



**BINDURA UNIVERSITY OF SCIENCE EDUCATION
FACULTY OF SCIENCE EDUCATION
DEPARTMENT OF CURRICULUM AND EDUCATIONAL
MANAGEMENT STUDIES**

**FEMALE LEARNERS' PERFORMANCE IN ORDINARY LEVEL MATHEMATICS
AT NYAMUZUWE HIGH SCHOOL**

BY

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DECLARATION

I Takaona Shantel V. declare that is my original work that has not been submitted for any degree or examination in any other university and that all the sources I have used or quoted here have been indicated and acknowledged.

Signed:



Date: 03.06.24

(Student)

This research work was undertaken under the supervision of Dr. P. Chikuvadze

Signed:



Date: 04.06.24

DEDICATION

I dedicate this project to my mother (Ms. Takaona), my friend Bigmore. Without their support and encouragement, this work could not have been accomplished.

ACKNOWLEDGEMENTS

First and foremost, I offer my earnest gratitude to the Creator, my God for guiding me and protecting me throughout the entire process of my learning up to this level.

I would like to thank my academic supervisor for his efforts to mould the best out of me as far as this research study is concerned. He successfully shepherded through this study with unwavering support from the start to the end of this period in coming up with a document.

I also dedicate my sincere acknowledgments to the school head, teachers, and learners for their cooperation and assistance rendered during the questionnaires.

I would like to thank my family members also who supported me during the time of my study physically and morally. It is through their dedication, commitment, and encouragement that I have managed to complete this study.

ABSTRACT

This study sought to explore female learners' performance in Ordinary Level Mathematics at the selected high school. The researcher adopted a quantitative approach for data generation, analysis and interpretation. The researcher used questionnaires in generating data. In this study a total of fifty female learners were purposively sampled to participate in the study. The major themes were derived from the research questions and these include: challenges faced by female learners in Ordinary Level Mathematics, teaching and learning and factors that influence female learners' performance in Ordinary Level Mathematics. The research study revealed that there are many psychosocial challenges that can influence female learners' performance in Ordinary Level Mathematics. It was also revealed in the study that female learners face a number of challenges which affect their performance in Ordinary Level Mathematics. From the findings, the researcher concluded that female learners' negative view towards Ordinary Level Mathematics, which results in poor performance was as a result of numerous causes (gender stereotypes, phobia, anxiety, etc.). The researcher recommends that teachers and school administration should have a positive attitude towards female learners' performance in Ordinary Level Mathematics.

TABLE OF CONTENTS

Declaration.....	i
Dedication	ii
Acknowledgements.....	iii
Abstract	iv
List of tables.....	vii
List of appendices	viii
CHAPTER ONE: PROBLEM AND ITS SETTINGS	
1.1 Introduction.....	1
1.2 Background to the study	1
1.3 Statement of the problem.....	2
1.4 Research objectives.....	2
1.5 Assumptions of the study.....	2
1.6 Significance of the study.....	3
1.7 Delimitation of the study	4
1.8 Limitations of the study	5
1.9 Definition of terms.....	5
1.9.1 <i>Female learner</i>	5
1.9.2 <i>Performance</i>	5
1.9.3 <i>Ordinary Level Mathematics</i>	5
1.10 Chapter layout.....	6
1.11 Chapter summary.....	6
CHAPTER TWO: REVIEW OF RELATED LITERATURE	
2.1 Introduction.....	7
2.2 Theoretical framework.....	7
2.3 Factors influencing female learners' performance in Mathematics.....	8
2.3.1 <i>Gender stereotypes</i>	8
2.3.2 <i>Mathematics anxiety and self-efficacy</i>	8
2.3.3 <i>Teaching methods</i>	9
2.3.4 <i>Learning styles</i>	9
2.3.5 Socio-economic factors.....	9
2.4 Challenges encountered by female learners in Mathematics teaching and learning	9
2.4.2 <i>Attitudes associated with studying science</i>	10
2.4.3 <i>Learning environment and pedagogy</i>	10
2.4.4 <i>Stereotypes and bias</i>	10
2.5 Chapter summary.....	11
CHAPTER THREE: RESEARCH METHODOLOGY	
3.1 Introduction.....	11
3.2 Research approach	11
3.3 Sample and sampling procedure	12
3.4 Data collection instruments.....	12
3.5 Data collection procedure	13
3.6 Data analysis	13
3.7 Validity and reliability	14
3.8 Ethical issues.....	14
CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION	
4.1 Introduction.....	15
4.2 Characteristics of selected respondents	15
4.3 Factors influencing female learners' performance in Ordinary Level Mathematics.....	16

4.4 Factors and their influence on female learners' performance in Ordinary Level Mathematics.....	17
4.5 Challenges encountered by female learners in Ordinary Level Mathematics learning	19
4.6 Chapter summary	20
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS	
5.2 Summary of the project.....	21
5.3 Conclusion	22
5.4 Recommendations.....	22
5.5 Areas for further research	22
5.6 Chapter summary.....	23
REFERENCES	24
APPENDICES	29

LIST OF TABLES

Table 1.1: Female learners' performance analysis	3
Table 3.1 Distribution of respondents according to their level of education.....	13
Table 4.1 Demographic characteristics of the respondents.....,,	17
Table 4.2 Factors influencing female learners' performance in ordinary level Mathematics	18
Table 4.3 Factors and their influence on female learners' performance in ordinary level Mathematics.....	19
Table 4.4 Challenges encountered in Ordinary Level Mathematics teaching and learning...	20

LIST OF APPENDICES

Appendix 1: Questionnaire for the selected respondents	41
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CHAPTER ONE: PROBLEM AND ITS SETTINGS

1.1 Introduction

In the first chapter, the problem is put into context through the discussion of the following: introduction, background of the study, statement of the problem, research objectives, research questions, assumptions of the study, significance of the study, delimitations of the study, limitations of the study, definitions of terms, chapter layout and chapter summary will be given.

