Exploration of Grade 10 Mathematics Teachers and Learners' Perceptions and Experiences on Utilisation of Mathematics Examiners' Reports

By

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Declaration

I declare that this dissertation entitled: **Exploration of Grade 10 Mathematics Teachers and Learners' Perceptions and Experiences on Utilisation of Mathematics Examiners' Reports,** except where otherwise indicated, is my original work and its materials have not been submitted before in full or in part for the award of any academic qualifications at any other university. Any work from other authors that has been made use of, has been acknowledged accordingly.

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Dedication

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Abstract

This study explores secondary school Mathematics teachers' and learners' perceptions and experiences on the utilisation of Mathematics Examiners' Reports (MER) in the teaching and learning of Mathematics. There is a need for awareness, accessibility and utilisation of MER according to literature, to inform planning for instructional practices regarding the common errors and weaknesses of learners and their remediation. Feedback Intervention theory (FIT) guided the study based on the three constructs. Firstly, the control of perceived discrepancies, when common errors and weaknesses reflected in MER are given enough attention, there could be provision for new skills and knowledge in solving the problems related to various Mathematics concepts. Secondly, the possibility of an individual changing their way of thinking after receiving feedback, When MER are used in the teaching and learning, the learners' Mathematics performance might improve, especially when the reports are considered as day-to-day tools for intervention. Lastly, suggestions and recommendations from MER on specific concepts, when learning is not adequate, are meant for directed attainment of expected standard outcome.

The study was motivated by willingness to altering the quality of examination responses, that learners provide, guided by views and believes towards utilisation of MER, in teaching and learning Mathematics. The study adopted the qualitative research approach and data was collected through open-ended questionnaire, interviews and focus group interviews. The participants comprised Grade 10 Mathematics teachers and learners from four secondary schools in Maseru Urban and were purposively selected. The data was analysed thematically, by identifying preconceived themes generated from the three research questions and the themes that emerged from the qualitative data to uncover meanings. Familiarisation of data, coding, and highlighting key themes and sub-themes.

The findings indicate that some teachers are unaware of the existence of the MER, therefore do not use them. MER were useful to some teachers for day-to-day instructional practices, assessment purposes and examination preparations. Similarly, few learners knew about MER since they perceived are mainly prepared for teachers to identify common mistakes and weaknesses of learners and to provide methods to improve teaching skills on specific concepts. The recommendations proposed, include the need for Continuous Professional Development (CPD) through Mathematics workshops to encourage collaborative review of MER and reflective teaching practices to simplify language used in MER, use of internet for easy access

to contents of MER, and for teachers to ensure accessibility of the MER for learners' consumption.

Keywords: Mathematics Examiners' Report, teachers, learners, perceptions and experiences.

Table of contents

Acknowledgements ..... **iii**
Dedication ..... **iv**
Abstract ..... **v**
Keywords: Mathematics Examiners' Report, teachers, learners, perceptions and experiences. ..... **vi**
Table of contents ..... **vii**
List of Abbreviations and Acronyms ..... **xi**
List of Appendices ..... **xii**
List of Tables ..... **xiii**
List of Figures ..... **xiii**
Chapter 1 ..... **1**
Introduction **1**
1.0 Introduction 1
1.1 Background to the Problem **2**
1.2 Problem Statement 6
1.3 Research Objectives 10
1.4 Research Questions 11
1.5 Motivation and Rationale 11
1.6 Significance of the Study 11
1.7 Definition of Keywords 12
Chapter 2 ..... **13**
Literature Review **13**
2.0 Introduction 13
2.1 Mathematics Examiners' Reports 15
2.2 Teachers' Perceptions on the Use of Mathematics Examiners' Reports 17
2.3 Teachers' Experiences on the Use of Mathematics Examiners' Reports 19
2.4 Learners' Perceptions on the Use of Mathematics Examiners' Reports 22
2.5 Theoretical Framework 24
Chapter 3 ..... **28**
Research Methodology **28**
3.0 Introduction 28
3.1 Research Design 28
3.2 Population and Sampling 29

3.3 Data Collection Instruments 31
3.3.1 Research Questionnaire 32
3.3.2 Interviews 32
3.4 Data Collection Methods 33
3.5 Data Processing and Analysis 34
3.6 Pilot Study 37
3.6.1 Methodology 37
3.6.2 The Importance of Piloting and Changes Implemented 39
3.7 Validity and Reliability 41
3.8 Ethical Considerations 42
3.9 Conclusion 43
Chapter 4 44
Presentation of Findings 44
4.0 Introduction 44
4.1 Research Question One 44
4.1.1 Conceptualisation of Mathematics Examiner's Reports 44
4.1.2 Teachers' Knowledge and Awareness of Mathematics Examiners' Reports 46
4.1.3 Utilisation of Mathematics Examiners' Reports 48
4.1.4 Teachers' Suggestions for Effective Use of Mathematics Examiners' Reports 49
4 1.5 Teachers' Views on Learners' Knowledge of Mathematics Examiner's Reports 50
4.2 Research Question Two 51
4.2.1 Frequency on Mathematics Examiners' Reports Use by Teachers 52
4.2.2 Application of Mathematics Examiners' Reports in Teaching Addition and Division of Fractions 53
4.2.3 Curriculum Topics Informed by Mathematics Examiners' Reports 54
4.2.4 Instructional Suggestions from Mathematics Examiners' Reports 54
4.3 Research Question Three 55
4.3.1 Understanding of Mathematics Examiners' Reports from Learners' Perspective 56
4.3.2 Mathematics Examiners' Reports as a Pedagogical Guide for Teachers 57
4.3.3 Learners' Perceptions of the Use of Mathematics Examiner's Reports 57
4.3.4 Learners' Attitudes towards Mathematic Examiners' Reports 58
4.3.5 Perceived Benefits of Mathematics Examiners' Report for Learners 58
4.3.6 Learners' Recommendations on the Use of Mathematics Examiners' Reports 59
4.4 Emergent Themes from Data Analysis 60
4.4.0 Learners' Challenges as Identified by Teachers 60
4.4.1 Foundational Concepts that Pose Difficulties for Learners 60

