BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SCIENCE EDUCATION

DEPARTMENT OF PHYSICS AND MATHS

TOWARDS AN EXPLANATION FOR LOW UPTAKE OF ORDINARY LEVEL MATHEMATICS BY A GIRL CHILD IN RURAL SETTINGS

BY

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Submitted ……in partial fulfillment of the requirement of the Bachelor of Science Education Honours Degree in Mathematics

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ABSTRACT

This study focused on explanation for low uptake of Ordinary Level Mathematics by a girl child in rural settings. The research approach and data analysis used were qualitative and thematic respectively. Participants were purposively selected from the two secondary schools coming with a sample of twenty Ordinary level girls and two Ordinary level Mathematics teachers. Data generating tools used were questionnaires and interview guides. Participants were influenced by their fear of Mathematics, gender stereotypes, inadequate resources and teacher-centered methods. Also lack of female role-models and support from parents and family members contributed. It was noted that there is need for gender sensitization, eradication of gender stereotypes to promote the creation of free teaching environment in the learning of Mathematics.

Key terms: Low uptake, rural settings, stereotyping

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I will not forget to appreciate the Ministry of Primary and Secondary Education for granting me permission to carry out this study at the two Secondary schools in Kwekwe District.

Thank you.

DEDICATION

I dedicate this research study to my two girls Elizabeth Kumirai and Rumbidzai Zigara hoping they will not face same challenges when they reach their Secondary level.

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1.1. INTRODUCTION

The study was motivated by the observation that there is low uptake of girl children in Mathematics at Ordinary level. Despite the fact that the Ministry of Primary and Secondary Education made the teaching and learning of Mathematics compulsory up to Ordinary level, many girl children withdraw themselves from Mathematics (Herzig, 2004). Hence the main focus was to have an explanation for low uptake of Ordinary level Mathematics by a girl child in rural settings.

1.2. MOTIVATION AND CONTEXT OF THE STUDY

Mathematics is a fundamental subject that is essential for academic and professional success. However, there is a persistent gender gap in the uptake of Mathematics, particularly at the Ordinary level (Stoet and Geary, 2018). The majority of girl children participate well in Mathematics at junior levels, but their number tends to decline tremendously as they enroll for Ordinary level. Masanja (2010) states that educational statistics in Sub Sahara African countries show that women continue to lag behind men in education in general and specifically in science, Mathematics and technology education. This disparity is particularly in rural areas, where

cultural and societal norms often limit educational opportunities for girls (Eley, 2017). Educational stereotyping continues, with women and girls tending to study programs related to so-called women's occupations such as nursing, teaching and secretarial jobs just to mention a few. I witnessed this during my Secondary school level. There was no Mathematics female teacher at that High school. All Mathematics teachers were males. Also, most of the girls in my stream did not register for Mathematic examinations. Some of them were saying Mathematics was difficult for them and some had fear in Mathematics. However, some had no reason at all. In Zimbabwe, many researches in different provinces were done in relation to poor performance in Mathematics. An explanation for low uptake of Ordinary level Mathematics by a girl child in rural settings was not well researched. Limited research in such an important area has negative impact on strides made by the government towards mainstreaming gender issues in education.

According to Farooq and Shah (2008), girls are often discouraged from Mathematics work during their Primary school years. This idea of discouraging girls to take part in Mathematics in the first level of education leads to a situation whereby girl children drop Mathematics in greater numbers than boys at Ordinary level. As a result, very few women are employed in professions which require Mathematical ability.

Gudyanga, Mandizvidza and Gudyanga (2016) argue that the uptake of Mathematics by girl children at Secondary school level is low compared to boys and it is worse in rural schools. They further explain that very few girls register to write Mathematics examinations at Ordinary level, despite the fact that all of them have been doing compulsory Mathematics lessons.

1.3. STATEMENT OF THE PROBLEM

The low uptake of Mathematics by the girl child in rural settings at Ordinary level is a significant concern with far-reaching implications for individual and national development. Despite the compulsory nature of Mathematics education up to Ordinary level in Zimbabwe, a notable number of girls opt out before registering for final examinations. This trend undermines efforts to achieve gender parity in education and limits the potential of girls to access careers requiring Mathematical competence. Mathematics is widely recognized as foundational to scientific, technological, and socioeconomic progress and its absence from a girl's educational portfolio constrains her ability to contribute meaningfully to these fields. Ndlela (2012) highlights the importance of Ordinary level examinations in shaping future employment and academic opportunities, reinforcing the urgency to address this issue. Furthermore, societal stereotypes, cultural barriers, and inadequate resources in rural settings exacerbate the problem, as noted by Gudyanga, Mandizvidza, and Gudyanga (2016). The persistence of this disparity calls for a deeper understanding of the factors influencing girls' disengagement from Mathematics. Addressing these challenges is critical to formulating interventions that promote the inclusion, participation and achievement of girls in Mathematics, thereby unlocking pathways to gender equity in education and beyond. By exploring this issue, this study seeks to provide evidence based solutions that will encourage more girls to pursue Mathematics at Ordinary level and beyond.

1.4. RESEARCH QUESTIONS

1. What are the factors that influence the low uptake of Ordinary level Mathematics by a girl child in rural settings?
2. How can the low uptake of Ordinary level Mathematics by a girl child in rural settings be accounted for?
3. How can the uptake of Ordinary level Mathematics by a girl child in rural settings be increased?

1.5. OBJECTIVES

1. To identify the factors that influence the low uptake of Ordinary level Mathematics by a girl child in rural settings.
2. To determine ways in which the low uptake of Ordinary level Mathematics by a girl child in rural settings can be accounted for.
3. To explore potential strategies of increasing the uptake of Ordinary level Mathematics by a girl child in rural settings.

1.6. SIGNIFICANCE OF THE STUDY

This study will provide valuable insights into the factors that shape the educational choices and experiences of girls in rural areas. The findings may inform the development of policies and

interventions aimed at promoting gender equity in Mathematics education, not only in rural areas but also in the broader Zimbabwe nation. Despite the important role that Mathematics plays in the society, there is low uptake by girls at Ordinary level internationally (Masanja, 2010). Hopefully, the research will give insight to school authorities, teachers, parents or guardians, female students and curriculum planners at large on what needs to be done in order to improve the uptake of Mathematics by girls at Ordinary level. Additionally, the study's findings are expected to contribute to the increase in numbers of girls who opt for Mathematics even to levels beyond Ordinary level.

1.7. DELIMITATIONS

In order to provide a proper explanation on the low uptake of Ordinary level Mathematics by a girl child, this study is deliberately bounded by specific parameters. These delimitations enable a concentrated exploration of the research questions, ensuring a rich understanding of the issues at hand.

- The study will be limited to selected Secondary schools in Kwekwe district.
- The research will focus on the low uptake of Mathematics at Ordinary level by a girl child. It will not address factors related to Mathematics performance or achievement.
- A limited number of twenty girls from Ordinary level will be sampled purposively.
- In terms of data collection, the research relies solely on questionnaire surveys and interviews.

- The research is conducted within a limited timeframe.
- To have as little costs as possible, I chose the two Secondary schools which are nearer.

By acknowledging these delimitations, the study recognizes its boundaries and focuses on providing valuable insights into the specified research questions.

1.8. ASSUMPTIONS OF THE STUDY

In carrying out this research study, the following assumptions were made,

- It is assumed that the participants will provide honest and accurate responses during interviews and surveys.
- It is assumed that the findings from the selected schools in Kwekwe district are reflective of the broader experiences of girls in rural settings regarding the uptake of Ordinary level Mathematics.
- It is assumed that sociocultural and economic factors, as observed in previous studies, continue to play a significant role in shaping educational choices and barriers for girls in rural areas.
- It is assumed that the identified factors influencing the low uptake of Mathematics are consistent across similar rural contexts in Zimbabwe.

1.9. LIMITATIONS OF THE STUDY

The study acknowledges several limitations that could affect the generalizability and scope of its findings:

- Geographical Scope: The study is restricted to two Secondary schools in Kwekwe district which may not fully represent rural areas.
- Sample size: A limited sample of 20 girls may constrain the breadth of perspectives and reduce generalizability.
- Data collection methods: The exclusive use of questionnaire surveys and interviews may not capture the full complexity of the issue compared to mixed methods.
- Time constraints: The research is conducted within a tight timeframe, potentially limiting the depth of data collection and analysis.
- Cost constraints: Budget limitations influenced the choice of study sites, excluding more remote rural schools which might have provided additional insights.

1.10. DEFINITION OF KEY TERMS

Low uptake

Refers to the phenomenon where individuals or groups fail to participate in a particular program despite its potential benefits. According to Rossi et al (2004) low uptake refers to, "the situation where the intended beneficiaries of a program or service do not take advantage of it, resulting in lower-than-expected participation rates." In this research, low uptake refers to the phenomenon where fewer students particularly girls, choose Mathematics as a subject for study at the Ordinary level.

Rural settings

Refer to geographic areas characterized by low population density, limited access to services and amenities, agricultural or natural resource-based economies and distinct cultural and social norms. Hart et al (2005) argue that, "rural settings are areas with limited access to services, amenities, and opportunities, often with a strong sense of community and cultural identity." It refers to geographically remote areas with limited access to educational resources, infrastructure and technology compared to urban areas.

Stereotyping

It is a cognitive process where individuals categorize and make assumptions about others based on oversimplified and often inaccurate beliefs about their group membership. This is supported by Fiske and Taylor (1991) who say, "Stereotyping is a cognitive shortcut that involves

categorizing individuals into groups and attributing characteristics to them based on group membership." Stereotyping refers to preconceived notions or biases, often gender based, which influence societal expectations and educational choices.