1.2 Background to the study

Most nations the world over is placing emphasis on the teaching-learning of science, technology, engineering and mathematics related subjects and courses from basic up to tertiary education (Ibrahim, 2019). Mathematics is a branch of science concerned with the nature, structure, and properties of matter and it contributes to increasing the economy of any country. According to Protometal (2017), Mathematics plays an important role in many different sectors of industry such as engineering, electricity, electricity production and transmission, construction and transport. Modern knowledge-based economies are so heavily dependent on technology, thus having a better understanding of mathematics and technical problem-solving skills will enable people to meet the challenges and demands of the workplace (Dalgado 2017).

Over the years in Zimbabwe, there has been a significant number of studies (Gudyanga., 2016; Naidoo & Kapofu, 2020; Vurayai, 2021) have been conducted on female learners' performance in Mathematics from other people's perspectives (parents, teachers or policy makers). However, there is still, there is limited emphasis on the specific factors that may affect learners' performance in Mathematics from female learners' perspective. It is against this background that this sought to gain insight into poor performance of female learners in Ordinary Level Mathematics.

1.3 Statement of the problem

The Ministry of Primary and Secondary Education in its Competence-Based curriculum advocates for the learners' participation in science, technology, engineering, and mathematics-related teaching-learning activities (Ministry of Primary and Secondary Education, 2015). However, the female learners' performance in Ordinary Level Mathematics at the selected high school is very poor. The analysis for the three is shown in the Table below.

Table 1.1 Female learners' performance analysis

Year(s)	No. of female candidates	Pass rate %
2020	89	38
2021	102	35
2022	90	33

From the analysis it can be clearly seen that the female learners' performance is very poor. Thus, this pattern has prompted the researcher to analyse the factors that are contributing to the poor performance by form one learners in Mathematics at Nyamuzuwe High School. It is in this context that this study seeks to gain insight into the causes of poor performance by female learners guided by the following main objective: To establish causes of poor performance by female learners in Ordinary Level Mathematics.

1.4 Research objectives

1. To identify the factors that influence female learners' performance in Ordinary Level Mathematics?
2. To establish how the factors influence female learners' performance in Ordinary Level Mathematics.
3. To identify challenges encountered by female learners in their participation in Ordinary Level Mathematics teaching and learning activities at the selected school.

1.5 Assumptions of the study

The study is guided by the following assumptions:

- That permission to carry out the research will be granted at the school.
- The respondents are going to respond to the questionnaires and interviews.
- The respondents are going to give honest answers.

1.6 Significance of the study

The findings of this study are expected to have a significant impact on various stakeholders.

1.6.1 Ministry of Primary and Secondary Education

The Ministry of Primary and Secondary Education can use the results to inform policy decisions aimed at promoting gender equity in education, particularly in mathematics education. The study's findings can also be used to develop targeted interventions to address gender stereotypes and biases in the classroom, and to enhance teacher training programs to ensure educators are equipped to support female students' math education.

1.6.2 Bindura University of Science Education

The university can benefit significantly from this study, which can enhance its reputation as an inclusive and socially responsible institution. By supporting research that promotes gender equity in education, the university can demonstrate its commitment to creating a supportive learning environment for all students. The study's findings can inform evidence-based practices that support female students' success in math and science education, leading to improved student outcomes and increased student retention. Additionally, the study's results can inform policy decisions at the university level, such as developing targeted programs to support female students in STEM fields. The study can also provide opportunities for faculty and staff professional development, enhancing their ability to support female students' success. Furthermore, the study can contribute to the existing body of research on gender and education, attracting external funding and collaborations, and enhancing the university's research profile. By addressing gender stereotypes and biases, the university can create a more inclusive and supportive learning environment, enhancing the overall student experience and demonstrating leadership in promoting inclusive education.

1.6.3 Mathematics teachers

Teachers and educators can benefit from the study by gaining a deeper understanding of the impact of gender stereotypes on female students' math education. The study's findings can raise awareness about the importance of creating inclusive and supportive learning environments,

and provide strategies for challenging and changing their own biases and stereotypes. Teachers will be able to create an interesting, challenging, and motivating learning and teaching environment.

1.6.4 Learners

Female students can be empowered by the study's findings to pursue math and science education with confidence and enthusiasm. The study can provide role models and mentors to inspire and motivate female students, and help them develop a growth mindset and overcome stereotypes and biases. The study will also be useful in determining suitable strategies to improve students' performance in mathematics. The learners will be preparing for the world of work and equipped with the relevant skills and knowledge which will enable them to provide solutions to current and future problems.