4.4.2 Learners' Contemporary Reflections on the Use of Mathematics Examiner's Reports 61
Chapter 5 ..... **62**
Discussion of Findings **62**
5.0 Introduction 62
5.1 Research Question One 63
5.2 Research Question Two 65
5.3 Research Question Three 66
5.4 Discussion of Emergent Themes 67
Chapter 6 ..... **69**
Conclusion **69**
6.0 Introduction 69
6.1 Limitations for the Current Study 69
6.2 Implications 70
6.3 Conclusion 71
REFERENCES **72**
APPENDICES **86**
AppendixK Tables of Analysis Framework **98**
Table of Analysis Framework T-C **101**
Teachers' knowledge and awareness of Mathematics Examiners' Reports 102
Utilisation of Mathematics Examiners' Reports 102
Teachers' suggestions for effective use of Mathematics Examiners' Reports 102
4.2.1 Frequency on Mathematics Examiners' Reports use by teachers 103
4.2.2 Application of Mathematics Examiners' Reports in teaching addition and division of fractions 103
4.2.3 Curriculum topics informed by Mathematics Examiners' Reports 103
4.2.4 Instructional suggestions from Mathematics Examiners' Reports 103
4.3.1 Foundational concepts that pose difficulties for learners 103
4.3.1 Understanding of Mathematics Examiner's Reports from learners' perspective 104
4.3.2 Mathematics Examiners' Reports as a pedagogical guide for teachers 104
4.3.3 Learners' perceptions of the use of Mathematics Examiner's Reports 104
4.3.5 Perceived benefits of Mathematics Examiners' Report for learners 105
4.3.6 Learners' recommendations on the use of Mathematics Examiners' Reports 105

List of Abbreviations and Acronyms

JC	-	Junior Certificate
COSC	-	Cambridge Overseas School Certificate
LGCSE	-	Lesotho General Certificate of Secondary School
ECOL	-	Examinations Council of Lesotho
MoET	-	Ministry of Education and Training
CAP	-	Curriculum Assessment Policy Framework
NUL	-	National University of Lesotho
LNAEP	-	Lesotho National Assessment of Educational Progress
IGCSE	-	International General Certificate of Secondary Education
CER	-	Chief Examiners Report
ADEED	-	Alaska Department of Education and Early Development
ECOZ	-	Examinations Council of Zambia
PISA	-	Program for International School Assessment
TIMSS	-	Trends in Mathematics and Science Study
STEM	-	Science Technology Engineering and Mathematics
NECTA	-	The National Examination Council of Tanzania
CIRA	-	Candidates Items Response Analysis Reports
ECOE	-	Examinations Council of Eswatini
KNEC	-	Kenya National Examinations Council
MER	-	Mathematics Examiners' report
PEF	-	Public examination feedback

List of Appendices

Appendix A: Letter from Educational Institution

Appendix B: Letter to the Ministry of Education and Training

Appendix C: Letter from the Regional Inspector Central

Appendix D: Letter to the School Principal

Appendix E: Participants' Consent form

Appendix F: Participant's Consent form for Minors

Appendix G: Questionnaire for Teachers

Appendix H: Focus Group Interview for learners

Appendix I: Interview Questions for Teachers

Appendix J: Letter from the Editor

List of Tables

Table 1: Data collection tools and analysis considerations.

Table 2: Table of Analysis of Teacher Interview Transcript.

Table 3: Table of Analysis Framework

List of Figures

Figure 1: Educational and Teaching Background of Participants.

Chapter 1

Introduction

1.0 Introduction

Lesotho through numerous efforts strives to improve the quality of Mathematics education at secondary school level (Raphoka, 2018). Performance in Mathematics has been poor at Junior Certificate (JC) and Senior Certificate named Cambridge Overseas School Certificate (COSC). COSC changed to the Lesotho General Certificate of Secondary Education (LGCSE) in 2013 (Mphunyane, 2021). The Examiners' reports of national examinations for the various Mathematics papers, published annually by the Examinations Council of Lesotho (ECOL), reflect this unsatisfactory performance (MoET, 2021).

The Lesotho's Ministry of Education and Training (MoET) prepared the Curriculum Assessment Policy Framework (CAP) that recommends new strategies for teaching and assessing learners (Chere-Masupha & Mothetsi-Mothiba, 2022). CAP is assessed by MoET through ECOL that manages Grade 11 public examinations for the Lesotho General Certificate of Secondary Education (LGCSE), a qualification endorsed by the National University of Lesotho (NUL) for quality assurance (MoET Report, 2024). ECOL also engages in the provision of Mathematics Examiners' Reports (MER) for teachers on end-of-level achievement assessments as one of its functions (MoET, 2024).

The Examiners' reports are documents that are prepared for the analysis of individual responses of the candidates (MoET, 2021). ECOL provides these reports and is mandated as mentioned in Lesotho National Assessment of Educational Progress-Grades 4 & 8 (LNAEP):

> *To develop, implement, monitor, and evaluate a qualitative, fair, and reliable educational assessment system for basic and secondary education and to issue qualifications that address the educational needs of school leavers that enjoy international credibility* (MoET, 2001: p. ii).

MoET (2001) further indicates that ECOL develops and administers all assessment materials including Examination Papers and marking of examinations. According to Wallinga (2017), it is indicated that the use of Examiners' reports in secondary school Mathematics teaching is a

complex issue with various factors. Those factors influence its effectiveness like improving learner performance through formative instructional practices, which could be challenging for teachers since they would be incorporating the strategies from the reports (Wallinga, 2017).

The 2024 LGCSE Results Analysis that is prepared by ECOL was one other example of the reviewed documents that informed the current study, and the focus was on the general weaknesses of the learners. The key Mathematics errors mentioned in the document were listed as follows: bad performance on multi-step questions, manipulation errors on formulae and factorization, not managing to draw smooth curves, conceptual errors like mixed formulae and also low mathematical ability (LGCSE Results Analysis, 2024).

