, another learner praised their teacher's encouraging approach*: "My teacher is really encouraging and takes the time to explain things in different ways. That makes me feel more confident about doing well in math." (Learner 1, pers. comm.)*

Learners' and teachers' perceptions of mathematics education in Mabvuku Tafara district were explored in-depth. One learner expressed frustration, saying, *"Maths is just so difficult for me, no matter how hard I try. I wish the teacher could make it more fun and interesting." (Learner 3, pers. comm.)* Teachers' sentiments ranged from frustration with learner apathy to a desire to make mathematics more engaging.

Some teachers, like Teacher One, attributed learners' struggles to a lack of interest and motivation. In contrast, Teacher Two recognized the impact of external factors, such as home environments and parental support, on learners' performance. These differing perspectives highlight the complex teacher-learner dynamics in mathematics education.

Learner responses revealed how teacher perceptions significantly influence their math mindsets and performance. While one learner felt belittled by their teacher's impatience, another appreciated a teacher's encouraging approach. Many learners expressed difficulty with mathematics despite their efforts, suggesting a need for more motivating and supportive instructional strategies.

The findings emphasize the multifaceted nature of teacher-learner dynamics in mathematics education. Addressing varied teacher perceptions, learner math mindsets, and learning experiences is crucial for improving mathematics performance. Professional development for teachers, engaging parents, and bolstering learner support systems may help shift attitudes and improve math outcomes.

A holistic, collaborative approach targeting multiple stakeholders is necessary for meaningful change. Principals' interviews revealed that mathematics performance in ZIMSEC examinations was poor. Learners exhibited negative attitudes towards mathematics, with some expressing "mathematics phobia." In contrast, teachers demonstrated positive attitudes and a commitment to improving performance.

However, challenges persisted, including inadequate mathematics textbooks, with ratios ranging from 1:2 to 1:4. To reverse this trend, stakeholders were advised to motivate teachers and learners, recognize improvements, and provide adequate resources. Recommendations included improving textbook ratios,

employing more teachers, allocating additional time and funds for mathematics, and facilitating workshops and symposiums for teachers and learners.

4.7 SUMMARY

This chapter highlights how data was collected in Nyamambizi Cluster Hurungwe district on the causes of poor performance in primary learners in learning Mathematics. The researcher also gives number of learners and teachers which articulate the study.

CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 INTRODUCTION

This chapter synthesizes the key findings, draws conclusions, and provides recommendations based on the study's investigation into the causes of poor performance in mathematics. The study, guided by an interpretivist philosophy, employed a qualitative research approach to gather data through questionnaires, interviews, and document analyses. The data collection process involved headmasters, mathematics teachers, and learners, offering a comprehensive understanding of the research phenomenon. The preceding chapter presented a detailed explanation of the findings. This chapter distills the essential insights, summarizing the research findings, drawing conclusions, and proposing recommendations to address the causes of poor performance in mathematics.

5.1 SUMMARY OF THE STUDY

The persistent underperformance of learners in mathematics remains a pressing concern for educators and policymakers. Research has consistently highlighted the existence of a significant gap in mathematics achievement, attributed to a complex array of factors including socioeconomic status, school funding and resources, school culture and expectations, and parental involvement. Elucidating the factors contributing to these performance disparities is essential for informing evidence-based policies and interventions aimed at enhancing mathematics achievement in primary schools.

This study aimed to address the following research objectives:

1. What teacher-related factors contribute to learners' failure in mathematics?
2. What learner-related factors lead to failure in mathematics?
3. What school-related factors contribute to failure in mathematics?

The research was guided by the Control-Value Theory, which posits that individuals are motivated to exert control over outcomes that impact their goals and well-being. According to this theory, a high sense of control fosters feelings of competence, autonomy, and self-worth, whereas perceived low control over outcomes can evoke feelings of helplessness, anxiety, and depression. Furthermore, the Control-Value

Theory suggests that individuals' control orientations influence their behavior and coping strategies, providing valuable insights into the complex dynamics underlying mathematics achievement.

Individuals with high control orientations tend to exhibit proactive, persistent, and optimistic behaviors, whereas those with low control orientations often display passive, avoidant, and pessimistic tendencies.

Methodology

This study employed a mixed-methods approach, collecting data from 188 learners and 26 teachers. To ensure the integrity of the research, the researcher obtained clearance from their supervisor and secured permission from relevant authorities and participants. Respondents were guaranteed anonymity to protect their privacy and confidentiality.