1.6.5 The researcher

The study is important to the researcher as it develops talent not just in science education but education at large. The researcher will be in a position to grasp full knowledge on how to conduct research. The study sharpens the research skills of the researcher around Science Education as well as in other future study areas. It enables the researcher to fulfil the requirement of Bindura University of Science Education

1.6.6 Parents and guardians

The study is important to parents and guardians as they benefit from the study by learning about the importance of supporting their daughters' mathematics education. The study can educate them on how to challenge gender stereotypes and biases, and provide resources and strategies for supporting their daughters' math education at home.

1.7 Delimitation of the study

The study is going to be carried out at Nyamuzuwe High School in Mutoko District of Mashonaland East Province. The school offers basic education to both female and male learners. The selected school has a total enrolment of nine-hundred and fifty learners' learners and offers arts, commercial and science subjects from form 1-6. At the selected school the study will focus on female learners' performance in Ordinary Level Mathematics.

1.8 Limitations of the study

The research will only study one secondary boarding school in Mutoko District. This may compromise the study. The study is going to be carried out as a quantitative study therefore the findings may be generalized. These generalizations are going to be done with some caution since the school selected for study is a boarding school. This may affect the patterns in the performance of females in Mathematics. However, the heterogeneous nature of the learners that are going to be studied are enough representative of the attitudes, dispositions, preferences and inclinations of learners of the same age in different schools across the country. The same applies to teachers of the same minimum qualification and heads of the same grade that are in schools. Thus, the findings of this study can be generalised with some measure of accuracy.

1.9 Definition of terms

To ensure clarity and understanding, the following key terms used in this study are defined as follows:

1.9.1 Female learner

Refers to a female who is going to school trying to gain knowledge or skill in something by studying, practicing, or being taught (Munna, 2021). In this study female learner refers to female people going to a secondary school

1.9.2 Performance

Performance is about deploying and managing well the components of the casual model that leads to the timely attainment of stated objectives within constraints specific to the firm and to the situation (Okar, 2017). It can also be defined as the potential for future successful implementation of actions in order to reach the objectives and targets.

1.9.3 Ordinary Level Mathematics

Ordinary Level Mathematics, the foundational level of the General Certificate of Education, provides a crucial foundation for developing mathematical reasoning skills (Ministry of

Primary and Secondary Education, 2014). As Locke (2021) aptly puts it, mathematics is a way to settle in the mind a habit of reasoning, emphasizing the significance of mathematics education in cultivating critical thinking and problem-solving abilities. reasoning, setting them up for success in their future academic and professional pursuits.

1.10 Chapter layout

Chapter 1: Problem and its setting was put into context

Chapter 2: Theoretical framework that forms the lens through which the study will be observed. In addition, the gaps to be filled by this study will be identified.

Chapter 3: Research methodology outlines the strategy through which data for this study will be generated, presented, analyzed and interpreted.

Chapter 4: Generated data will be presented, analyzed and interpreted with the view to provide answers to sub-questions.

Chapter 5: Overview of the study will be articulated, conclusion and recommendations advanced.

1.11 Chapter summary

In this introductory chapter, the researcher looked at the background of the study, statement of the problem, research objectives, and significance of the study, delimitations, and limitations of the study, chapter layout and definition of terms. The next chapter is going to focus on the literature review to establish the existing knowledge on performance of female learners' in secondary schools.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1 Introduction

In the previous chapter the problem and its setting were articulated. This chapter gives a review of literature that provided insight into the theoretical framework of the study; the possible factors of poor performance. The review of this study focused on selected factors that influence female learners' performance in Ordinary Level Mathematics at the school under study.

2.2 Theoretical framework

The following theories formed the framework that guided this study:

2.2.1 Gender Stratification

Gender Stratification Theory is a sociological framework that explains how gender inequality is created and maintained in society (Blau & Winkler, 2017). It suggests that sociocultural forces, such as parental and teacher attitudes and expectations, including stereotypes, shape individuals' self-concept and attitudes towards subjects like mathematics (Prieto, 2018). According to Grouws (2018), this theory, cultural environment and personal goals influence perceptions of the value of a task. For example, a girl who believes that career opportunities available to women do not require mathematics may place less value on it and be less likely to invest time and energy in excelling in Mathematics (Hanson, 2021).

2.2.2 Expectancy-Value

Expectancy-Value Theory is a motivational theory that explains how individuals make decisions about engaging in tasks or behaviors (Barron & Hulleman, 2015). Expectancy-Value Theory proposes that individuals' performance is influenced by their expectations of success and the value they place on the task (Eccles & Wigfield, 2020). According to Hanson (2016), female learners' expectations and values related to mathematics impact their performance and achievement. Atkinson (2017) noted that individuals are more likely to engage in tasks that they value and in which they expect to succeed. The expectancy-value theoretical model has

received abundant empirical support and provides a clear explanation for why cultural inequalities in educational or career opportunities adversely affect girls and women considering STEM careers (Harold, 2021). As Selvarajan (2018) note, individuals do not engage in tasks that are perceived to be of little value. These theories formed the framework that guided this study, providing a comprehensive understanding of the factors that influence female learners' performance and achievement in mathematics.