This study explores Grade 10 Mathematics teachers' and learners' perceptions and experiences regarding the utilisation of MER, with the aim of understanding how these reports inform teaching practices and learning strategies in the teaching of secondary school Mathematics.

1.1 Background to the Problem

The education systems of nations, Lesotho included, are structured to meet the needs of their economies and developmental priorities, where secondary education provides a bridge between primary and tertiary education. It is a post primary education programme that prepares the learners for middle level jobs and also provides the platform for others to progress to tertiary education. Therefore, secondary education is very vital in the life of a learner as well as the nation (Abreh et al., 2018).

In secondary school Mathematics education, teachers frequently engage in professional discussions focused on enhancing learners' achievement and addressing persistent misconceptions in key content areas. These collegial dialogues often involve the sharing and critical evaluation of instructional strategies intended to strengthen teachers' classroom practices and promote learners' conceptual understanding. Within such discussions, concerns have emerged regarding the effective use of Mathematics Examiners' Reports (MER) as a valuable feedback resource that could improve teaching and learning. The MER provide diagnostic insights into common learner errors, conceptual weaknesses, and areas of poor performance identified in national assessments. However, informal evidence suggests that while some teachers are familiar with and utilise these reports to inform lesson planning and assessment practices, others either have limited awareness of their existence or lack access to them altogether. This variation in teachers' engagement with the MER raises questions about

the extent to which these reports are integrated into classroom practice as feedback tools for improving learner outcomes. Consequently, this study seeks to explore Mathematics teachers' and learners' perceptions and experiences regarding the utilisation of Mathematics Examiners' Reports in addressing common errors and enhancing performance in secondary school Mathematics.

The Mathematics Examiners' Reports as annual assessment feedback about strengths, errors, and weaknesses of learners to be considered for future classroom planning, are provided per question paper, Paper 1 and Paper 3 Core examination papers, and Paper 2 and Paper 4 Extended Examination Papers. The individual questions in each of the papers are solved and discussed, considering the degree of correctness. The errors and weaknesses displayed by learners per examination question are stated for perusal by teachers or learners to inform their ways of tackling the Mathematics problems in subsequent assessment examinations. It is also believed that teachers will identify the syllabus areas which appear to be challenging to the learners (ECOL report, 2019).

According to Manzi and Moreeng (2024) assessment is a process of collecting data for better understanding of the strengths and weaknesses in learning when used meaningfully. They further indicate that assessment has the power to inform modification of teaching and learning to enhance learners' understanding of concepts as opposed to being used just for certification and eligibility for further education studies. Summative assessment is aimed at assigning learner grades and is intended to be a practical tool to help throughout the process of planning, developing, and deploying tests as well as monitoring their effectiveness (Kibble, 2017). Additionally, Alaska Department of Education and Early Development - ADEED (2022), classifies summative assessment reports into types: individual learners' report, school summary report, district summary report. The reports in this current study are different in that they are provided by ECOL and are national. It is further stated by ADEED (2022) that these reports are for Mathematics or Science reporting categories and learners' performance in which teachers can use, the information, about general strengths and weaknesses of individual learners for areas that may need instructional support in the next school year.

According to Kubiatko and Chytry (2021), it is difficult for many learners to find and understand the connection of Mathematics with real life, so most of the questions relate to everyday problems, which could lead to developing mathematical skills and improve conceptual understanding. These could equip Mathematics teachers and learners on their

development, which is a continuing cyclic process. Chan (2014) indicates that the connection is one of the most powerful instructional tools available and classified as: clear learning targets, evidence of learning, and learner's ownership in the learning process. Maybe the Mathematics teachers could have perceptions and relate them to their experiences. One common statement of achievement in almost all Mathematics Examiners' Reports is that "Generally the cohort was not good" (ECOL, 2021 Mathematics reports). Defined by Power (2017), achievement is a one-time snapshot measurement of a learner's academic performance in a subject like Mathematics.

Internationally there are assessment programmes like the Program for International School Assessment (PISA) that assess learners' performance in Mathematics, explore how well learners can solve complex problems, think critically, and communicate effectively at the national level. Trends in Mathematics and Science Study (TIMSS) also provides information on learners' performance in Mathematics (Mphunyane, 2021). It is further implicated by Mphunyane (2021) that these programmes provide learners' performance in Mathematics at a national level, to governments of member and non-member countries with reports. Similarly, my study is not focused on individuals instead, in a group of learners nationally instead through the Ministry of Education and Training on the learners' performance in Mathematics, regarding the attendance of common errors and weaknesses that are highlighted per question in the annual Mathematics Examiners' Reports.

There are also Examiners' reports for IGCSE Mathematics Papers which provide valuable insights into common learners' errors and weaknesses that are meant to help future candidates improve their performance (Cambridge International Education [CIE], 2025). The formative instructional practices and the formative assessment processes are targeted to improve Mathematics performance among secondary school learners. According to Cusi et al. (2024), five key strategies are identified aimed to foster formative assessment processes:

1. *Clarifying and sharing learning intentions and criteria for success.*
2. *Engineering effective classroom discussions and other learning tasks that elicit evidence of learner understanding.*
3. *Providing feedback that moves learners forward.*
4. *Activating learners as instructional resources for one another.*
5. *Activating learners as the owners of their own learning.*

These strategies are supported by digital technologies to get them activated in the following ways:

a. *Continuity, by enabling teachers to keep track of learners' learning.*

b. *Regulation, by providing learners with immediate feedback and encouraging them to monitor their own progress.*

c. *Collaboration, by providing opportunities for learners to peer and self-assess their work.*

d. *Participation, by encouraging the learners' dynamic engagement in conceptual activities. (Cusi et al., 2022: p 222-223)*

It is therefore important to consider those steps continuously because classrooms that effectively implement formative instruction have demonstrated substantial improvements in learner achievement (Heitink, 2019).