Data Collection and Analysis

Data was gathered through questionnaires, document analysis, and observation. The researcher employed simple descriptive statistical methods to summarize the data. Thematic analysis was used to present, analyze, and discuss the findings, guided by the research questions.

Key Findings

The study revealed three primary themes:

1. Teacher-related factors contributing to learners' failure in mathematics, including teacher absenteeism, inadequate feedback, and ineffective teaching methods.

2. Learner-related factors, such as weak fundamental skills, socio-economic challenges, and family factors.

3. School-related factors, including inadequate mathematics resources, overcrowded classrooms, and lack of individual support.

Challenges and Limitations

The researcher encountered time and financial constraints, which limited the study's scope to Mabvuku-Tafara cluster and a single school. Despite these limitations, the study provides valuable insights into the complex factors influencing mathematics performance.

5.2 CONCLUSIONS

The researcher's findings led to the following conclusions:

1. Teacher absenteeism is a significant concern in Nyamambizi cluster, as many teachers prioritize their personal businesses over teaching responsibilities.
2. The cluster lacks sufficient mathematics resources, including textbooks and question papers, which contributes to poor performance in mathematics.
3. Insufficient infrastructure hinders the secure storage of ICT devices, limiting learners' and teachers' access to research materials.
4. Large class sizes in Nyamambizi cluster pose challenges for effective teaching and learning, making it difficult to improve mathematics performance.
5. Overcrowded classrooms result in a lack of individualized support for learners.
6. Teachers' delayed feedback on learners' work hinders learning progress.

To address these challenges, the research proposes the following interventions:

1. Improve teacher training and support to enhance instructional quality.
2. Provide adequate curriculum and instructional materials to support teaching and learning.
3. Foster personalized and differentiated instruction to cater to diverse learner needs.
4. Integrate technology to enhance mathematics education.
5. Engage parents and the community in mathematics education to promote a supportive learning environment.

6. Introduce extracurricular activities and mathematics clubs to foster learners' interest and enthusiasm.
7. Establish collaboration and professional learning communities among teachers to promote best practices.
8. Shape a positive school culture and motivation to encourage learners' engagement and achievement in mathematics.

5.3 RECOMMENDATIONS

The following recommendations were made from the findings of this study. These are discussed as:

5.3.1 RECOMMENDATIONS TO POLICY MAKERS

Based on the research findings, policymakers are urged to prioritize the following strategies to enhance mathematics education:

1. Invest in comprehensive teacher training and support programs to ensure educators are equipped with the necessary skills and knowledge.

2. Review and refine the curriculum and assessment frameworks to guarantee alignment with national standards and address the diverse needs of all learners.

3. Allocate resources equitably among schools, providing access to high-quality textbooks, cutting-edge technology, and modern facilities to bridge the resource gap.

4. Foster parental involvement and encourage active participation in their children's mathematics education through regular communication and collaborative activities.

5. Promote inter-school collaboration and facilitate the sharing of best practices to enhance mathematics teaching and learning.

6. Establish a robust monitoring and evaluation framework to assess the effectiveness of implemented recommendations and inform future policy decisions.

By implementing these strategies, policymakers can help address the challenges facing mathematics education and improve learner outcomes.

5.3.2. RECOMMENDATIONS TO ADMINISTRATORS

To enhance mathematics education, administrators should prioritize the following strategies:

1. Teacher Development: Provide ongoing professional development opportunities to improve teachers' pedagogical skills, content knowledge, and subject enthusiasm, ultimately enhancing teacher quality.

2. Curriculum Alignment: Ensure curriculum instruction aligns with national and international standards, promoting relevance and rigor.

3. Positive Learning Environment: Foster a supportive learning environment by establishing clear expectations, encouraging perseverance, and promoting a growth mindset.

4. Community Engagement: Strengthen parental and community involvement by establishing partnerships with local organizations to offer enrichment programs, extra support, and resources.

5. Infrastructure and Resources: Upgrade school infrastructure and resources to provide a conducive learning environment, including access to technology, libraries, and other educational facilities.

6. Progress Monitoring and Adaptation: Regularly monitor learner progress, adapting instructional practices and strategies to address areas of need.

7. Collaboration and Partnerships: Foster collaborations with external stakeholders, including experts, researchers, and organizations, to access expertise, research, and resources that can inform and enhance mathematics education.