2.3 Factors influencing female learners' performance in Mathematics

Several factors can influence female learners' performance in Mathematics, including:

2.3.1 Gender stereotypes

According to Ernest (2017), gender stereotypes and biases play a significant role in shaping female learners' performance in Mathematics. Societal and cultural expectations often perpetuate the notion that mathematics is a male domain, leading to a lack of confidence and motivation among female learners (Gelfand, 2017). Jones (2019) noted that, teachers and parents may also hold biases, consciously or unconsciously, that discourage female learners from pursuing Mathematics. For instance, a teacher may assume that a female learner is not capable of solving a complex mathematical problem, thereby limiting her opportunities to develop problem-solving skills (Carli, 2017).

2.3.2 Mathematics anxiety and self-efficacy

According to Usher (2019), mathematics anxiety and self-efficacy are critical factors that influence female learners' performance in Ordinary Level Mathematics. According to Zadig (2017), female learners who experience mathematics anxiety tend to avoid challenging mathematical tasks, leading to a lack of practice and reinforcement. (Zohar & Soreni, 2019) argued that low self-efficacy in mathematics can hinder female learners' ability to develop problem-solving strategies and think critically. Panadero (2016), noted that female learners who experience mathematics anxiety and low self-efficacy tend to perform poorly in mathematics assessments.

2.3.3 Teaching methods

According to Freitas, (2018), traditional teaching methods, which emphasize rote memorization and repetition, may not cater to the diverse learning styles and abilities of female learners. Adams et al (2016) argued that innovative teaching methods, such as problem-solving and inquiry-based learning, can engage female learners and promote deeper understanding and application of Mathematical concepts. Williams (2016) argued that teachers who use gender-sensitive language and examples can help female learners relate to mathematical concepts more effectively.

2.3.4 Learning styles

Learning styles and abilities play a crucial role in female learners' performance in Ordinary Level Mathematics (Honey & Mumford, 2017). Female learners may have different learning preferences, such as visual, auditory, or kinesthetic learning, which may not be accommodated in traditional teaching methods (Willingham, 2018). According to Damarjati and Irawan (2016) female learners may have varying abilities, such as spatial reasoning or linguistic skills, which can influence their performance in Mathematics. Teachers who recognize and cater to these differences can help female learners develop their strengths and address their weaknesses (Livius, 2020).

2.3.5 Socio-economic factors

According to (Sewell & Sherkat, 2016), socio-economic factors significantly influence female learners' performance in Ordinary Level Mathematics. The access to resources and technology, parental education and income, and school and classroom environment can all impact female learners' opportunities to learn and practice Mathematics (Karp, 2017). For instance, female learners from low-income backgrounds may have limited access to technology and resources, hindering their ability to develop problem-solving skills and think critically (Weisner & Reed, 2016).

2.4 Challenges encountered by female learners in Mathematics teaching and learning

Female learners in Mathematics often face various challenges that can hinder their learning and participation in the subject

2.4.2 Attitudes associated with studying science

Attitudes associated with science appear to affect students' participation in science as a subject and impact performance in science (Aikenhead, 2016). It is generally believed that learners' attitude towards a subject determines their success in that subject, with a favorable attitude leading to good achievement in a subject. According to Ozcan et al (2016), learners' constant failure in a school subject can make him or her believe that he or she can never do well on the subject thus accepting defeat. On the other hand, his or her successful experience can make him or her develop a positive attitude towards learning the subject (Fisher, 2016). This suggests that learners' attitudes toward science subjects could be enhanced through effective teaching strategies. It has been confirmed that effective teaching strategies can create a positive attitude in the learners toward school subjects (Curran & Rosen, 2016). Anghel (2019) found that a learner's attitude towards science has a significant direct effect on the learner's achievement in the subject.

2.4.3 Learning environment and pedagogy

According to Shah and Sharma (2017), mathematics classrooms can sometimes be unwelcoming or intimidating for female learners. Traditional teaching methods that emphasize competition and abstraction may not foster an inclusive environment where females feel comfortable asking questions or taking risks, (Lindstrom, 2017). According to Nicol (2018) alternative teaching approaches, such as collaborative learning and real-world problem-solving, can be more engaging and conducive to female participation.

2.4.4 Stereotypes and bias

One of the most pervasive challenges faced by female learners is the prevalence of gender (UNESCO, 2019). Societal expectations and cultural norms often portray mathematics as a subject more suited for males, reinforcing the idea that females are less capable in this area (Nosek et al., 2021). These stereotypes can lead to self-doubt and a lack of confidence, impacting female learners' motivation and performance (Dorin, 2017).

2.5 Chapter summary

This chapter provides an overview of the theoretical framework that guided this study on the performance of female learners in Ordinary Level Mathematics and the challenges that encountered by female learners in Mathematics teaching and learning. The theoretical framework provides a lens through which to examine the factors that influence female learners' performance in mathematics, including teaching method and approach, leaning styles and socio-economic factors. The next chapter focuses on research methodology, which will guide data collection, presentation, analysis and interpretation.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter gives a detailed account of the research methods that were employed to conduct the study. In other words, it focuses on the actual research process covering the choice of methods, tools, population, sampling, data collection methods and procedures, data analysis methods, and the sequence in which they are employed based on the topic under research. The chapter is going to describe the research design, sample and sampling procedures, data collection instruments, data collection procedures, data analysis procedures, and research integrity.