1.11. CHAPTER SUMMARY

The chapter highlighted the motivation and context of the study. It also looked at the statement of the problem, research questions, objectives, and significance of the study. In addition, the delimitations, assumptions of the study, and limitations of the study were also looked at. The key terms, low uptake, rural settings and stereotyping were defined. The following chapter will be on literature review.

CHAPTER TW0: LITERATURE REVIEW

2.0. INTRODUCTION

This chapter provides on depth review of literature to the low uptake of ordinary level Mathematics by girls in rural settings. It examines relevant theories, empirical studies, and conceptual frameworks, as well as identifying gaps in the literature. The review is structured as follow: theoretical frameworks, factors influencing the uptake of Mathematics, and interventions to enhance participation

2.1. WHAT IS MATHEMATICS LEARNING?

Mathematics is the study of numbers, quantities, shapes, structures, and relationships between them. Katz (2013) says Mathematics is' The language of sciences, engineering, and technology, used to describe and analyze the world ' Mathematics According to Devlin (2000) is ' a way of thinking, a tool for solving problems, a means of communication' It involves logical reasoning, problem-solving, and abstraction to develop and apply mathematical model, theories, and methods. Learning is the process of acquiring, retaining and applying knowledge, skills and attitudes. Driscoll (2005) defines learning as, 'a relatively permanent change in behavior or knowledge that results from experience'. It is a dynamic and continuous process of constructing meaning and understanding through experience and interaction. Now having the definition of Mathematics and learning, we can safely define Mathematics leaning as the process of acquiring knowledge, understanding, and skills in Mathematics including, conceptual understanding,

problem-solving, communication and representation. National Council of Teachers of Mathematics (2024) defines Mathematics learning as, 'the process of acquiring knowledge, understanding, and skills in Mathematics, including the ability to reason, problem-solve, and communicate mathematics ideas'. Mathematics learning is the acquisition of Mathematical concepts, procedures, and attitudes through active engagement and social interaction. It can also be define as development of Mathematics thinking, reasoning and problem-solving abilities through experience, exploration, and instruction,

2.2 THEORETICAL FRAMEWORKS

The study is grounded in two theoretical frameworks: **Feminist Standpoint Theory** and **Gender Schema Theory**. These frameworks provide perspectives on gender disparities and contextualize barriers to Mathematics uptake among girls in rural settings.

2.2.1. Feminist Standpoint Theory

Feminist Standpoint Theory (FST) asserts that knowledge is socially situated and emphasizes understanding marginalized perspectives to uncover systemic inequities. Smith (1987) argued that women's unique social experiences offer valuable insights into mechanisms of oppression, which often remain invisible in dominant narratives. Harding (1998) expanded this framework by applying it to science education, contending that women's exclusion from scientific fields (including Mathematics) stems from entrenched gender biases.

This theory is particularly relevant for rural Zimbabwe, where traditional gender norms limit girls' access to education and perpetuate stereotypes about their capabilities in subjects like Mathematics. By centering the experiences of girls, FST highlights systemic barriers—such as

cultural expectations, economic constraints, and biased educational practices—that hinder their engagement.

In this study, FST informs the sampling and analysis process by examining the lived experiences of female students who have chosen to either pursue or avoid Mathematics at the Ordinary Level. It also provides a lens to explore the interplay between gender roles and systemic inequities in rural education systems.

2.2.2. Gender Schema Theory

Proposed by Bem (1981), Gender Schema Theory (GST) explains how societal norms influence individuals' understanding and performance of gender roles. It posits that gender schemas—cognitive structures that organize gender-related information shape behavior, interests, and perceptions of self-efficacy. In education, these schemas can perpetuate stereotypes, such as the belief that Mathematics is a male-dominated field.

Empirical studies (e.g., Stoet & Geary, 2018) demonstrate that such stereotypes negatively impact girls' confidence in their mathematical abilities, particularly in rural contexts where traditional gender roles are strongly reinforced. GST suggests that early socialization processes instill these biases, leading girls to internalize beliefs about their unsuitability for Mathematics-related careers.

In the context of this study, GST provides a framework for understanding how societal norms and stereotypes influence girls' attitudes toward Mathematics. It also underscores the importance of interventions aimed at reshaping perceptions and fostering gender-neutral learning environments.

2.3 FACTORS INFLUENCING THE UPTAKE OF MATHEMATICS

2.3.1 Cultural and Societal Norms

Cultural and societal norms significantly shape the educational aspirations and opportunities of girls, particularly in rural Zimbabwe. Traditional gender roles often confine girls to domestic responsibilities, which reduces the time and energy they can dedicate to academic pursuits (Herzig, 2004). These roles are deeply embedded in rural communities, where education is sometimes considered less important for girls than boys, reinforcing patriarchal norms that prioritize early marriage and homemaking over career ambitions (Buchmann & Hannum, 2001).

Brotman and Moore (2008) further assert that societal beliefs propagate the notion that girls lack natural aptitude for analytical and abstract thinking, often labelling Mathematics as a “male” domain. This perception discourages girls from engaging with the subject, leading to diminished interest and participation. Supporting this, Tiedemann (2000) demonstrated that both parents and teachers tend to set lower expectations for girls in Mathematics compared to boys, which can significantly undermine their confidence and willingness to enrol in Mathematics-related subjects.

In Zimbabwe's rural areas, the lack of visible female role models in STEM exacerbates these challenges. Without women in the community who have succeeded in Mathematics or related fields, girls may internalize the belief that these careers are unattainable or inappropriate for them (Gudyanga et al., 2016). Furthermore, cultural taboos and societal stigmas surrounding girls pursuing technical or STEM subjects compound the problem, as families may actively discourage their daughters from pursuing such paths (Eley, 2017).

2.3.2 Economic Constraints

Economic factors are a significant barrier to the uptake of Mathematics by girls in rural areas. Financial limitations force families to prioritize educational resources, often favoring boys who are perceived as future breadwinners (Masanja, 2010). This gendered allocation of resources manifests in reduced access to school fees, textbooks, and extracurricular activities for girls, which are essential for developing a strong foundation in Mathematics (Unterhalter et al., 2014).

Schools in rural areas frequently suffer from inadequate facilities and a shortage of qualified Mathematics teachers, which disproportionately affects girls due to existing societal biases that view them as less deserving of scarce resources (Brotman & Moore, 2008). Girls in such settings often lack access to supplementary learning tools like calculators, instructional software, or after-school tutoring programs that could help them overcome initial hurdles in understanding Mathematics (Kilpatrick et al., 2001).

The need for girls to contribute to household income or domestic chores further reduces their availability for academic work. This double burden of education and domestic responsibilities limits their ability to engage with challenging subjects like Mathematics, which require consistent focus and practice (Unterhalter et al., 2014).

2.3.3 Stereotypes and Fear of Mathematics

Stereotypes about Mathematics being a "male" subject play a pivotal role in shaping girls' attitudes toward the subject. Hyde (2005) highlights that these stereotypes create psychological barriers such as Mathematics anxiety, which manifests as fear or apprehension about engaging with the subject. These stereotypes are often internalized from an early age, leading to

diminished confidence and a self-fulfilling prophecy where girls avoid Mathematics because they perceive themselves as less capable.

Eley (2017) notes that this stereotype is particularly pervasive in rural communities, where traditional beliefs about gender roles are stronger. Girls in such settings may face ridicule or ostracization if they excel in Mathematics, as it contradicts societal expectations. Additionally, a lack of exposure to successful female mathematicians or professionals in related fields reinforces these stereotypes, limiting the aspirations of young girls (Stoet & Geary, 2018).

Teachers also play a significant role in perpetuating these stereotypes, consciously or unconsciously. Research by Gudyanga et al. (2016) indicates that teacher biases often lead to differential treatment in the classroom, where boys are encouraged to tackle complex problems while girls are assigned simpler tasks. This approach inadvertently communicates that girls are less capable of handling advanced Mathematics, further discouraging their interest and participation.

2.3.4 Teacher Influence and Gender Representation

Teachers are critical in shaping students' perceptions of Mathematics, and their attitudes can either inspire or discourage girls from pursuing the subject. Farooq and Shah (2008) argue that the absence of gender-sensitive teaching practices in rural schools often perpetuates biases against girls. For example, teachers may unconsciously favor boys when assigning leadership roles in group activities or when providing feedback, reinforcing the belief that boys are naturally better at Mathematics.

The content and delivery of the curriculum also influence girls' engagement with Mathematics. Brotman and Moore (2008) emphasize the importance of incorporating contributions from female mathematicians and scientists into the curriculum to counteract the prevailing narrative that Mathematics is a male-dominated field. Doing so not only challenges stereotypes but also provides girls with role models they can emulate.

Teacher training is another critical factor. Research by Gudyanga et al. (2016) suggests that many teachers in rural areas lack the skills or awareness needed to implement gender-sensitive teaching methods. Professional development programs focusing on gender equity and inclusive pedagogical practices could help teachers create a more supportive learning environment for girls.

Additionally, the lack of female Mathematics teachers in rural areas limits mentorship opportunities for girls. Female teachers can serve as both role models and mentors, demonstrating that success in Mathematics is achievable for women. Their presence in the classroom can also help challenge stereotypes and create a more equitable learning environment (Masanja, 2010).

By addressing these factors, cultural norms, economic constraints, stereotypes, and teacher influences, educational stakeholders can create targeted interventions to increase the uptake of Mathematics by girls in rural Zimbabwe.

2.4. INTERVENTIONS TO ENHANCE PARTICIPATION

2.4.1 Gender-Sensitive Pedagogy

Research underscores the importance of gender-sensitive pedagogy in mitigating gender disparities in Mathematics education. Gender-sensitive teaching practices involve creating inclusive learning environments where students feel equally valued and capable. Ashcraft (2002) emphasized the role of interactive and student-centered teaching strategies in fostering engagement and reducing Mathematics anxiety among female learners. These methods encourage participation, promote critical thinking, and help girls develop confidence in their mathematical abilities.