5.3.3. RECOMMENDATIONS TO TEACHERS

To enhance mathematics instruction, teachers should adopt the following strategies:

1. Emphasize Conceptual Understanding: Focus on developing learners' deep understanding of mathematical concepts and principles, rather than relying on rote memorization. Encourage learners to explain their reasoning and justify their solutions.

2. Incorporate Real-World Applications: Make mathematics relevant by connecting it to real-life situations, enhancing problem-solving skills and illustrating the value of mathematics.

3. Differentiated Instruction: Cater to diverse learner needs by providing tailored instruction, ensuring inclusivity and equity.

4. Positive Learning Environment: Establish a supportive, collaborative classroom culture that encourages risk-taking, builds relationships, and fosters confidence in mathematical abilities.

5. Mathematics Discussions and Debates: Encourage learners to share ideas, challenge each other's thinking, and develop a deeper understanding of mathematical concepts.

6. Effective Technology Integration: Leverage technology to enhance learner learning, supplement classroom instruction, and provide additional practice opportunities.

7. Continuous Professional Development: Engage in ongoing professional growth through workshops, relevant literature, and collaboration with colleagues to ensure effective mathematics instruction.

8. Parental Collaboration: Communicate with parents about their children's progress, sharing strategies to enhance the learning experience both at school and at home.

9. Regular Assessment and Feedback: Assess learner learning regularly, providing timely feedback and fostering a growth mindset to help learners overcome challenges and develop a positive attitude towards learning mathematics.

10. Teacher Attendance and Commitment: Maintain regular attendance, avoiding absenteeism, and demonstrate a commitment to teaching and supporting learners' mathematical development.

5.3.4. RECOMMENDATIONS TO LEARNERS

To optimize their mathematics learning experience, learners should adopt the following strategies:

1. Set High Expectations: Believe in your ability to succeed in mathematics and set challenging yet achievable goals.

2. Regular Attendance and Participation: Attend classes consistently and participate actively, as regular attendance is crucial for mathematical progress.

3. Active Engagement: Pay attention during class, focus on understanding concepts, and ask questions to clarify areas of confusion.

4. Extra Practice: Engage in additional practice to strengthen problem-solving skills.

5. Seek Support: Don't hesitate to seek help from teachers, tutors, and peers when needed.

6. Collaborative Learning: Form study groups to collaborate with classmates, discuss problems, share ideas, and enhance understanding.

7. Resource Utilization: Leverage available resources to reinforce concepts, develop skills, and stay motivated.

8. Minimize Distractions: Avoid distractions, maximize focus and concentration, and plan study sessions to optimize learning.

5.3.5. RECOMMENDATIONS TO PARENTS

Parents play a vital role in supporting their child's mathematics education. To foster a strong foundation in mathematics, parents should:

1. Monitor Progress and Provide Support: Engage actively in their child's education, monitoring progress, and offering support with homework and concept understanding.

2. Create a Supportive Learning Environment: Designate a quiet study space at home and provide access to books, resources, and technology to facilitate learning.

3. Encourage Extracurricular Activities: Support participation in mathematics-related clubs, competitions, or tutoring programs to foster interest and develop problem-solving skills.

4. Communicate with Teachers: Regularly communicate with teachers to stay informed about progress, discuss areas of improvement, and collaborate to address challenges.

5. Advocate for School Resources: Participate in meetings with administrators and other parents to advocate for adequate funding and resources for mathematics education.

6. Seek Professional Help: If needed, seek guidance from teachers, tutors, or counselors to provide additional support and ensure their child receives the necessary resources to succeed in mathematics.

5.3.6 RECOMMENDATIONS FOR FURTHER STUDIES

Future Research Directions

The current study's findings, although insightful, are limited to a single cluster in Hurungwe district. To gain a more comprehensive understanding of the factors influencing mathematics performance, further research is recommended:

1. Expand the scope: Conduct similar studies in other schools and clusters to identify context-specific factors affecting mathematics performance.

2. Comparative analysis: Compare the findings from different schools and clusters to identify commonalities and differences in the factors influencing mathematics performance.

By broadening the research scope, stakeholders and policymakers will be better equipped to make informed decisions, develop targeted interventions, and implement effective strategies to improve mathematics education.

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APPENDICES

APPENDIX 1: QUESTIONNAIRE FOR TEACHERS

My name is Munatsi Justice Tichaonana. I am an undergraduate learner from Bindura University of Science Education in Zimbabwe**.** I am carrying out research on Causes of poor performance in mathematics. It is hoped that the results of this research will help improve the performance in mathematics in schools. Your participation in this research study is completely voluntary. If you agree to participate in this research, please answer the questions on the questionnaire as best as you can. Your responses will be treated as confidential and will only be used for this research. Kindly do not indicate your name on the questionnaire.