3.2 Research approach

According to Trochim (2016), research design encompasses the overall strategy for integrating various study components in a coherent and logical manner. This enables researchers to effectively address the research problem and serves as a blueprint for data collection, measurement, and analysis (Patton, 2015). In this study, a quantitative approach was employed, which involves systematic investigation through numerical data collection and statistical analysis (Slevitch, 2017). Quantitative research relies on statistical methods, including inferential statistics and mathematical techniques, to gain a deeper understanding of the social world (Kothari, 2015). The objective of quantitative research is to obtain unbiased knowledge, and its results can be communicated through statistics and numbers (Brewer & Hunter, 2016).

In quantitative research, sample size and sampling design considerations are crucial for making statistical generalizations (Sheppard, 2019). This involves generalizing results and inferences from a representative sample to the larger population (Leech, 2015).

3.3 Sample and sampling procedure

A sample is a subset of a population selected to participate in the study, it is a fraction of the whole, selected to participate in the research project (Brink, 2019). In this study, a subset of 50 learners was selected out of the entire Ordinary Level Mathematics learners. The process of selecting a portion of the population to represent the entire population is known as sampling (Haber, 2015).

Table 3.1 Distribution of respondents according to their level of education (n=50)

Form(s)	No. of potential respondents	No. of selected respondents
1	150	17
2	135	11
3	140	14
4	120	8

The researcher used stratified random sampling in coming up with a sample comprised of 50 learners. Stratified random sampling is a probability sampling method that involves dividing a population into smaller subgroups or strata. Then randomly selecting a representative sample from each stratum, ensuring that each subgroup is adequately represented. Stratified random sampling was used in this study to ensure a representative sample of the population (Kothari, 2015). Stratified sampling provides more precise estimates and makes efficient use of resources (Kothari, 2015). By using this method, the study ensures a more accurate and representative sample, enhancing the validity and reliability of the findings (Orb, 2015).

3.4 Data collection instruments

Amin (2015) defines a questionnaire as a data collection tool that addresses research questions and hypotheses. In this study, self-administered questionnaires were used due to the literacy of the respondents and time efficiency (Rada, 2019). The questionnaire aimed to explore variables

relevant to head teachers but potentially overlooked by school management to maintain privacy (Mackenzie & Knipe, 2022). According to Sage Publications, a questionnaire is a tool for collecting answers through structured questions completed by respondents (Borg & Gall, 2018). The questionnaire offered a time and cost-effective way to gather information (Bhattacharjee, 2022). For a sample of 50 learners, questionnaires were the best option to reach a larger sample within a limited timeframe. Questionnaires are structured documents with systematic questions asked to all respondents (Kothari, 2022). There are two types: open-ended and close-ended questionnaires (Kumar, 2021). Closed-ended questionnaires provide response options, while open-ended questions allow for free-form answers. To enhance validity, the study combined both open and close-ended items (Scribbr, 2021). This combination may provide a broader range of responses and insights into factors affecting learners' performance in Ordinary Level Mathematics. The questionnaire was developed based on literature review and expert input, featuring rating scale questions (Surbhi, 2022). It was pilot-tested with a small group to ensure clarity, relevance, and effectiveness.

3.5 Data collection procedure

According to Sidhu (2018), data refers to the factual information obtained from a particular situation or context. In this study, the researcher collected data during her teaching practice at a boarding school in Mutoko District, with permission from the school head. The data was collected and recorded manually, using questionnaires that were distributed to consenting learners, who were given sufficient time to complete them. The researcher opted for questionnaires as they offered a time-efficient and cost-effective way to gather information.

3.6 Data analysis

Data analysis involves interpreting and making sense of the collected data (Dawit, 2020). In this study, quantitative data was collected, and it's crucial to eliminate biased information (Zar, 2016). The quantitative data was gathered through questionnaires, and the responses were categorized into themes and variables (Surbhi, 2022). The teacher and learner questionnaires were analyzed separately, and the data was summarized using descriptive statistics (Gravetter et al., 2022). Descriptive statistics help identify trends and patterns in the data (Jaggi, 2016). This study employed frequency distribution, a visual representation of individual responses per category or scale (Manikandan, 2017). Frequency analysis provided a clear picture of how individual responses were distributed across each category (Scribbr, 2019).

3.7 Validity and reliability

Amin (2015) defines validity as the degree to which a research instrument accurately measures what it is intended to measure. To ensure validity, the supervisor reviewed the questionnaires for relevance, and pilot testing was conducted. According to Trochim (2016), reliability refers to the consistency of an instrument in producing the same results when repeated multiple times. In other words, reliability ensures that an experiment, test, or measurement procedure yields consistent results on repeated trials.

3.8 Ethical issues

Ethics, a moral philosophy, guides conduct and behavior (Mugenda & Mugenda, 2018). Good research requires openness, honesty, justice, integrity, and objectivity (Kothari, 2015). This study addressed ethical concerns like plagiarism and fraud by acknowledging others' work and using anti-plagiarism software. The researcher ensured respondents' privacy and confidentiality by using codes and pseudonyms, removing identities during transcription (Field, 2022), and storing data securely in encrypted devices and locked cabinets (Kothari, 2022). Informed consent was obtained, and respondents were assured of confidentiality. The researcher prioritized protecting human subjects by applying ethical principles (Orb, 2015).