Regionally, it is stated by Wonu and Zalmon (2017) that the use of Examiners' reports - also called Chief Examiners' reports - suggests their importance on how they could benefit teaching and learning in the classroom, particularly Mathematics. The Examinations Council of Zambia similarly considers discussions on individual Mathematics questions on specific concepts, as demonstrated in Lesotho Mathematics Examiners' Reports for external grades, provided by ECOL, a body responsible for administration and monitoring of examinations as mandated by the Ministry of education and training (ECOZ, 2020). The following captures the significance of these reports:

> *Chief Examiners' report is an official document prepared by an external examination body after every year examination which outlines learners' areas of weakness, strength, and possible remedial measures in various subjects. The examining team prepares these reports after constructive feedback on candidates' performance in the examinations. The chief Examiners' reports provide a general commentary on candidates' performance as well as identifying technical aspects examined in the questions, highlighting good performance and where performance could be improved and particularly examining aspects which caused difficulty and why the difficulties*

arose. Suggested remedies to the identified learning difficulties are also enshrined in the report (Wonu, & Zalmon, 2017: p 11).

The description proposed by George and Amachree (2018) is that the Chief Examiners' report (CER) is a valid and reliable instructional technique for remediation to be employed by teachers. Their study then recommended that the reports reach school principals who should give them to Mathematics teachers to employ to remediate learners' weakness in Mathematics and improve learners' strengths during classroom instruction.

Locally, the Examinations Council of Lesotho - through the Ministry of Education and Training provides Mathematics Examiners' Reports annually as a summative assessment report. According to ECOL (2019: 2020 Mathematics Paper 1 and Paper 3 reports), common errors, misconceptions, points for future attention, remarks and recommendations are for teachers to improve learners' level of preparedness for summative examinations. Additionally, it is reported that the recommendations of the reports are meant for school heads and teachers in the Mathematics departments. ECOL (2019 MathematicsPaper1 report) indicates that the intentions of the reports are to help teachers to reflect on their teaching approaches on certain concepts, based on how candidates tackled examination questions.

1.2 Problem Statement

Mathematics plays an important global awareness role in national development (Wonu and Zalmon, 2017). Lesotho's MoET is not an exception in this recognition because through ECOL is responsible for developing and managing examinations for the progress of the country's education system (ECOL Report, 2023). ECOL provides Mathematics Examiners' Reports on completion of Grade 11 public examinations to be used in teaching and learning. The use of such reports is seen as the method of remediation which teachers are expected to employ (George & Amachree, 2018). Core Mathematics Examiners' Reports for Papers 1 and 3 were used to inform the problem of the current study because most of the learners register to be examined on such papers. It was evident that the year 2024 ECOL results analysis indicated that 20,644 learners registered for Core Papers 1 and 3 while 2,170 registered for Extended Papers 2 and 4, where Papers 1 and 2 are no-calculator short papers with Papers 3 and 4 being structured and progressive questions (ECOL LGCSE Results Analysis, 2024).

The Mathematics performance as low as it is, to some extent, the education system cannot totally place the blame of poor performance on learners alone because the teacher may also

contribute (Moru et al.,2014). Additionally, Moru et al. (2014) argue that teachers seem to be less concerned about knowing the origin of errors hence learners' errors are a function of many variables including the teacher to engage in improving the knowledge of teaching, especially Mathematics.

Although Mathematics Examiners' Reports (MER) are designed to serve as feedback tools that support teaching and learning for improvement and performance respectively, their effective utilisation mostly depends on how teachers and learners perceive and interpret them. Research indicates that teachers' perceptions of Mathematics Examiners' Reports often determine whether the feedback is regarded as constructive or merely evaluative, however, when teachers are given meaningful and constructive feedback, they are better able to identify and implement necessary adjustments to improve their teaching practices (Lia, 2016). Teachers may also view MER as administrative or summative documents rather than as tools for reflection on their pedagogical approaches and classroom improvement (Donkor, 2020). Similarly, learners may perceive MER as distant or irrelevant to their own learning processes, especially when the feedback is not explicitly communicated or not made meaningful (Carless, 2015: Nicodemus & Kiwhele, 2024).

Such perceptions can lead to limited engagement with the MER, hence weakening the intended feedback cyclical process between the Examiners, teachers, and learners. Furthermore, negative or defensive attitudes towards Examiners' feedback such as viewing it as criticism rather than developmental insight, can hinder the acceptance and how feedback is implemented for learning enhancement (Kluger & DeNisi, 1996: Crawford, 2020). Then the potential of MER to inform instructional practices and support learner progress remains underutilised. This problem is particularly concerning in contexts such as Lesotho, where persistent underperformance in Mathematics continues to be reported despite the regular dissemination of Examiners' feedback (Examinations Council of Lesotho, 2023). Exploring teachers' and learners' perceptions and experiences regarding MER utilisation to attend common errors and weaknesses of learners to enhancing Mathematics performance is the purpose of this current study.

External Examiners' Comments for Secondary School Mathematics

External Examiners' comments are remarks presented in Examiners' reports after reviewing learners' performance that highlight strengths and weaknesses and provide teaching recommendations (Cambridge Assessment International Education, 2025). The Examiners' reports are meant to provide detailed feedback on individual questions by stating the expected responses, candidates' common errors, misconceptions and recommendations where necessary (ECOL, 2019: 2020: 2021: 2022: 2023: 2024 Reports). It is a continuous annual process in Mathematics education for stakeholders to improve Mathematics teaching and learning. Most of the comments narrated in this section seem to be recurring in consecutive years and being basic are fundamental hence may need consideration while striving for better Mathematics performance.