Mentorship programs are another effective intervention. Studies show that exposure to female role models in STEM fields positively influences girls' perceptions of their potential (Stoet & Geary, 2018). Female mentors help demystify stereotypes by demonstrating that women can excel in Mathematics-related careers. Such initiatives could be integrated into the curriculum, where guest lectures and career talks by successful women in STEM inspire female students (Mupfiga et al., 2019).

Furthermore, incorporating gender equity into teacher training programs is essential. According to Farooq and Shah (2008), many teachers are unaware of their unconscious biases, which often result in differential treatment of male and female students. Professional development programs that train teachers to adopt equitable instructional strategies, such as cooperative learning and problem-solving sessions, can bridge this gap. A study by Ndlela (2012) in Zimbabwe highlighted that equipping teachers with gender-sensitive tools improved classroom dynamics and enhanced girls' performance in Mathematics.

2.4.2 Community Engagement

Community engagement plays a pivotal role in addressing cultural norms and stereotypes that hinder girls' participation in Mathematics. Parent-Teacher Associations (PTAs) and community-based organizations are critical platforms for fostering collaboration among educators, parents, and community leaders. Epstein (2001) argues that active parental involvement in education helps build a supportive environment that reinforces the importance of Mathematics for girls.

Civil (2007) highlighted the potential of cultural and community events in reshaping societal attitudes. Events such as Mathematics fairs, where girls' achievements are celebrated, can challenge prevailing stereotypes and encourage greater participation. These events also offer opportunities for peer learning and showcasing female role models from the community.

Local Mathematics clubs and competitions targeted at girls can build interest and self-confidence in the subject. Research by Gudyanga et al. (2016) in Zimbabwe demonstrated that girls who participated in such initiatives displayed improved attitudes toward Mathematics and higher academic achievement. Collaborations between schools and local stakeholders to fund these initiatives could provide the resources needed to sustain them.

2.4.3 Policy and Infrastructure Support

Effective policy implementation is critical for fostering systemic change in Mathematics education. Zimbabwe's alignment with UNESCO's Sustainable Development Goal 4 (SDG 4), which aims to ensure inclusive and equitable quality education, highlights the need for deliberate interventions to address gender disparities (Ndlela, 2012). Government policies promoting scholarships for girls in STEM fields can alleviate the financial constraints faced by many families.

Improved infrastructure in rural schools is another essential aspect. A study by Masanja (2010) noted that schools with better facilities, such as well-equipped Mathematics laboratories and libraries, witnessed higher participation of girls in Mathematics. Investments in digital learning tools, such as e-learning platforms and mobile applications, can bridge resource gaps and make Mathematics more accessible to girls in remote areas.

In addition to infrastructure, addressing policy gaps in teacher recruitment and training is necessary. Increasing the number of female Mathematics teachers in rural schools can provide girls with relatable role models and mentors (Brotman & Moore, 2008). Teacher training programs should incorporate gender-equity modules to equip educators with strategies to combat stereotypes and create inclusive classrooms.

Policy interventions should also involve regular monitoring and evaluation to assess progress. According to Ndlela (2012), tracking enrolment and performance data by gender enables policymakers to identify persistent gaps and tailor interventions effectively. Furthermore, creating platforms for female students to share their experiences and challenges can provide valuable insights into barriers to participation. Governments can enhance girls participation by making use of:

- Natural Policies: Governments can establish policies promoting gender equality in education, such as the United Nations' Sustainable Development Goal 4 (UNESCO, 2015).
- Mathematics Education Frameworks: According to Kilpatrick et al (2001) the government can develop frameworks that emphasize gender inclusivity, such as the Mathematics Education Framework.

- Teacher Training and Support: Even emphasizes on providing teachers with training and resources to address gender disparities in Mathematics education so that they will help girls have interest in Mathematics.
- Assessment and Accountability: Governments can implement assessments and measures that track and address disparities in Mathematics education (Linn, 2000).
- Providing scholarships, ensuring access to female teachers and enhancing rural school infrastructure are effective interventions (Ndlela, 2012).

2.5. RESEARCH GAPS

While existing studies highlight factors influencing girls' disengagement from Mathematics, few focus specifically on rural settings in Zimbabwe. This study aims to address this gap by providing localized insights into the barriers and potential solutions.

2.6. CHAPTER SUMMARY

The literature underscores the multifaceted nature of barriers to girls' participation in Mathematics. By integrating theoretical perspectives like Gender Schema Theory and Feminist Standpoint Theory, this study aims to provide a comprehensive understanding of the issue. Furthermore, insights from empirical research and identified gaps will inform strategies to promote girls' engagement with Mathematics at the Ordinary level especially in rural areas.

3.0. CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Research Design

According to Creswell (2014) a research design is entire research process from conceptualizing a problem to writing research questions, and on to data generation, analysis, interpretation and report writing. Research designs are the overall strategies and frameworks used to plan and conduct research studies. In order to address the research questions:

1. What are the factors that influence the low uptake of Ordinary level Mathematics by a girl child in rural settings?
2. How can the low uptake of Ordinary level Mathematics by a girl child in rural settings be accounted for?
3. How can the uptake of Ordinary level Mathematics by a girl child in rural settings be increased?

This research adopted a qualitative approach to investigate the phenomenon comprehensively. Qualitative approach situates me in the world of the participants in the study enabling the research process to take an insider perspective (Babbie2005). Qualitative research approach is a methodology used to explore and understand complex phenomenon such as social interactions, cultural norms, and personal experiences. It involves collecting and analyzing non-numerical data, such as text, images and observations Henning, Van and Smith(2004:5) state that qualitative researchers want to ‘ discover how human interaction take place, and why these interaction happens in the manner in which they do in certain situation’. Qualitative researches are guided by a set of principles that emphasize the socially constructed nature of reality, the

personal relationship between the researcher and what being inquired, and the situational constrains that shape the inquiry (Denzin and Lincoln, 2011).

Advantages of Qualitative Research Approach

- Flexibility: Qualitative research approach is often flexible and adaptable that will allow researchers to adjust to their approaches as needed.
- In-depth understanding: It also provides a rich, detailed understanding of phenomena, allowing for a deeper exploration of research questions (Creswell, 2014).
- Participant perspectives: According to Kvale (2007), qualitative research allows for the collection of participant perspectives and experiences, providing a nuanced understanding and phenomena.
- Contextual understanding: Another advantage is that it provides a contextual understanding of phenomena, taking into account the social, cultural and historical context.
- The qualitative research design is exploratory in that it emphasizes words rather than quantification in generating and analyzing data.

Disadvantages of Qualitative Research approach

- Time consuming and labour-intensive: Qualitative data collection can be time-consuming and require a lot of labor.

- Limited sample size: Qualitative research approach often involves small sample sizes, which can limit the findings.

Despite of these limitations of qualitative research approach, I still opted for it for its flexibility and other advantages.

3.2. POPULATION AND SAMPLING

Creswell (2014) refers to population as the entire group of individuals, objects, or events that a researcher is interested in understanding or describing. It is the broader group from which a sample is drawn for a research study. In this study the population comprised teachers and Ordinary level girls of the two sampled Secondary schools in Kwekwe District. From this population, a purposive sampling technique was utilized to select participants who had firsthand experience and in-depth knowledge relevant to the research problem (Patton, 2002). Patton (2015) defines purposive sampling as a non-probability sampling technique used in qualitative research to select participants who are rich in information and can provide in-depth insights into the research topic. Participants were selected based on their relevance to the research topic, rather than randomly (Creswell, 2014). The data were generated from twenty Ordinary level girl students (both registered and not registered for Mathematics) and two Ordinary level Mathematics teachers. The goal of purposive sampling is to focus on particular characteristics of a population that are of interest, which can answer the research questions (Creswell, 2014)

Advantages of purposive sampling

- Targeted selection: Purposive sampling allows researchers to select participants who are most relevant to the research question or topic

(Patton, 2015). This helps the researcher to have the correct information.

- Expertise and judgment: According to (Babbie 2016) researchers can use their expertise and judgment to select participants who are most knowledgeable or experienced in the area being studied.
- Time and cost efficiency: Purposive sampling can be more time and cost efficient than random sampling as it eliminates the need for random selection. It also allows the researcher to adapt their sampling strategy as needed, based on the emerging findings or changing research circumstances (Patton, 2015).
- In-depth understanding: Purposive sampling can provide an in-depth understanding of the topic, as participants are selected based on their expertise or experience (Babbe, 2016).
- Flexibility: According to Patton (2015), purposive sampling allows researchers to adapt their sampling strategy as needed, based on the emerging findings or changing research circumstances.
- Access to hard-to-reach populations: Etikan (2016) says purposive sampling can provide access to hard-to-reach populations or individuals who are difficult to recruit through other sampling methods.

Disadvantages of purposive sampling

- Bias: Purposive sampling is prone to bias, as the researcher's selection of participants is influenced by opinions and interests.

- Limited generalizability: The findings may not be generalizable to the larger population, as the sample is not randomly selected.

Purposive sampling may have its own limitations, but I chose it so that I can work with the concerned participants only.

3.3. DATA COLLECTION TOOLS

Data collection tools are instruments or methods used to collect data in research studies. Two research instruments were used, an interview guide and a questionnaire. An interview is a planned and guided conversation in which the interviewer draws out from the respondents, but never divulges his views by direct or indirect statement (Creswell, 2014). Interview gives the researcher opportunities to probe for views and opinions of the interviews. Probing is a way for the interviewer to explore new paths which were not initially considered and affords the interviewer a chance to interpret meanings and attach subjective conclusions (Creswell, 2014). To enhance data richness, interview guides were developed based on insights from chapter 1 and 2. These tools ensured consistency across interviews while allowing participants to express their views freely.