3.8 Chapter summary

This chapter outlined the strategy that was used in data collection and analysis through the following: research design, sampling procedures, data generation procedures, methods, data analysis, and research integrity. The next chapter focuses on data presentation, analysis, and interpretation.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents the quantitative findings of this study, which aimed to investigate the performance of female learners in Ordinary Level mathematics. Using a quantitative approach, this study analyzed the scores of a large sample of female learners in mathematics, exploring the relationships between various factors and their performance.

4.2 Characteristics of selected respondents

In this section demographic characteristics of respondents are pictured on tables 4.1.

Table 4.1 Demographic characteristics of the respondents (n=50)

Attribute(s)	(n)	(%)
Sex		
Female	50	100
Male	0	0
Age range (years)		
13-16	40	80
17-20	10	20
Form		
1	17	34
2	11	22
3	14	28
4	8	16

Table 4.1 shows the distribution of the participants according to sex, age and level of education. The number of participants is fifty and they were all female learners and no male learner participated in the study. The table also shows the age ranges for the fifty female learners who participated in the study. Of the fifty learners participated in the study, (80%) of the participants, fall within the 13-16 years age range. And only (20%) fall within 17-20. The table also shows the distribution of female learners according to their levels of education. During the time of study, seventeen female learners (34%) were in Form 1, eleven female learners' (22%) in Form 2, fourteen female learners' (28%) in Form 3 and eight female learners' (16%) in Form 4.

4.3 Factors influencing female learners' performance in Ordinary Level Mathematics

In this section respondents' opinions pertaining to the factors influencing female learners' performance in Ordinary Level Mathematics are analyzed and interpreted.

Table 4.2 Respondents' opinions on what influences female learners' performance in Ordinary Level Mathematics (n=50)

Attribute(s)	True		False	
	(n)	(%)	(n)	(%)
Female learners' interest in Mathematics	40	80	10	20
Teacher qualification(s) have a role to play in female learners' performance in Mathematics	25	50	25	50
Peers influence female learners' performance in Mathematics	40	80	10	20
Motivation from parents influenced female learners' performance	32	64	18	36

From the above table, it can be noted that most of the respondents (80%) were of the opinion that female learners' interest towards participation in Mathematics can influence their performance in their learning. Thus, this can in one way or the other can influence female learners' interest towards participation in Ordinary Level Mathematics. This concurs with the research by Renninger and Hidi (2016) who highlighted that students' interest and enjoyment of a subject are critical factors in their willingness to participate and learn. In the same vein, some of the respondents (50%) contributed supported the notion that female learners'

performance can be influenced by the teachers' professional qualification concerning how they facilitate Mathematics teaching and learning activities. This concurs with Darling-Hammond (2017) who indicated that teacher professional development and training are critical factors in improving teacher quality and student achievement. A significant majority of respondents (80%) contributed that discouragement from peers influences female learners' performance in Mathematics. This concurs with the research by Webb (2017) who indicated that social interactions with peers play a crucial role in shaping students' attitudes and performance in Mathematics. Lastly, the presented data, revealed that slightly above half of the respondents (64%) treated as true the notion that motivation from parents has an impact on female learners' performance in Ordinary Level Mathematics. This concurs with Hattie (2019) who highlighted that parental involvement and encouragement have a significant positive impact on students' academic achievement and motivation. From the analysed data it can be noted that female learners' performance in Ordinary level Mathematics was influenced by various factors (interest, teacher qualification, etc.).

4.4 Factors and their influence on female learners' performance in Ordinary Level

Mathematics

In this section respondents' opinions pertaining to how do these factors influencing female learners' performance in Ordinary Level Mathematics are analyzed and interpreted.

Table 4.3 Factors and their influence on female learners' performance in ordinary level Mathematics (n=50)

Attribute (s)	SA		A		D		SD	
	(n)	%	(n)	%	(n)	%	(n)	%
Lack of interest in Mathematics influence female learners to perform poorly in learning activities	30	60	10	20	6	12	4	8
Negative view towards Mathematics influences female learners to underperform in learning activities	28	56	10	20	8	16	4	8
Lack of qualified personnel has a bearing on female learners' poor performance in Mathematics	20	40	16	32	8	16	5	10
Peer pressure from fellow female learners influences one poor perform in Mathematics	35	70	10	20	4	8	1	2
Gender stereotypes negatively influence female learners' performance in Mathematics	20	40	10	20	15	30	5	10
Limited Motivation from parents inhibit female learners' performance	31	62	9	18	7	14	3	6

From the above table, it can be noted that most of the respondents (60%) of the respondents were strongly in agreement and (20%) were agreeing with the opinion that female learners' interest towards participation in Mathematics can influence their performance in their learning. However, few respondents (12%) were strongly in disagreement and (8%) were disagreeing with the earlier on advanced opinion. This concurs with the research by Renninger and Hidi (2016) who highlighted that students' interest and enjoyment of a subject are critical factors in their willingness to participate and learn. Slightly above half of the respondents (56%) of the respondents were strongly in agreement and (20%) were agreeing with the opinion that Negative view towards Mathematics influences female learners to underperform in learning activities. However, few respondents (16%) were strongly in disagreement and (8%) were disagreeing with the earlier on advanced opinion. This concurs with the research by Forgasz (2022) who indicated that students' attitudes and beliefs about Mathematics, including negative views, play a significant role in shaping their Mathematics achievement and participation.