There are different suggestions and recommendations that are reflected to highlight the expectations of the Mathematics Examiner on the common errors, as reflected by the Examiner or by repeated appearance on the reports. Generally, ECOL (2019 Paper 1 Mathematics Report) stated that the quality of responses *was the same as that of the previous years*, also the way the candidates presented their work *was the same and not accurate just like the previous years*. It is indicated that teachers, when facilitating teaching and learning, should not only focus on one way to solve certain mathematical concepts but come up with multiple ways to impart knowledge, for example, on directed numbers as it has been *a knocking issue of all years consecutively* (ECOL, 2024 Paper 1 Mathematics report). There is also *a recurring recommendation* that Mathematics teachers should put more emphasis on rounding off which could build a stepping stone towards significant figures inclusive of using multiple approaches on the conversion of decimals into their corresponding fractions (ECOL, 2019: 2020: 2021: 2022: 2024 Paper 1 and Paper 3 Mathematics reports).

It is further shown that the responses indicated lack of experience and exposure to some parts of the Mathematics syllabus (ECOL, 2019: 2020 Paper 3 Mathematics reports). General comment was that the quality of the 2020 candidates was lower than that of the 2019 cohort, an indication that the candidates seemed to be lacking many concepts, knowledge and skills. Moreover, the judgment was that they could not attempt many questions and even those which they tried to attempt, they struggled to complete them, the reason being their approach to similar questions for 2019 and 2020 (ECOL, 2020 Paper 3 Mathematics Report).

Some of the Examiners' comments are general while others are specifically directed to certain basic concepts from the syllabus, and therefore need be emphasized since are common errors and the foundation of more complex concepts:

> *The quality of candidates' responses was the same as the responses of the previous years' candidates: that is, the way they presented their work was more or less the same. Most candidates were challenged by the order of operations including negative numbers. Candidates were not accurate just like the previous years. They were unable to simplify fractions due to negative signs. … just like their predecessors (ECOL, 2019 Paper 1 Report: p.1).*

What if teachers had utilised the Examiners' reports, would the weaknesses identified be recurring year after another? The reports further state:

> *However, it was noticeable that a significant proportion of candidates either did not understand some topics or their responses indicated lack of exposure to some parts of the syllabus, (ECOL, 2023 Papers 3 Report).*

The following observations were also made on what would be expected of teachers to have attended, to improve learners' responses in examinations questions:

> *… as always, a lack of working, even when specifically requested, was evident on some scripts, ...it also proves that to some candidates the concept of the use of scale was not adequately taught (ECOL, 2019 Paper 2 Report).*

> *Teachers are also encouraged to emphasize the need to show working as candidates could lose marks by writing answers only, also it is important that the working be presented in ink not in pencil because pencil becomes fainter with time (ECOL, 2021 Paper 3).*

The general recommendations and conclusion from ECOL (2023 Paper 1 Report) indicate that the success is based on the completion of Core syllabus:

> *Candidates should remember formulae and apply them appropriately and give answers in the form required. Candidates should use suitable level of accuracy where necessary. Teachers should complete the syllabus timeously so that learners can have adequate*

practice and exposure to examination type questions. Candidates in preparation for examination should be made aware that more than 1 mark generally indicates that progress towards a correct solution may be credited and as such workings should be clearly shown (ECOL, 2023 Paper 1 Report).

It is important that technical terms of Mathematics should be used during teaching and learning process. ... Moreover, directed numbers should also be emphasized as learners seem not to be using them accordingly. Again, our learners have limited skills on high order questions like 'show that (ECOL, 2024 Paper 3).

Finally, the observations of the Examiners are also repeated on different reports which indicates recurrence of learners' responses or common errors and weaknesses for intervention.

More emphasis on digital presentation of time should be made. Teachers should stick to the notation given in the syllabus and apply this across. Distance time-graph should also be given more attention as well as conversion of units. Concluding, we pass the sincere gratitude to teachers for guiding learners to the point of examination. Congratulations and keep up the good work. In general, the paper was accessible to learners, however, we identified some serious setbacks that are worthy of taking note of. Learners lack skills in basic operations: learners failed to attempt low order questions for example but not limited to the use of calculators and mathematical set. It is important to make sure that teachers give learners more practice and cover the whole content as stipulated in the curriculum (ECOL, 2024 Paper 3).

What if the above evidence would be important to teachers could they have read the reports to support their formative practices for improvement of learners' performance, when the common errors and weaknesses that are reported by the Examiners are attended!

1.3 Research Objectives

The following are the research objectives for this study:

1. To explore how teachers' perceive the use of Mathematics Examiners' report as a tool to enhance teaching and learning of secondary school Mathematics.
2. To explore teachers' experiences on the use of Mathematics Examiners' report on their teaching of Mathematics.

3. To explore learners' perceptions on the use of Mathematics Examiners' report as a tool to inform their learning process.

1.4 Research Questions

The main research questions are:

1. How do teachers perceive the use of the Mathematics Examiners' report as a tool to enhance teaching and learning of secondary school Mathematics?
2. What are teachers' experiences on the use of the Mathematics Examiners' report on their teaching of Mathematics?
3. How do learners perceive the use of the Mathematics Examiners' Reports as a tool to inform their learning process?

1.5 Motivation and Rationale

The inspiration to carry out this study surfaced from the interest to improve learners' performance, and being a Mathematics teacher for years but without knowledge of the existence of Examiners' reports while the researcher only knew about them in the first year of the post-graduate programme. This situation must have contributed to the unaltered quality of examination responses the learners had always provided. The Mathematics teachers could be taken as role players in the elimination of common errors and weaknesses of learners to the best of summative assessment results. This is supported by the findings that, engaging in error analysis continuously in day-to-day formative practices is one way of improving knowledge for teachers and learners (Moru et al., 2014). The teachers, including other stakeholders, as the major facilitators in the whole process need to be exposed to most of the resources available to decide on their effectiveness for quality education in Lesotho.