Advantages of interview

According to Kvale (2007), interview allows researchers to gather detailed, rich and contextualized data that might not be possible through other methods. Interviews can be

conducted in various settings, such as face-to-face, phone, or video conferencing, making it easier to reach participants. They enable researchers to build rapport with participants, which can lead to more open and honest responses. Kvale (2007) adds that interviews allow researchers to clarify and probe participants' responses, ensuring a deeper understanding of data.

Questionnaires

A questionnaire is a research instrument used to collect data from a large number of participants. It typically consists of a series of questions, either open-ended or closed-ended, designed to gather information about a specific topic or phenomenon (Babbie, 2016). The self-administered questionnaire was used where participants completed the questionnaire on their own.

Advantages of questionnaires

Babbie (2016) notes that questionnaires are a cost effective way to collect data from a large sample size. Questionnaires can be administered in various formats, such as online, or pen-and-paper. According to Dillman (2011), questionnaires can be administered quickly, and responses can be administered quickly, and responses can be collected in a relatively short period. Questionnaires can be administered to a large sample size, increasing the generalizability of the findings. As Babbie (2016) says, questionnaires can be designed to ensure respondent anonymity which can increase honesty and reduce social desirability bias. Participants will give honest responses without having fear of being known.

3.4. DATA ENTRY AND CLEANING

3.4.1 Data entry

Data entry is the process of manually or automatically inputting data into a computer system, databases, or spreadsheet (Babbie, 2016). It involves transferring data from source document, such as a survey or questionnaire, into a digital format (Kelinger and Lee, 2000). In this research study, data entry involved the transcription of audio-recorded interviews into textual format for analysis. The transcriptions reviewed multiple times to ensure accuracy.

3.4.2 Data Cleaning

According to Redman (2013), data cleaning is the process of identifying and correcting errors, inconsistencies and inaccuracies in a dataset to improve its quality and reliability. Data cleaning was conducted by cross-checking transcriptions with original recordings to identify and correct errors. This meticulous process ensured that the data used for analysis was accurate and free from inconsistencies.

Advantages of Data Cleaning

Data cleaning ensures that the data is accurate, complete, and consistent, which improves the overall quality of the data. According to Beyer (2017), clean data reduces the time and effort required for data analysis and processing, making it more efficient. Clean data also provides a more accurate and reliable bases for decision-making, reducing the risk of errors and misinterpretations (Davenport, 2014). Data cleaning helps to identify and correct errors, reducing the risk of errors and inaccuracies in data. According to Kimball and Ross(2013), clean data makes it easier to integrate data from different sources, reducing the risk of inconsistencies integrate data from different sources, reducing the risk of inconsistencies and errors. Clean data

also reduces the time and effort required for data analysis and processing, making it more productive. Data cleaning can also help reduce costs by reducing the time and effort required for data analysis and processing, and by reducing the risk of errors and inaccuracies.

3.5. DATA ANALYSIS

Data analysis is the process of examining and interpreting data to extract meaningful insights and patterns. Thematic analysis was adopted to analyze the data collected. Braun and Clarke (2006) view thematic analysis as a qualitative research method used to identify, analyze, and interpret patterns and themes within a dataset. It involves a system and rigorous process of coding, categorizing, and theme development. Braun and Clarke's six-phase approach guided the identification and interpretation of themes within the data. These phases include familiarization with data, generating initial codes, searching for themes, reviews themes, defining and naming themes, and producing the final report.

Thematic analysis was chosen for its flexibility. Braun and Clarke (2006) say thematic analysis can be used with a variety of data types, including text, image, and video data. It is capable of providing detailed insights into participants' perspectives. According to Braun and Clarke (2006), it can provide rich and detailed insights into the data, revealing patterns and themes that may not be immediately apparent. It also involves a systematic and rigorous approach to data analysis, reducing the risk of bias and error. However, its reliance on researcher's interpretations necessitates careful reflexity to minimize bias. Thematic analysis can be a time-consuming and labor-intensive process, requiring significant time-consuming and labor-intensive process, requiring significant time and effort to code, analyze and interpret the data. According to Braun

and Clarke (2006), thematic analysis involves subjective interpretation of the data, which can lead to bias and error if not carefully managed.

Research question1

It focuses on identifying the factors that influence the low uptake of Ordinary level Mathematics by a girl child in rural settings so to answer that I used thematic analysis as it provides rich and detailed insights into data.

Research question 2

It focuses on how the low uptake of Ordinary level Mathematics by a girl child in rural settings can be accounted for so to answer this I analyzed data using thematic analysis as it involves systematic and rigorous approach to data analysis, reducing the risk of bias and errors.

Research question 3

It focuses on how the uptake of Ordinary level Mathematics by a girl child in rural settings can be increased so to answer this I also relied on thematic analysis so as to get rich and detailed insights into data, revealing patterns and themes that may not be immediately apparent.

3.6. RELIABILITY AND VALIDITY OF DATA

Reliability refers to the consistency and dependability of data collection methods and instruments (Babbie, 2016). It involves ensuring that the data collection process yields consistent results over time. LeCompte and Goetz (1982) refer to reliability as the consistency and dependability of data, while validity pertains to the extent to which the research measures what it intends to measure. To ensure reliability and validity of data, I used the following:

3.6.1 Test-Retest Method

This is a research technique used to access the reliability of a measurement instrument, such as survey, questionnaire, or psychological test. I gave the questionnaire to the participants for the first time. After they answered the questionnaire I gave them some time, a week to be precise, and re-administered the same questionnaire to same participants.

Advantages of the Test-Retest Method

- The test-retest method assesses the temporal stability of a research instrument
- The method can help identify flaws in the research instrument, such as ambiguous questions or inconsistent scoring.
- It can also provide insight into participant behavior, such as response patterns or biases.

3.6.2 Data Triangulation

Denzin and Lincoln (2011) define data triangulation as using multiple data sources or methods to validate findings and increase the validity and reliability. It is a research technique used to increase the validity and reliability of research findings by combining multiple data sources, methods or investigators. Its goal is to provide a more comprehensive and accurate understanding of the research phenomenon. In this research study, I used interview and questionnaire survey.

Advantages of Data Triangulation

Data triangulation can increase the validity of research findings by providing a more comprehensive understanding of the research phenomenon. It can improve the reliability of research findings by reducing the impact of individual biases or errors. In addition, data

triangulation can enhance the generalizability of research findings by providing a more detailed and nuanced understanding of the research phenomenon. It can also increase confidence in research findings by providing multiple lines of evidence that support the conclusions.

3.7. ETHICAL CONSIDERATIONS

Ethical considerations are crucial when conducting research to ensure that the rights and dignity of participants are respected, and that the research is conducted in a responsible and transparent manner. Ethical approval was sought and obtained from relevant authorities prior to data collection. Our institution, Bindura University of Science Education, provided the ethical clearance to carry out the study. I also got clearance from the Ministry of Primary and Secondary Education that is, Head Office, Provincial Office as well as the District Office to allow me to visit the two sampled Secondary Schools. The Heads of the schools also gave me clearance to interview their teachers and students.

The participants consented to engage in interviews and questionnaire surveys as noted by Babbie (2016) that participants must provide informed consent, which involves providing them with clear and concise information about the research, including its purpose, risks, and benefits. Participants were granted confidentiality and anonymity. This was done by not giving names on the questionnaire. During the interviews, the participants' identity was not required. Kerlinger and Lee (2000) support this saying, researchers must ensure that participants' personal information and data are kept confidential and anonymous, unless participants consent to disclosure. Participants were also informed of their right to withdraw from the study at any time (Bryman, 2016). Additionally, data was securely stored to prevent unauthorized access, and findings were presented honesty and accurately. Denzin and Lincoln (2011) argue that

researchers must be culturally sensitive and respectful of participants' cultural backgrounds, values and practices.

3.8. CHAPTER SUMMARY

This chapter outlined the research methodology adopted for the study, detailing the design, population and sampling techniques, data collection tools, and analysis methods. Measures to ensure the reliability and validity of data were discussed, as well as the ethical considerations observed during the study. The next chapter will present the research findings and analysis.

CHAPTER FOUR: PRESENTATION OF RESULTS

4.0. INTRODUCTION

This chapter presents the findings of the study titled ***Towards an explanation for low uptake of Ordinary Level Mathematics by a girl child in rural settings.*** The results are aligned with the theoretical frameworks of Feminist Standpoint Theory and Gender Schema Theory, as well as relevant literature reviewed in Chapter 2. Key themes are derived from responses to the interviews and questionnaires administered to Ordinary Level girls and Mathematics teachers in two Secondary schools in Kwekwe District. The findings are organized according to the research questions and themes emerging from the analysis.

4.1. PRESANTATION

PARTICIPANTS BACKGROUND

Table 4.1

Method/ Target population	Pupils	Teachers	Total
Questionnaire	15	1	16
Personal Interviews	5	1	6
Total number of Respondents	20	2	22

Table 4.1 shows that most of the participants were pupils. This is in line with the study which was targeting Ordinary Level girls. Only 2 were Mathematics teachers since rural Secondary schools have limited Mathematics teachers.