In the same vein, some of the respondents (40%) of the respondents were strongly in agreement and (32%) were agreeing with the opinion that female learners' performance can be influenced by the teachers' professional qualification concerning how they facilitate Mathematics teaching and learning activities. However, few respondents (16%) were strongly in disagreement and (10%) were disagreeing with the earlier on advanced opinion. This concurs with Darling-Hammond (2017) who indicated that teacher professional development and training are critical factors in improving teacher quality and student achievement. Additionally, most of the respondents (70%) of the respondents were strongly in agreement and (20%) were agreeing with the opinion that peer pressure from fellow female learners' influences one poor perform in Mathematics. However, few respondents (8%) were strongly in disagreement and (2%) were disagreeing with the earlier on advanced opinion.

This concurs with the research by Hannula (2022) who observed that social factors, including peer pressure, can affect students' emotional experiences and motivation in Mathematics, leading to poor performance. A significant majority of respondents (40 %) of the respondents were strongly in agreement and (20%) were agreeing with the opinion that gender stereotypes negatively influence female learners' performance in Mathematics. However, few respondents (30%) were strongly in disagreement and (10%) were disagreeing with the earlier on advanced opinion. This suggests that gender stereotypes have a profound impact on female learners'

attitudes and performance in Mathematics. This concurs with the research by Hyde (2016) who highlighted that gender stereotypes and biases in the classroom significantly impact female learners' participation and performance in Mathematics. Lastly, the presented data revealed that slightly above half of the respondents (62%) of the respondents were strongly in agreement and (18%) were agreeing with the opinion that motivation from parents has an impact on female learners' performance in Ordinary Level Mathematics. However, few respondents (14%) were strongly in disagreement and (6%) were disagreeing with the earlier on advanced opinion. This concurs with Hattie (2019) who highlighted that parental involvement and encouragement have a significant positive impact on students' academic achievement and motivation. From the analyzed data, it can be noted that female learners' performance in Ordinary Level Mathematics was influenced by various factors (interest, teacher qualification, etc.).

4.5 Challenges encountered by female learners in Ordinary Level Mathematics learning

In this section challenges encountered in Mathematics teaching and learning activities from the selected learners' and teachers' perspectives are analyzed and interpreted.

Table 4.4 Challenges encountered in Ordinary Level Mathematics teaching and learning (n=50)

Attribute(s)	Strongly Agree		Agree		Disagree		Strongly Disagree	
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
Gender stereotypes and bias	35	70	10	20	5	10	0	0
Limited time to study due to household chores	25	50	15	30	8	16	2	4
Limited time to interact with the teacher	30	60	10	20	6	12	4	8
Limited parental involvement	32	64	15	30	2	4	1	2

From Table 4.4 it can be noted that (70%) of the respondents were strongly in agreement and (20%) were agreeing with the opinion that gender stereotypes and bias pose a challenge to female learners' performance in Mathematics. However, few respondents (10%) were strongly in disagreement and (0%) were disagreeing with the earlier on advanced opinion. This concurs with the research by Hyde (2016) who indicated that gender stereotypes and biases in the

classroom significantly impact female learners' participation and performance in Mathematics. 50% of the respondents were strongly in agreement and (30%) were agreeing with the opinion that limited time to study due to household chores poses a challenge to female learners' performance in Ordinary Level Mathematics.

This concurs with the research by Burton (2017) who indicated that domestic responsibilities can lead to a significant decrease in the amount of time girls and women have available for academic activities, including studying Mathematics. A majority of respondents (60%) of the respondents were strongly in agreement and (20%) were agreeing with the opinion that limited time to interact with the teacher poses a challenge to female learners' performance in Mathematics. However, few respondents (12%) were strongly in disagreement and (8%) were disagreeing with the earlier on advanced opinion. This concurs with the research by Hattie (2019) who found that teacher-student relationships and feedback are among the most significant factors influencing student achievement, and that limited interaction time can limit the effectiveness of these factors, including in Mathematics.

Most respondents (64%) of the respondents were strongly in agreement and (30%) were agreeing with the opinion that limited parental involvement poses a challenge to female learners' performance in Mathematics. However, few respondents (4%) were strongly in disagreement and (2%) were disagreeing with the earlier on advanced opinion. This concurs with research by Hoover (2015) who indicated that parental involvement and encouragement are crucial factors in students' academic achievement, particularly in subjects like Mathematics, and that limited involvement can negatively impact students' motivation and performance. Chikwature and Oyedele (2016) found a positive correlation between the availability of textbooks and learner performance. Similarly, Mangwaya and Tsumele (2016) emphasized the importance of using textbooks during lessons to ensure effective learning. Moreover, Mapolisa and Tshabalala (2016) discovered that schools with textbooks tend to perform better than those without. In light of these findings, the researcher recognizes the need to develop strategies to mitigate the challenges faced in teaching and learning Ordinary Level Mathematics.