Thank you in advance for your cooperation and assistance.

Section 1: Teacher Information Tick where applicable

1. Gender: MALE ☐ FEMALE ☐

2. Type of school: Private ☐ Public ☐

3. Years of teaching experience below 5years ☐ 5-10 years ☐ above 10years ☐

4. Grade you teach 5 ☐ 6 ☐ 7 ☐

Section 2: Learners related causes of failure in mathematics.

5 .Have learners had difficulty in earlier maths classes that affects their current performance? (Yes /NO)

6. Are there any physical or sensory challenges that affect learners' learning in your class? (Yes/No)

7.Do learners in your class exhibit anxiety or stress when solving maths problems?

8.Are learners in your class motivated to improve their maths skills? (YES/NO)

9. Do learners in your class face any financial or environmental challenges that affect their learning? (YES/NO)

10. Do learners in your class manage their time effectively for maths homework and study? (YES/NO)

SECTION C SCHOOL RELATED CAUSES LEADING TO THE LEARNER FAILURE IN MATHEMATICS

11. Do you feel that your teaching methods are effective for all learners?

(YES/NO)

12. Are you able to identify learners who need extra support in maths?

(YES/NO)

13. Do learners receive regular feedback on their maths performance?

(YES/NO)

13. Do you foster a positive and inclusive classroom environment?

(YES/NO)

14. Do you have a manageable class size to provide individual support?

(YES/NO)

15.Have you received recent training or professional development in maths education? (YES/NO)

Thank you for your time and cooperation. Your feedback will help us to better understand the causes of poor performance in mathematics.

APPENDIX 2: QUESTIONNAIRE FOR LEARNERS.

My name is Munatsi Justice Tichaonana. I am an undergraduate learner from Bindura University of Science Education in Zimbabwe**.** I am carrying out research on Causes of poor performance in mathematics. It is hoped that the results of this research will help improve the performance in mathematics. Your participation in this research study is completely voluntary. If you agree to participate in this research, please answer the questions on the questionnaire as best as you can. Your responses will be treated as confidential and will only be used for this research. Kindly do not indicate your name on the questionnaire.

Thank you in advance for your cooperation and assistance.

Section A (Tick Appropriate)

1. What grade are you in? 6 ☐ 7 ☐

2. What type of school do you attend? Private ☐ ☐ Public

Section B. TEACHER RELATED FACTORS LEADING TO POOR PERFORMANCE IN MATHEMATICS

3.Do you feel that teacher absenteeism affects your learning in maths?

(YES/NO) 4.Does lack of feedback from your teacher affect your motivation to learn maths (YES/NO) 5.Do you feel that delayed feedback affects your ability to improve in maths? (YES/NO) 6.Are you able to track your progress in maths without regular feedback? (YES/NO)

7.Does your maths teacher motivate you to learn and do your best?

(YES/NO)

8. Do you feel that your teacher's enthusiasm for maths is lacking? (YES/NO)

Thank you for your time and cooperation. Your feedback will help us to better understand causes of poor performance in mathematics.

APPENDIX 3: INTERVIEW GUIDE FOR SELECTED LEARNERS

1.How often do your teacher arrive late to class, and how does it affect your learning?

2.How often is your maths teacher absent from class, and how does it affect your learning?

3. Do you feel like your maths teacher motivates and encourage and encourage you to learn maths?

4.How long does it take your maths teacher to provide feedback on your assignments and tests?

5.How many learners are typically in your maths class; do you feel like it's too many for one teacher to manage?

APPENDIX 4: INTERVIEW GUIDE FOR SELECTED TEACHERS

1. What are some common weak fundamental skills in mathematic that you are observing in your learners?
2. How do you accommodate learners with difficulties or disabilities in your class?
3. How do you recognize maths anxiety or negative attitude in your learners?
4. How do you teach learners effective time management skills for competing maths homework and study?
5. Are your learners interested and motivated to excel in mathematics?

6. How does the role of external factors such as learner's home environment and lack of parental support contribute to their struggle in maths?
7. Do you feel your learners like the learning mathematics as a subject?

APPENDIX 5: LETTER FROM THE UNIVERSITY

APPENDIX 6: LETTER FROM THE SCHOOL HEAD