Figure 4.1: Gender composition of respondents

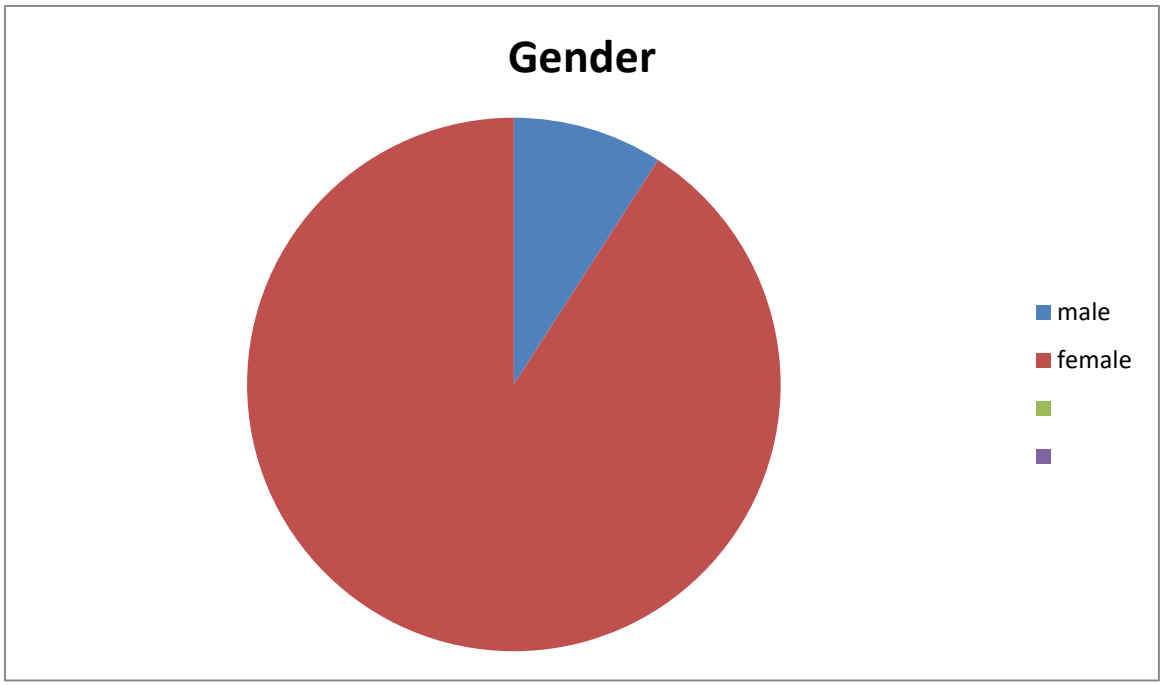

Figure 4.1 shows that most of the participants were female. Girls were chosen based on the research title which deals with a girl child. The few males were Ordinary Level Mathematics teachers. There was no female Mathematics teacher at both selected schools.

RESEARCH QUESTION 1: What are the factors that influence the low uptake of Ordinary Level Mathematics by a girl child in rural settings?

Thematic analysis identified several factors contributing to the low uptake of Mathematics among girls in rural settings.

1. Cultural and Societal norms

Participants reported that traditional gender roles significantly influenced girls' academic aspirations. Girls are often expected to prioritize household chores, limiting time for academic pursuits. One of the participants highlighted how domestic responsibilities affect girls from doing their homework saying that they are not allowed to do homework. These findings align with Herzig (2004), who argued that cultural norms in rural areas limit girls' educational opportunities. Societal stereotypes label Mathematics as a "male subject", discouraging girls from actively engaging with the subject. From the perspective of Gender Schema Theory, societal norms create gender schemas that discourage girls from pursuing Mathematics.

2. Economic constraints

Economic challenges emerged as a dominant theme. Limited financial resources result in prioritizing boys' education, often leaving girls without access to essential learning materials, such as textbooks, and calculators. Additionally, the inability to afford school fees or extra lessons reduces girls' chances of excelling in Mathematics. This supports Masanja's (2010) findings on the gendered allocation of educational resources. This economic marginalization is a systemic issue highlighted by Feminist Standpoint Theory, which underscores the structural barriers imposed on marginalized groups.

3. Fear of Mathematics and Stereotypes

Mathematics anxiety was prevalent, with many girls perceiving the learning area as difficult and better suited for boys. The internalization of stereotypes, as proposed by Gender Schema Theory, undermined their confidence. Female students frequently internalize these beliefs leading to diminished confidence and self-efficacy. This observation corresponds with

Hyde's (2005) assertion that stereotypes create psychological barriers for girls. One of the participants even said they are being forced to do Mathematics which is difficult.

4. Teacher Influence and Gender Representation

The absence of female Mathematics teachers was noted as a demotivating factor. Female students expressed a lack of relatable role models. This is consistent with Gudyanga et al (2016), who emphasized the importance of gender representation in teaching to challenge stereotypes. Teachers acknowledged the lack of female role models in Mathematics-related fields, which perpetuates these stereotypes.

RESEARCH QUESTION 2: How can the low uptake of Ordinary level Mathematics by a girl child in rural settings be accounted for?

Research findings revealed the following systemic and contextual explanations:

1. Gendered Educational Practices

Teachers unconsciously perpetuated stereotypes by assigning simpler tasks to girls, reinforcing their perceived incompetence. Feminist Standpoint Theory highlights such practices as examples of systemic inequities in education (Smith, 19876).

2. Inadequate School Infrastructure

Participants noted a lack of adequate Mathematics resources, such as textbooks, and well-trained teachers. Rural schools often lack electricity, proper classrooms and interactive teaching tools, disproportionately affecting girls. Masanja (2010) simply noted that inadequate infrastructure exacerbates gender disparities in STEM fields. Investments in

educational infrastructure are essential for fostering equitable learning environments (Masanja, 2010).

3. Lack of Parental Support

Girls reported limited encouragement from parents to excel in Mathematics, with parents often dismissing its relevance for female-oriented careers. Parents usually say Mathematics is for boys not girls. This echoes Brotman and Moore's (2008) argument that parental expectations influence academic choices.

RESEARCH QUESTION 3: How can the uptake of Ordinary Level Mathematics by a girl child in rural settings be increased?

Participants proposed various strategies to promote Mathematics uptake

1. Gender Sensitive Teaching

Respondents emphasized the need for training teachers in gender-sensitive pedagogy. Incorporating interactive and inclusive teaching methods could help mitigate stereotypes, as suggested by Ashcraft (2002). Teachers suggested incorporating relatable, real-life examples into Mathematics instruction, such as budgeting or agriculture.

2. Mentorship Programs

Participants advocated for mentorship initiatives led by female professionals in STEM fields. Engagement of female role models may be of great help on increasing uptake of Ordinary level Mathematics by girls. Role models can counter stereotypes and demonstrate that

success in Mathematics is achievable. Such programs could counteract negative gender schemas, as noted by Stoet and Geary (2018).

3. Community Engagement

Involving parents and the community leaders in promoting girls' education was identified as critical. Respondents suggested that parents and the community must not look down upon girls. They should depart from discouraging girls from passing Mathematics. Participants also suggested that the parents should provide girls with resources and encouragement. They should not be the causes of girls' absenteeism from school. Civil (2007) emphasized the role of community engagement in reshaping societal attitudes.

4. Policy Interventions

Enhancing infrastructure, providing scholarships, and increasing the recruitment of female Mathematics teachers were cited as effective measures. These recommendations align with UNESCO's (2015) call for systematic changes to address educational inequities.

4.2. CHAPTER SUMMARY

The findings highlight the interplay between cultural, economic, and systemic factors influencing girls' disengagement from Mathematics. They also emphasize the need for interventions targeting stereotypes, resource disparities and community involvement. Proposed solutions focused on mentorship programs, gender-sensitive teaching and infrastructure improvements. The results corroborate existing literature, reinforcing the theoretical frameworks of Feminist Standpoint Theory and Gender Schema Theory. Feminist Standpoint Theory highlights systemic barriers, while Gender Schema Theory emphasizes

the role of societal norms in shaping attitudes and behaviors. By addressing these multifaceted barriers, stakeholders can foster a more inclusive and equitable educational environment for girls in rural Zimbabwe. In the next chapter, the findings will be discussed in greater detail with a focus on implications for policy and practice.

CHAPTER 5: SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5.1. SUMMARY OF THE STUDY

In Chapter 1, the research problem was introduced, emphasizing the low uptake of Ordinary Level Mathematics by girls in rural settings in Zimbabwe. The chapter highlighted the importance of Mathematics for individual and national development, the gender disparities in Mathematics education, and the factors contributing to this issue, including cultural and economic barriers. The study's objectives were outlined, which included identifying the factors influencing the low uptake, accounting for these factors, and exploring potential strategies to increase girls' participation in Mathematics.

In Chapter 2, a literature review was conducted to provide a theoretical framework for understanding the issues related to the low uptake of Mathematics by girls in rural settings. Feminist Standpoint Theory (FST) and Gender Schema Theory (GST) were explored to examine how gender biases and societal norms shape educational opportunities for girls. The chapter also reviewed previous studies that identified key factors such as cultural expectations, economic constraints, stereotypes, and teacher influences as significant barriers to girls' engagement with Mathematics.

In Chapter 3, the research methodology was detailed. The study adopted a qualitative approach using semi-structured interviews and a questionnaire to collect data from teachers, students, and parents in rural settings. A purposive sampling technique was employed to ensure that participants had firsthand experience and in-depth knowledge relevant to the research problem.

Thematic analysis was used to analyze the data, allowing for the identification of key themes related to the factors influencing girls' participation in Mathematics.

In Chapter 4, the presentation of results was provided, which highlighted the factors influencing the low uptake of Mathematics by girls in rural Zimbabwe. The findings included cultural and societal norms, economic constraints, inadequate infrastructure, stereotypes, and teacher biases. Participants proposed various solutions, including mentorship programs, gender-sensitive teaching practices, improved resources, and community involvement to address these challenges. The results were discussed in light of the theoretical frameworks and reviewed literature.