4.6 Chapter summary

In this chapter the collected data was presented, analyzed and interpreted with the view to provide answers to issues raised in chapter 1. It has been revealed in the chapter that they are several factors influencing female learners' performance in Ordinary Level Mathematics and

challenges encountered in teaching and learning Mathematics. In the next chapter the project will be summarized, and conclusion drawn

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

In the previous chapter, results were analyzed and interpreted. With the current focus on summarizing the project, generate a conclusion, recommendations, and areas for further study.

5.2 Summary of the project

In chapter 1, the researcher looked at the problem and its context where the focus was on the background of the study, statement of the problem, the research questions, , assumption of the study, significance of the study, limitations of the study, and delimitation of the study as well as the definition of key terms. Chapter 2 is a literature review that outlined the research that was done by both scholars on the factors that influence female learners' performance in Ordinary Level Mathematics. The research was reviewed to identify the research gap which will be filled by the current study. Chapter 3 covered the research design, research approach, sample and sampling procedure, methods, data procedure, data analysis, and research integrity. Chapter 4 outlined the following major results:

- It was revealed that female learners' performance in Ordinary Level Mathematics was influenced by various factors (anxiety and self-efficacy, gender stereotypes, etc.).
- The identified factors can have both a negative and positive influence on female learners' performance in Ordinary Level Mathematics.

- It was noted that various challenges were encountered by female learners in their participation in Ordinary Level Mathematics teaching and learning activities at the selected school.

5.3 Conclusion

From the results it was noted that female learners' performance was influenced by numerous factors. These factors have both positive and negative influence on their performance in Ordinary Level Mathematics. In addition, female learners encountered various challenges when participating in Ordinary Level Mathematics. From the results it can be concluded that female learners' negative view towards Ordinary Level Mathematics, which results in poor performance was as a result of numerous causes (gender stereotypes, phobia, anxiety, etc.).

5.4 Recommendations

The researcher proposes the following recommendations to improve female learners' performance in Ordinary Level Mathematics:

- Provide teachers with gender-sensitive training to recognize and challenge gender stereotypes and biases and also equip teachers with strategies to support diverse learning styles and needs. Ensure equal access to resources and technology for all learners and provide additional support materials and resources to address learning gaps
- Develop and implement gender-sensitive mathematics curriculum and materials that cater to diverse learning styles and needs and also to provide teachers with professional development opportunities to enhance their knowledge and skills in teaching mathematics to female learners.
- Provide teachers with training on gender-sensitive teaching practices to address gender stereotypes and biases and also encourage teachers to use inclusive language and materials. Establish a mentoring program that pairs female learners with role models and mentors and also provide counseling services to address math anxiety and fear of failure

5.5 Areas for further research

As the study was only limited to one school in Mutoko District, it will be necessary to carry out a wider study on the district or province as a whole such that a clear picture of the issue can

be seen. Hence the results can be generalized as an indication of what is happening in Ordinary Level Mathematics teaching and learning activities in the whole district or province.

5.6 Chapter summary

The chapter presented the summary of the research, conclusions, and recommendation for the study. Areas for further research were also suggested by the researcher.

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APPENDICES

Appendix 1: Questionnaire for selected respondents

Thank you for agreeing to be interviewed. The purpose of this questionnaire is to gather information about your own perception of the female learners' performance in Ordinary Level mathematics. I'm going to ask you some questions which you are free to elaborate on, in ways you consider fit. In case you do not feel like answering the question, you are at liberty to say so. The information will be kept with total confidentiality and is only intended for this research.

Instructions

Kindly answer all question.

- Don't write your name on the questionnaire for anonymity and confidentiality reason.
- Do not share neither discuss your responses with anyone.
- For a selected answer use X.
- You may ask for assistance if you do not understand something or you are not sure how to respond.

Section A

1. What is your sex

Female []

Male []

2. What is your age range (in years)?

12-14 [] 15-16 [] 17-18 [] above 18 []

3. What is your academic level

ZJC []

Ordinary Level []

Advanced Level []

Section B

4. Indicate your opinion on the given scenario.

	Attribute(s)	True	False
1.	Female learners' interest in Mathematics		
2.	Teacher qualification(s) have a role to play in female learners' performance in Mathematics.		
3.	Peers influence female learners' performance in Mathematics.		
4.	Motivation from parents influenced female learners' performance.		

Section C

5. Indicate your opinion on the given scenarios

	Attribute(s)	SA	A	D	SD
1.	Lack of interest in Mathematics influence female learners to perform poorly in learning activities				
2.	Negative view towards Mathematics influence female learners to underperform in learning activities				
3.	Lack of qualified personnel has a bearing on female learners, poor performance in Mathematics				
4.	Peer pressure from fellow female learners influences one poor perform in Mathematics perform poorly in Mathematics				
5.	Gender stereotypes negatively influence female learners' performance in Mathematics				
6.	Limited Motivation from parents inhibit female learners' performance				

Guidelines for filling part C above

SA: Strongly Agree

A: Agree

D: Disagree

SD: Strongly Disagree

Section D

7. The following are some of the challenges encountered in the Ordinary Level Mathematics teaching and learning activities

	Attribute(s)	S A	A	S D	D
1.	Gender stereotypes and bias				
2.	Limited time to study due to household				
3.	Limited time to interact with the teacher				
4.	Limited parental involvement				

Guidelines for filling part D above

SA: Strongly Agree

A: Agree

D: Disagree

SD: Strongly Disagree

Thank you for your cooperation