1.6 Significance of the Study

There seems to be a need to facilitate excellence in Mathematics classroom practice, and consequently the understanding of concepts through guidance of the teachers to improve learners' performance in Mathematics. This fact contributes to this study serving to inform the teachers, school administrators, the Examiner, the curriculum developers and the Ministry of Education and Training (MoET) to ensure awareness and guide targeted interventions, and access to resources to effectively integrate the findings on Mathematics Examiners' Reports utilisation. The study is therefore, dedicated to the informed decisions in policy-making in

ensuring distribution and utilisation of the reports to attend to common errors and weaknesses of learners. It also contributes to documentation of teachers' perceptions and experiences on the use of Mathematics Examiners' Reports, for teachers and their learners in addressing various weaknesses in certain mathematical concepts. The study will enable schools to acknowledge efforts made by MoET through ECOL on appraisal of quality education at school level. The perceptions of learners on the use of Mathematics Examiners' Reports will also inform future recommendations to address their needs and involvement in the utilisation of reports, for a more proactive approach. The study then serves to provide teachers, policymakers, and curriculum designers, with detailed insights from teachers and learners on how the reports could be used to improve performance of learners and assessment quality.

1.7 Definition of Keywords

The definition of key terms is provided in this study to avoid any uncertainties that may result. Therefore, the key terms are given operational definitions.

Mathematics Examiners' Report: It is the Mathematics resource that is prepared by the Examiner to evaluate the performance of learners at the end of secondary school, allowing teachers to understand learners' errors and weaknesses against standardised criteria to plan appropriately for the following year.

Teachers: These are facilitators for secondary school learners to acquire Mathematics skills.

Learners: They are secondary school pupils who learn various Mathematical skills that are meant to improve their performance.

Perception: This refers to the way in which Mathematics Examiners' Reports are understood or interpreted**.** It is about how teachers view, interpret, and interact with learners on the usage of the Examiners' reports in their formative practices.

Experiences: It is the exposure to the use of Mathematics Examiners' Reports to use suggestions and recommendations for formative assessment or practices.

Common errors and weaknesses: They are regular struggles that are experienced by learners when responding to the Mathematics examination questions.

Chapter 2

Literature Review

2.0 Introduction

This chapter critically evaluated previous studies and established the framework for exploring perceptions and experiences of Mathematics teachers and learners, in the use of Mathematics Examiners' Reports (MER) in attending to common errors and weaknesses of learners, for instructional practices. The literature review is thematically organised to trace the development of key concepts such as MER with the aim to contribute towards secondary school improved Mathematics performance.

Despite the consistent provision of Mathematics Examiners' Reports (MER) by the Examinations Council of Lesotho (ECOL) to enhance teaching and learning, learners' performance in Mathematics remains persistently low. Studies have largely emphasized the content of Examiner reports and their role in improving examination results (George & Amachree, 2018; Moru et al., 2014), yet there is limited evidence on how teachers and learners actually perceive and utilise this feedback in classroom contexts. Furthermore, the relational and perceptions towards feedback use, how teachers interpret MER as constructive or evaluative, and how learners engage with Examiners' feedback, remain underexplored not only in the Lesotho context. This gap highlights the need to investigate teachers' and learners' perceptions and experiences of using MER to improve Mathematics instruction and learning outcomes, more especially attending to common errors and weaknesses of learners.

Research has consistently shown that MER and similar feedback reports can be powerful tools for instructional improvement when effectively utilised. For example, studies in Tanzania and Zambia have demonstrated that effective integration of examination feedback can lead to improved learner outcomes (Rehema, 2024: Shahanga & Kasambala, 2024). Similarly, Nicodemus and Kihwele (2024) highlights that effective feedback has a substantial influence on teachers' instructional practices and learners' academic performance. Furthermore, they assume that the teachers who hold positive perceptions and beliefs about feedback are more likely to implement it effectively in their teaching. Consequently, realising the full benefits of effective feedback requires that teachers develop and maintain positive attitudes toward assessment feedback and its associated practices.

It is mentioned that teachers view effective feedback as the return of graded or marked works and detailed corrections of assessed work, when they still perceive the power of feedback as positive to improve pedagogical practices and learners' achievement (Nicodemus & Kihwele, 2024). In addition, Mathematics teachers can effectively utilise feedback reports to improve their pedagogical practices if they receive proper supervision and relevant support, including motivation to interpret and implement recommendations from the assessment reports through their school-based community of learning. This shows a significant relationship that effective practices need persistent interventions to guard against the global low Mathematics performance (Fokuo et al., 2022). The implication being that utilisation of MER is far from consistent since several studies indicate barriers such as limited teacher training on interpreting Examiners' feedback (Masuku, 2024: Mphunyane, 2021). One other barrier such as low learner awareness of report availability (Rehema, 2024).

The Mathematics Examiners' Reports (MER) are used by teachers as one of the instructional tools for classroom delivery also have been used to identify systematic challenges among others, the pedagogical approaches (Abreh et al., 2018: Oginni, 2025). Hence the examination bodies in the Ministry of Education should make access to the most recent MER be easier for teachers and learners, (Oginni (2025). Additionally, that not all School administrations encourage Mathematics teachers to participate in marking co-ordinations where the Examiners deliberate exhaustively on each question through the marking guide before reaching a conclusion that improves teaching and learning.

According to Selvaraj et al. (2021) learners' perceptions of Mathematics Examiners' Reports (MER) as assessment feedback are shaped by how well these reports align with the kinds of feedback that research shows learners find most helpful. MER typically provide summary information on candidates' overall performance, common errors, misconceptions, and recommendations for improvement. However, MER as feedback is more generally regarded by learners as less useful when the comments are vague, delayed, overly generalised, or disconnected from what they can do to improve, and when they do not fully trust or understand the feedback (Selvaraj et al., 2021). Thus, for MER to be perceived positively by learners, the reports must be communicated in accessible language, linked to students' prior knowledge, and supported by teachers in translating examiner recommendations into concrete study actions.

Learners also perceive the Examiners' Report as a form of feedback to b useful when it is detailed; pointing to both strengths and weaknesses, specific; identifying particular errors or misconceptions, timely, and when its recommendations can be concretely applied in learning. When MER fails on these counts; being generic, delayed, or disconnected from day-to-day teaching and learning, its impact on learning and confidence is diminished.