5.2. DISCUSSION OF RESULTS ACCORDING TO RESEARCH QUESTIONS

Research Question 1: What are the factors that influence the low uptake of Ordinary Level Mathematics by a girl child in rural settings?

The study identified several factors influencing the low uptake of Mathematics, as follows:

Cultural and Societal Norms: Traditional gender roles, including household responsibilities, limit girls' ability to engage with Mathematics. Societal perceptions that Mathematics is a male-dominated subject further discourage girls from pursuing it. These findings are consistent with previous research (Buchmann & Hannum, 2001; Eley, 2017).

Economic Constraints: Financial limitations result in the prioritization of boys' education, leaving girls without the necessary resources such as textbooks, calculators, and additional support to succeed in Mathematics. This finding mirrors Masanja (2010) and Gudyanga et al. (2016), who highlighted the gendered allocation of educational resources.

Stereotypes and Fear of Mathematics: Girls internalize the stereotype that Mathematics is difficult and not meant for them, leading to decreased confidence and avoidance of the subject. Research by Hyde (2005) and Stoet & Geary (2018) supports this, emphasizing the role of stereotypes in shaping girls' attitudes toward Mathematics.

Teacher Influence: Teachers' unconscious biases toward boys, coupled with a lack of gender-sensitive teaching methods, discourage girls from actively participating in Mathematics lessons. This reinforces the importance of gender equity in teaching (Farooq & Shah, 2008).

Research Question 2: How can the low uptake of Ordinary Level Mathematics by a girl child in rural settings be accounted for?

The low uptake can be accounted for through a combination of systemic cultural and economic factors. Cultural norms that prioritize boys' education, along with economic constraints, exacerbate the challenges that girls face in pursuing Mathematics. Gender schemas internalized from a young age, as described by Bem (1981), further contribute to girls' self-doubt and reluctance to engage with Mathematics. The gender biases in teaching and the lack of female role models in STEM fields also perpetuate the cycle of underachievement and disengagement in Mathematics for girls in rural settings.

Research Question 3: How can the uptake of Ordinary Level Mathematics by a girl child in rural settings be increased?

The study's findings point to several potential solutions for increasing the uptake of Mathematics among girls in rural areas:

Mentorship Programs: Providing mentorship from female STEM professionals can inspire and encourage girls to pursue Mathematics by offering positive role models.

Gender-Sensitive Teaching: Incorporating gender-sensitive pedagogical approaches and using relatable, real-life examples can make Mathematics more accessible and engaging for girls.

Community and Family Support: Encouraging parental involvement and raising community awareness about the value of educating girls in Mathematics can reduce societal resistance to girls' participation in STEM education.

Improved Infrastructure: Investing in better school facilities, such as well-equipped Mathematics classrooms and access to digital learning tools, would significantly improve the learning experience for girls.

5.3. CONCLUSIONS

The study concluded that several interrelated factors contribute to the low uptake of Mathematics by girls in rural Zimbabwe. These include deeply ingrained cultural beliefs, economic barriers,

inadequate teaching resources, and stereotypes that discourage girls from engaging with Mathematics. Teacher biases and a lack of female role models further perpetuate these challenges. The research also highlighted the need for systemic changes, including gender-sensitive teaching, mentorship programs, and improved infrastructure, to increase girls' participation in Mathematics.

5.4. RECOMMENDATIONS

Based on the findings, the following recommendations are proposed:

Government and Policy Interventions: Implement policies that prioritize gender equality in education, including scholarships for girls pursuing Mathematics and other STEM subjects.

Teacher Training: Provide training for teachers on gender-sensitive teaching methods to challenge unconscious biases and foster a more inclusive learning environment.

Community and Parental Engagement: Encourage active involvement of parents and community leaders in advocating for girls' education, particularly in Mathematics.

Infrastructure Improvement: Invest in better educational infrastructure in rural schools, including the provision of textbooks, calculators, and digital tools to support Mathematics learning.

Mentorship and Role Models: Establish mentorship programs where successful female mathematicians and STEM professionals can inspire and guide girls to pursue Mathematics.

5.5. SUGGESTIONS FOR FURTHER STUDIES

Future studies could explore the effectiveness of specific interventions, such as mentorship programs or gender-sensitive pedagogies, in increasing girls' participation in Mathematics. Longitudinal studies tracking the impact of improved infrastructure and financial support on girls' academic outcomes in rural settings would also provide valuable insights. Additionally, research focusing on the role of technology in overcoming resource constraints in rural schools could contribute to developing scalable solutions for increasing the uptake of Mathematics.

This chapter synthesizes the research findings, presents a discussion on how they align with the research questions, and concludes with actionable recommendations for stakeholders involved in improving girls' participation in Mathematics education in rural Zimbabwe.

REFERENCES

- Babbie, E. R. (2016). The practice of social research
- Beyer, M. A. (2017). Data quality: A guide to improving data quality.
- Braun,V., and Clarke, V. (2006). Using thematic analysis in psychology
- Brotman,J. S., and Moore, F. M. (2008). Girls and science: A review of four themes in the science education literature
- Creswell, J. W. (2014). Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research (4th ed.). Essex. England: Pearson Education Limited.
- Davenport,T. H.(2014). Big data at work. Dispelling the myths, uncovering the opportunities.
- Delanty, G. (2005). Return of the actor: The reflexive turn and feminist standpoint epistemology. Social Science Philosophical and Methodological Foundations (2nd ed) Mainhead: Open University Press.
- Denzin,N. K., and Lincoln, Y.S. (2011). The Disciple and Practice of Qualitative Research. The SAGE Handbook of Qualitative Research. Thousand Oaks: SAGE
- Driscoll, M.P. (2005). Psychology of learning for instruction.
- Farooq, S. M., and Shah, S. Z.U. (2008). Students' Attitude Towards Mathematics. Pakstan Economic and Social Review
- Gudyanga, A. et al. (2016). Participation of rural Zimbabwean female students in Mathematics: The influence of perception. Curriculum and Teaching Studies.
- Henning, E., et al. (2004). Finding your way in qualitative research. Pretoria, Van Schaik Publishers.

- Herzig, A. H. (2004). Becoming Mathematicians: Women and Students of Colour Choosing and Leaving Doctoral Mathematics. Review of Educational Research.
- Hyde, J. S. (2005). The gender similarities hypothesis. American Psychologist.
- Kimball, R., and Ross, M. (2013). The data warehouse toolkit: The complete guide to dimensional modeling.
- Masanja, V.G. (2020). Increasing Women's Participation in Science, Mathematics and Technology Education and Employment in Africa.
- Ndlela, M. N. (2012). Critical Success Factors for Effective Knowledge Sharing: Integrating Intra Organizational Communication and K M Tools

APPENDIX 1

Interview Guide for the Study

Title: Towards an Explanation for Low Uptake of Ordinary Level Mathematics by a Girl Child in Rural Settings

Objective:

To explore the factors influencing the low uptake of Ordinary Level Mathematics by girls in rural settings, account for these factors, and identify potential strategies to increase their participation.

Section A: Participant Background

1. **Personal Details**
    - What is your age?
    - What is your educational background?
2. **School Information**
    - What grade or level are you teaching/studying?

Section B: Factors Influencing Low Uptake

1. **Cultural and Societal Norms**

- How do cultural expectations in your community influence girls' attitudes toward Mathematics?
- Are there societal beliefs that Mathematics is more suitable for boys? How do these beliefs affect girls?
- Are there traditional roles that limit the time or focus girls dedicate to education?

2. **Economic Constraints**
    - What economic challenges do families in your community face in supporting girls' education?
    - Are there financial preferences given to boys over girls when allocating resources for education?
    - How do school fees and related costs affect girls' decisions to pursue Mathematics?
3. **School and Infrastructure**
    - How would you describe the availability of Mathematics resources, such as textbooks, teachers, and teaching aids, in your school?
    - Are there any specific challenges related to infrastructure that discourage girls from taking Mathematics?
4. **Stereotypes and Fear of Mathematics**
    - Do you think girls view Mathematics as a difficult subject? Why?
    - Are there any common stereotypes about girls' abilities in Mathematics? How do these impact girls' confidence?
    - How does the presence or absence of female Mathematics teachers affect girls' interest in the subject?

5. **Teacher Influence**
    - How do teachers' attitudes and teaching styles influence girls' perceptions of Mathematics?
    - Are girls encouraged to participate actively in Mathematics lessons?

Section C: Interventions and Solutions

1. **Mentorship and Role Models**
    - Are there any female role models in your community who have succeeded in Mathematics or STEM careers?
    - How could mentorship programs influence girls' attitudes toward Mathematics?
2. **Gender-Sensitive Teaching**
    - What strategies could teachers use to make Mathematics more engaging and inclusive for girls?
    - Do you think incorporating examples of successful female mathematicians in lessons would inspire girls?
3. **Community and Policy Support**
    - What role do parents and communities play in encouraging girls to pursue Mathematics?
    - Are there policies or programs in place to support girls in Mathematics education? How effective are they?
4. **Addressing Infrastructure and Economic Barriers**

- What improvements in school facilities or resources would make Mathematics more accessible for girls?
- How can financial support (e.g., scholarships) help increase girls' uptake of Mathematics?

Section D: Open Discussion

1. In your opinion, what is the single most significant factor contributing to the low uptake of Mathematics by girls in rural settings?
2. What do you believe can be done at the community, school, or national level to address this issue?

Closing Notes:

- Thank participants for their time and valuable insights.
- Reassure them of the confidentiality of their responses.

Invite any additional thoughts or questions they might have.

APPENDIX 2

QUESTIONNAIRE

I am Mureza Acoleta, a student at Bindura University of Science Education, pursuing a Bachelor of Science Honours Degree in Mathematics. As part of my degree requirements, I am conducting research entitled ***Towards an explanation for low uptake of O Level Mathematics by a girl child in rural settings in Zimbabwe.***

Your participation is crucial to the success of this research, and your insights will help provide a better understanding of the relationship of this critical issue. The information gathered will be kept strictly confidential and will only be used for academic purposes. Your honest responses are greatly appreciated.

Section A: Background Information

1. What is your role in the education system?

- Student
- Teacher
- Parent
- Education official

Other (please specify)_____

2. If you are a student, what Form are you currently in?

- Form 3

- Form 4

3. If you are a teacher, how many years have you been teaching Mathematics?

- Below 10
- 10-20
- Above 20

4. For parents, do you have children currently enrolled in secondary education?

- Yes
- No

5. What is your gender?

Section B: Attitudes Toward Mathematics

1. For Students: How would you describe your attitude toward Mathematics?

- Very positive
- Somewhat positive
- Neutral
- Somewhat negative
- Very negative

2. For Teachers: What is your general observation of female students' attitudes toward Mathematics compared to male students?

- Very positive
- Somewhat positive
- Neutral
- Somewhat negative
- Very negative

3. For Parents: Do you think Mathematics is an important subject for your daughters? Why or why not?

- Yes
- No

Explanation:

_____

_____

_____

Section C: Perceptions and Barriers

1. What challenges do you think girls face when learning Mathematics in rural schools?

- Lack of resources (textbooks, calculators, etc.)
- Insufficient support from teachers
- Lack of confidence in Mathematics
- Stereotypes about girls' abilities in Mathematics

- Other (please specify)

Please elaborate on your answer:

_____

_____

2. How do social or cultural beliefs influence girls' interest in taking Mathematics at O Level?

_____

_____

_____

_____

3. For Teachers and Education Officials: What teaching methods do you believe would improve girls' participation in Mathematics?

Section D: Support Systems and Resources

1. Do you think there are enough resources (like textbooks, study materials, and qualified teachers) to support girls in learning Mathematics?

- Yes
- No

If no, what resources are lacking?

_____

2. What type of support (from school, family, or community) do you think could help girls overcome challenges in Mathematics?

_____

_____

_____

_____

3. Have you seen or heard of any successful initiatives in your area that have encouraged girls to take Mathematics? If yes, could you describe them?

_____

_____

_____

_____

Section E: Recommendations

1. For Students: What could be done to make Mathematics more appealing and accessible for girls?

_____

_____

_____

2. For Parents: How could parents support their daughters to succeed in Mathematics?

_____

_____

_____

3. For Teachers and Education Officials: What changes could schools or the education system make to encourage girls to take Mathematics?

_____

_____

_____

4. What additional suggestions do you have for increasing the uptake of Mathematics among girls in rural areas?

_____

_____

Thank You for Your Participation

APPENDIX 3

SAMPLES OF RESPONSES

I am MurezaAcoleta, a student at Bindura University of Science Education, pursuing a Bachelor of Science Honours Degree in Mathematics. As part of my degree requirements, I am conducting research entitled ***Towards an explanation for low uptake of O Level Mathematics by a girl child in rural settings in Zimbabwe.***

Your participation is crucial to the success of this research, and your insights will help provide a better understanding of the relationship of this critical issue. The information gathered will be kept strictly confidential and will only be used for academic purposes. Your honest responses are greatly appreciated.

Section A: Background Information

1. What is your role in the education system?

- ☑ Student
- ☐ Teacher
- ☐ Parent
- ☐ Education official

Other (please specify)_____

2. If you are a student, what Form are you currently in?

- ☑ Form 3
- ☐ Form 4

3. If you are a teacher, how many years have you been teaching Mathematics?

- ☐ Below 10
- ☐ 10-20
- ☐ Above 20

4. For parents, do you have children currently enrolled in secondary education?

- ☐ Yes
- ☐ No

- ☐ Yes
- ☐ No

5. What is your gender?

female

Section B: Attitudes Toward Mathematics

1. For Students: How would you describe your attitude toward Mathematics?

- ☐ Very positive
- ☐ Somewhat positive
- ☐ Neutral
- ☑ Somewhat negative
- ☐ Very negative

2. For Teachers: What is your general observation of female students' attitudes toward Mathematics compared to male students?

- ☐ Very positive
- ☐ Somewhat positive
- ☐ Neutral
- ☐ Somewhat negative
- ☐ Very negative

3. For Parents: Do you think Mathematics is an important subject for your daughters? Why or why not?

- ☐ Yes
- ☐ No

Explanation:

_____

_____

Section C: Perceptions and Barriers

1. What challenges do you think girls face when learning Mathematics in rural schools?

- ☑ Lack of resources (textbooks, calculators, etc.)
- ☐ Insufficient support from teachers
- ☐ Lack of confidence in Mathematics
- ☐ Stereotypes about girls' abilities in Mathematics
- ☐ Other (please specify)

Please elaborate on your answer:

2. How do social or cultural beliefs influence girls' interest in taking Mathematics at O Level?

Vanoti Vasikana anyana kana nebasa nemathematcs nemaka yokuti atina ma Caculators atina ma text books vanonzisa Vakomana vasikana chavarire

3. For Teachers and Education Officials: What teaching methods do you believe would improve girls' participation in Mathematics?

Section D: Support Systems and Resources

1. Do you think there are enough resources (like textbooks, study materials, and qualified teachers) to support girls in learning Mathematics?

- ☐ Yes
- ☑ No

If no, what resources are lacking?
text books

2. What type of support (from school, family, or community) do you think could help girls overcome challenges in Mathematics?

kana ndakuda kunyora mathematcs ndoda kusupport in from goverment

3. Have you seen or heard of any successful initiatives in your area that have encouraged girls to take Mathematics? If yes, could you describe them?

NO

Section E: Recommendations

1. For Students: What could be done to make Mathematics more appealing and accessible for girls?

kuth kuti mathematcs inakidze toda vzinu zwakawana ma text book ma caculators

2. For Parents: How could parents support their daughters to succeed in Mathematics?

I am MurezaAcoleta, a student at Bindura University of Science Education, pursuing a Bachelor of Science Honours Degree in Mathematics. As part of my degree requirements, I am conducting research entitled ***Towards an explanation for low uptake of O Level Mathematics by a girl child in rural settings in Zimbabwe.***

Your participation is crucial to the success of this research, and your insights will help provide a better understanding of the relationship of this critical issue. The information gathered will be kept strictly confidential and will only be used for academic purposes. Your honest responses are greatly appreciated.

Section A: Background Information

1. What is your role in the education system?

- ☑ Student
- ☐ Teacher
- ☐ Parent
- ☐ Education official

Other (please specify)_____

2. If you are a student, what Form are you currently in?

- ☐ Form 3
- ☑ Form 4

3. If you are a teacher, how many years have you been teaching Mathematics?

- ☐ Below 10
- ☐ 10-20
- ☐ Above 20

4. For parents, do you have children currently enrolled in secondary education?

- ☐ Yes
- ☐ No

5. What is your gender? -> female

Section B: Attitudes Toward Mathematics

1. For Students: How would you describe your attitude toward Mathematics?

- ☐ Very positive
- ☐ Somewhat positive
- ☐ Neutral
- ☐ Somewhat negative
- ☑ Very negative

2. For Teachers: What is your general observation of female students' attitudes toward Mathematics compared to male students?

- ☐ Very positive
- ☐ Somewhat positive
- ☐ Neutral
- ☐ Somewhat negative
- ☐ Very negative

3. For Parents: Do you think Mathematics is an important subject for your daughters? Why or why not?

- ☐ Yes
- ☐ No

Explanation:
Maths is difficult

Section C: Perceptions and Barriers

1. What challenges do you think girls face when learning Mathematics in rural schools?

- ☐ Lack of resources (textbooks, calculators, etc.)
- ☐ Insufficient support from teachers
- ☐ Lack of confidence in Mathematics
- ☐ Stereotypes about girls' abilities in Mathematics
- ☑ Other (please specify)

Please elaborate on your answer:
Hs difficult

2. How do social or cultural beliefs influence girls' interest in taking Mathematics at O Level?

We are forced kuita Maths dzinonetsa just because dzinodiwa kumberi

3. For Teachers and Education Officials: What teaching methods do you believe would improve girls' participation in Mathematics?

Section D: Support Systems and Resources

1. Do you think there are enough resources (like textbooks, study materials, and qualified teachers) to support girls in learning Mathematics?

☐ Yes
☑ No

If no, what resources are lacking?

Textbooks, study materials

2. What type of support (from school, family, or community) do you think could help girls overcome challenges in Mathematics?

calculators, laptops, textbooks

3. Have you seen or heard of any successful initiatives in your area that have encouraged girls to take Mathematics? If yes, could you describe them?

No

Section E: Recommendations

1. For Students: What could be done to make Mathematics more appealing and accessible for girls?

Schools to have enough material for maths

2. For Parents: How could parents support their daughters to succeed in Mathematics?

3. For Teachers and Education Officials: What changes could schools or the education system make to encourage girls to take Mathematics?

4. What additional suggestions do you have for increasing the uptake of Mathematics among girls in rural areas?

Thank You for Your Participation

I am MurezaAcoleta, a student at Bindura University of Science Education, pursuing a Bachelor of Science Honours Degree in Mathematics. As part of my degree requirements, I am conducting research entitled ***Towards an explanation for low uptake of O Level Mathematics by a girl child in rural settings in Zimbabwe.***

Your participation is crucial to the success of this research, and your insights will help provide a better understanding of the relationship of this critical issue. The information gathered will be kept strictly confidential and will only be used for academic purposes. Your honest responses are greatly appreciated.