Internationally, even in high-performing countries such as Japan, South Korea, and England, challenges persist in translating Examiners' feedback into tangible classroom improvement (OECD, 2023: Rehema, 2024). For the International General Certificate of Secondary Education (IGCSE), feedback is further complicated by the separation of mark schemes from Examiners' comments, potentially reducing the coherence of the guidance provided.

Given these challenges, there is growing recommendation for the inclusion of MER interpretation in both pre-service teacher education and in-service continuous professional development (CPD) programmes (Shahanga & Kasambala, 2024). This aligns with the premise of Feedback Intervention Theory (Kluger & DeNisi, 1996), which suggests that feedback effectiveness depends on how it directs the recipient's attention, whether towards task strategies, self-reflection, or other areas. Applying FIT to MER use offers a theoretical lens for understanding how teachers and learners respond to Examiners' feedback, and why such responses are different.

Against this background, the present review synthesises both regional and international literature to contextualise the study of Mathematics teachers' and learners' perceptions and experiences with MER in Lesotho's secondary schools. By situating the discussion within the framework of FIT, this review not only examines the documented benefits and challenges of MER but also seeks to shed light on how feedback utilisation can be optimised to improve Mathematics learning outcomes guided by the perceptions and experiences of secondary school Mathematics teachers and learners.

2.1 Mathematics Examiners' Reports

Mathematics Examiners' Reports in secondary school teaching and learning are aimed to inform teaching strategies and learning approaches by providing detailed analysis of candidates' responses, highlighting recurring misconceptions and recommending improved pedagogical methods (Mulawo, 2017: Oginni, 2025). In various contexts, the Examiners' reports or feedback reports are known by different names such as *Chief Examiner's Reports*,

Public Examination Feedback (PEF), and *Candidates' Item Response Analysis Reports* yet their primary purpose remains consistent: to guide teachers in addressing performance gaps and to inform stakeholders in the education sector, including teachers, school managers, curriculum developers, subject inspectors, parents, and examination bodies (Mulawo, 2017: Rehema, 2024).

Mathematics occupies a central position in the curricula of most countries worldwide and is regarded as a foundational discipline for various academic and professional fields (Akhter & Akhter, 2018). Despite this, many learners report feeling insufficiently encouraged and inadequately rewarded for their performance in Mathematics (Akhter & Akhter, 2018). In some contexts, pedagogical practices are constrained by rigid appearance to textbook-prescribed procedures, resulting in the memorisation and rehearsal of methods that are subsequently assessed through formal examinations (Hewitt-Bradshaw, 2012).

In Lesotho, the Examinations Council of Lesotho (ECOL), under the Ministry of Education and Training, produces annual Mathematics Examiners' Reports (MER) aimed at identifying learners' strengths and weaknesses in assessment performance. These reports compare candidate performance across examination cycles and provide targeted recommendations for instructional improvement (Hewitt-Bradshaw, 2012). MER typically address core aspects such as examination technique, interpretation of command words, and mastery of learning outcomes, thereby supporting both candidates and teachers in preparation for future assessments (Mulawo, 2017). While the reports acknowledge areas of strength, they primarily emphasize the remediation of common errors to enhance learner achievement.

According to Donkor (2020), persistent learner underperformance in Mathematics examinations is often attributed to skill deficits, examination anxiety, and limited engagement with revision activities. MER function as diagnostic tools that provide structured feedback on the quality and nature of learners' responses. They serve both summative purposes for documenting performance post-assessment and formative purposes in informing adjustments to pedagogy, assessment design, and curriculum delivery (Heitink, 2019).

Typically, MER present data-driven analyses of candidate responses, identify recurrent misconceptions, and highlight procedural or conceptual errors. Many also include exemplar solutions or marking schemes, which can serve as valuable reference points for teachers and learners. However, utilisation of MER in classroom practice varies considerably, influenced by

factors such as teacher awareness, accessibility of reports, and the availability of professional development to support their use (Newton, 2007: Ofsted, 2015).

In the context of Mathematics education, the usefulness of Mathematics Examiners' Reports is particularly significant due to the cumulative and hierarchical nature of mathematical learning, whereby a solid understanding of foundational concepts forms the basis for successful advancement to more complex and abstract topics (Askew et al., 1997: Shahanga & Kasambala, 2024).

The Examiners' comments can serve as valuable tools for improving both instruction and learning outcomes, but their effectiveness depends on users' pedagogical and assessment literacy (Naim et al., 2025). Research by Hershkovitz et al. (2024) suggests that feedback must be noticed, understood, and acted upon to support learning, which supports the idea that technically dense or formally stated reports may reduce their usefulness. Meanwhile, in the Tanzanian context, Nicodemus & Kihwele (2024) found that even when assessment feedback reports are available, many Mathematics teachers do not access or apply them, often due to skills and motivational constraints.

2.2 Teachers' Perceptions on the Use of Mathematics Examiners' Reports

Teachers' perceptions of instructional resources and feedback instruments strongly shape whether and how those resources are used in the classroom. In the context of secondary school Mathematics, perceptions encompass teachers' beliefs, understandings and experiences about their professional practice and the tools they rely on to improve learner learning (Mphunyane, 2021). Several studies suggest that Mathematics Examiners' Reports (MER) are widely regarded as a potentially valuable source of formative information because they identify recurring learner errors and topic areas of weak performance: nevertheless, the extent to which teachers use MER in planning and instruction varies considerably.

Mulawo (2017) argued that MER highlight specific topics and item types where candidates repeatedly underperform, making them an important diagnostic resource for teachers seeking to address sources of learner underachievement. Similarly, Shahanga and Kasambala (2024) reported that while teachers perceived the usefulness of item-level response analyses, many did not make effective use of the reports due to limited awareness, poor availability, and

accessibility constraints. Where accessible, Examiners' reports can be particularly helpful because they normally detail common errors per question, enabling teachers to target remediation.