Section A: Background Information

1. What is your role in the education system?

- ☐ Student
- ☑ Teacher
- ☐ Parent
- ☐ Education official

Other (please specify)_____

2. If you are a student, what Form are you currently in?

- ☐ Form 3
- ☐ Form 4

3. If you are a teacher, how many years have you been teaching Mathematics?

- ☑ Below 10
- ☐ 10-20
- ☐ Above 20

4. For parents, do you have children currently enrolled in secondary education?

- ☐ Yes
- ☐ No

5. What is your gender? Male

Section B: Attitudes Toward Mathematics

1. For Students: How would you describe your attitude toward Mathematics?

- ☐ Very positive
- ☐ Somewhat positive
- ☐ Neutral
- ☐ Somewhat negative
- ☐ Very negative

2. For Teachers: What is your general observation of female students' attitudes toward Mathematics compared to male students?

- ☐ Very positive
- ☐ Somewhat positive
- ☐ Neutral
- ☑ Somewhat negative
- ☐ Very negative

3. For Parents: Do you think Mathematics is an important subject for your daughters? Why or why not?

- ☐ Yes
- ☐ No

Explanation:

_____

_____

Section C: Perceptions and Barriers

1. What challenges do you think girls face when learning Mathematics in rural schools?

- ☐ Lack of resources (textbooks, calculators, etc.)
- ☐ Insufficient support from teachers
- ☑ Lack of confidence in Mathematics
- ☐ Stereotypes about girls' abilities in Mathematics
- ☐ Other (please specify)

Please elaborate on your answer: Without self confidence and belief, it will be very difficult for girls to have positive attitude towards Maths.

2. How do social or cultural beliefs influence girls' interest in taking Mathematics at O Level?

Lack of role models in rural areas and assumptions that Maths is difficult lower the interest in doing Maths in rural areas.

3. For Teachers and Education Officials: What teaching methods do you believe would improve girls' participation in Mathematics? I think learning processes should be inclusive and gender sensitive. Technological tools should be used to build confidence in problem solving.

Section D: Support Systems and Resources

1. Do you think there are enough resources (like textbooks, study materials, and qualified teachers) to support girls in learning Mathematics?

- ☐ Yes
- ☑ No

If no, what resources are lacking?
Textbooks to practice solving Maths problems.

2. What type of support (from school, family, or community) do you think could help girls overcome challenges in Mathematics?

Families should support girl child to regard Maths as an important subject in the modern world. More female Maths teachers should be deployed in rural areas to give girls confidence and also Maths should be made compulsory.

3. Have you seen or heard of any successful initiatives in your area that have encouraged girls to take Mathematics? If yes, could you describe them?

From my exprience this far there are no initiatives in rural areas.

Section E: Recommendations

1. For Students: What could be done to make Mathematics more appealing and accessible for girls?

2. For Parents: How could parents support their daughters to succeed in Mathematics?

3. For Teachers and Education Officials: What changes could schools or the education system make to encourage girls to take Mathematics?

If female Maths teachers are deployed in Rural areas that will boost confidence that Maths can be done or taught by anyone despite the gender.

4. What additional suggestions do you have for increasing the uptake of Mathematics among girls in rural areas?

Making the subject compulsory and using child centred methodologies in teaching Maths. Making girls believe that they can do it.

Thank You for Your Participation

APPENDIX 4: APPROVAL LETTERS

P Bag 1020
BINDURA
ZIMBABWE

SAMED

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

BINDURA UNIVERSITY OF SCIENCE EDUCATION

Date: 17-10-24

TO WHOM IT MAY CONCERN

NAME: MUREZA ACOLETA REGISTRATION NUMBER: B225910A

PROGRAMME: HBScEdMt 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 Mathematics programme. The research topic is:

TOWARDS AN EXPLANATION FOR LOW UPTAKE OF O'LEVEL MATHEMATICS BY A GIRL CHILD IN RURAL SETTINGS

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

BINDURA UNIVERSITY OF SCIENCE EDUCATION
DEPARTMENT OF EDUCATIONAL FOUNDATIONS
17 OCT 2024
P BAG 1020
BINDURA

Z Ndemo (Dr.)
CHAIRPERSON - SAMED

All communications should be addressed to "The Provincial Education Director"
Telephone:054- 2222460

Email: mideducation01@gmail.com

Ministry of Primary and Secondary Education
P.O Box 737
GWERU

29 October 2024

Reference
Acoleta Mureza
Nkiwane Santa Maria School
P.o Box 47
Zhombe

RE: PERMISSION TO CARRY OUT A RESEARCH IN MIDLANDS PROVINCE IN KWEKWE DISTRICT; TOMBANKALA AND DENDERA SECONDARY SCHOOLS.

Permission to carry out a Research on;
" TOWARDS AN EXPLANATION FOR LOW UPTAKE OF O' LEVEL MATHEMATICS BY A GIRL CHILD IN RURAL SETTINGS"

in the Midlands Province has been granted on the conditions :

a) That carrying out this research you do not disturb the learning/ teaching programmes in the schools.
b) That you avail the Ministry of Primary and Secondary Education with a copy of your research findings.
c) That this permission can be withdrawn at any time by the Provincial Education Director or by any higher office.

The Provincial Education Director wishes you success in your research work and in your studies.

MINISTRY OF PRIMARY AND SECONDARY EDUCATION
DEPUTY PED SECRETARIAT
MIDLANDS PROVINCE
29 OCT 2024
P.O BOX 737 GWERU
TEL: 054 2223457

SHOKO J.
ACTING PROVINCIAL EDUCATION DIRECTOR – MIDLANDS PROVINCE

MINISTRY OF PRY. & SEC. EDUCATION
KWEKWE DISTRICT
HUMAN RESOURCES
30 OCT 2024
P.O. BOX 673, KWEKWE
ZIMBABWE TEL: 2523962
Email: kwekwedistrict@gmail.com

All communications should be addressed to the
Secretary for Primary and
Secondary Education
Telephone: +263 242 794 509
Toll Free: 317

ZIMBABWE

Ministry of Primary and Secondary Education
88 Kwame Nkrumah Avenue
Queen Lozikeyi House
P O Box 121
Causeway, Harare

Reference : C/426/3

Acoleta Mureza
Nkiwane Santa Maria School
P O BOX 47
Zhombe

28 October 2024

RE: PERMISSION TO CARRY OUT RESEARCH IN MIDLANDS PROVINCE KWEKWE DISTRICT: TOMBANKALA AND DENDERA SECONDARY SCHOOLS.

Reference is made to your application to carry out research from the district mentioned above schools on the research title:

"TOWARDS AN EXPLANATION FOR LOW UPTAKE OF O` LEVEL MATHEMATICS BY A GIRL CHILD IN RURAL SETTINGS."

Permission is hereby granted. However, you must liaise with the Provincial Education Director of Midlands Province, who is responsible for the schools which you want to involve in your research. You should ensure that your research work does not disrupt the normal operations of the schools. Where students are involved, parental consent is required.

You must also provide a copy of your final report to the Secretary for Primary and Secondary Education.

Musingarimi H:

PP **A/Deputy Director: Research, Innovation and Development**
For SECRETARY FOR PRIMARY AND SECONDARY EDUCATION

MIN. OF PRY. & SEC. EDUCATION
POLICY PLANNING RESEARCH
AND DEVELOPMENT
28 OCT 2024
P.O. BOX CY 121, CAUSEWAY
ZIMBABWE

All communications should be addressed
to "The Provincial Education Director"
Telephone:054- 2222460

Email: mideducation01@gmail.com

Ministry of Primary and Secondary Education
P.O Box 737
GWERU

29 October 2024

Reference
Acoleta Mureza
Nkiwane Santa Maria School
P.o Box 47
Zhombe

RE; PERMISSION TO CARRY OUT A RESEARCH IN MIDLANDS PROVINCE IN KWEKWE DISTRICT; TOMBANKALA AND DENDERA SECONDARY SCHOOLS.

Permission to carry out a Research on;
" TOWARDS AN EXPLANATION FOR LOW UPTAKE OF O' LEVEL MATHEMATICS BY A GIRL CHILD IN RURAL SETTINGS"

in the Midlands Province has been granted on the conditions :

a) That carrying out this research you do not disturb the learning/ teaching programmes in the schools.
b) That you avail the Ministry of Primary and Secondary Education with a copy of your research findings.
c) That this permission can be withdrawn at any time by the Provincial Education Director or by any higher office.

The Provincial Education Director wishes you success in your research work and in your studies.

MINISTRY OF PRIMARY AND SECONDARY EDUCATION
DEPUTY P.E.D. (SECONDARY)
MIDLANDS PROVINCE
29 OCT 2024
P.O. BOX 737, GWERU
TEL: 054-2223457

.....

SHOKO J.
ACTING PROVINCIAL EDUCATION DIRECTOR – MIDLANDS PROVINCE

Dendera Secondary School

P Bag 8149

Kwekwe

4 November 2024

Reference: Mureza Acoleta

Nkiwane Santa Maria Primary School

P O Box 47

Zhombe

Dear Mureza Acoleta

REF: PERMISSION TO CARRY OUT A RESEARCH AT DENDERA SECONDARY SCHOOL IN KWEKWE DISTRICT.

Permission to carry out a research on:

"TOWARDS AN EXPLANATION FOR LOW UPTAKE OF O'LEVEL MATHEMATICS BY A GIRL CHILD IN RURAL SETTINGS"

at our school, Dendera Secondary in Kwekwe District has been granted.

Yours faithfully

Mr Mashoko (School Head)

.....

THE HEAD
DENDERA SEC SCHOOL

P BAG 8149, KWEKWE