Teacher workload and structural constraints also influence perceptions and use. High teacher-to-class ratios and excessive teaching loads reduce teachers' available time to study and integrate MER into lesson planning, which undermines the potential curriculum improvement effects of Examiners' feedback (Abreh, Owusu, & Amedahe, 2018). Access alone is not sufficient: Nicodemus and Kiwhele (2024) found that even when teachers especially in urban schools could access feedback through the NECTA website, many still underutilised the information because reports were poorly disseminated like remaining at district offices, also teachers lacked motivation or specific skills to implement recommendations, or online copies were technically or practically difficult to use.

Professional learning and collegial interpretation matter. According to Clarke (2012) teachers' confidence and competence in using Examiners' feedback increased when they received support in interpretation and engaged in collaborative discussion of reports. This aligns with broader feedback literature indicating that teachers who view feedback as informative and actionable are more likely to use it to shape lesson planning, assessment design and individualised support (Wiliam, 2018). Conversely, when teachers perceive MER as irrelevant, unfair, or misaligned with classroom realities, their willingness to incorporate report recommendations declines: doubts about the credibility and fairness of external Examiners thus reduce uptake.

A related perspective stresses teachers' prior exposure to and training in the use of MER: teachers who develop familiarity with MER through initial teacher education or through in-service activities such as workshops, symposia and seminars are more likely to recognise MER as a classroom instructional document and to apply them for remediation and strengthening of learner competencies (Nhelem & Anefaa, 2018). Where such capacity building is lacking, the formative potential of MER remains unrealised. Consequently, studies like Nicodemus and Kiwhele (2024) recommend strategies such as targeted empowerment, incentives and explicit feedback use frameworks to promote more effective teacher uptake of assessment feedback.

Taken together, the literature reveals three interrelated themes about teachers' perceptions of MER: (1) instrumental potential that is teachers generally view MER as diagnostically useful

for identifying common errors and priority topics (Mulawo, 2017: Shahanga & Kasambala, 2024): (2) access and structural constraints which is lack of awareness, limited availability, heavy workloads, and poor dissemination channels limit actual use (Abreh et al., 2018: Nicodemus & Kiwhele, 2024): and (3) capacity and trust thus interpretation skills, collegial support, and perceived credibility of Examiners influence whether teachers act on MER recommendations (Clarke, 2012: Wiliam, 2018). These themes indicate that positive teacher perceptions alone are insufficient: institutional supports, professional development, and trustworthy, well-aligned Examiner recommendations are necessary for perceptions to translate into sustained pedagogical change.

2.3 Teachers' Experiences on the Use of Mathematics Examiners' Reports

The utilization of Mathematics Examiners' Reports (MER) as a tool for improving Mathematics education presents both opportunities and challenges across various educational contexts. While Sub-Saharan African countries like Tanzania, Zambia, Ghana, and Nigeria demonstrate particular patterns of MER use, international experiences reveal both commonalities and unique approaches to maximizing the potential of these assessment tools. The effective use of Examiners' Reports (MER) has been widely recognized as a valuable tool for improving teaching and learning outcomes, although some studies from various contexts, reveal significant challenges in their utilisation. In Tanzania, for instance, Shahanga and Kasambala (2024) found that Mathematics teachers in large schools, some with as many as 32 streams, struggled to engage with MER due to excessive teaching loads and severe staff shortages. Some schools had only two Mathematics teachers responsible for hundreds of learners, making it nearly impossible to dedicate time to analysing Examiners' feedback. This aligns with Bright's (2013) argument that large class sizes not only affect classroom management but also limit teachers' ability to implement effective assessment strategies. Even when MER are made available to guide curriculum adjustments (Rushton, 2014), many teachers prioritise syllabus completion over engaging with diagnostic reports, providing the feedback largely ineffective (Shahanga & Kasambala, 2024). This suggests a systemic issue where valuable assessment data fails to translate into improved classroom practices.

Teachers' experiences with MER vary significantly depending on their level of experience, institutional support, and access to professional development. Bennett (2011) observed that

experienced teachers are more likely to integrate MER into long-term curriculum planning, whereas novice teachers often struggle to interpret and apply the feedback effectively. Factors such as structured professional training, access to digital platforms such as online examination council repositories and dedicated time for collaborative analysis play a crucial role in determining how MER are utilised (Kafyulilo, 2020: Vavrus & Bartlett, 2013). However, several challenges hinder their effective implementation. Many teachers report that MER are written in overly technical language, lack concrete examples, and sometimes provide inconsistent feedback across different examination cycles (Sadler, 2010; Brookhart, 2018). Additionally, MER tend to focus more on summative evaluations rather than offering actionable formative strategies, limiting their usefulness in day-to-day teaching (Wiliam, 2018).

In the United Kingdom, the Office of Qualifications and Examinations Regulation (Ofqual) has made the process for analysing and disseminating Examiners' reports permanent. A study by Jones (2019) on GCSE Mathematics Examiners' Reports found that 68% of teachers regularly incorporated report feedback into their lesson planning, particularly focusing on common learner misconceptions. However, similar to challenges observed in Tanzania (Shahanga & Kasambala, 2024), time constraints remained a significant barrier, with only 42% of teachers reporting adequate time for thorough report analysis (Jones, 2019). The UK system benefits from digital platforms that provide searchable, explanatory reports which is a feature that could address accessibility issues noted in Nigerian contexts (Adeleke, 2023).

The Australian experience offers valuable insights into systematic MER utilisation. The Australian Curriculum, Assessment and Reporting Authority (ACARA) integrates Examiners' feedback into national teacher professional development programs. Research by Thompson (2020) demonstrated that Australian Mathematics teachers who participated in ACARA-led workshops on interpreting NAPLAN (National Assessment Program, Literacy and Numeracy) reports showed 23% greater improvement in targeting learner weaknesses compared to control groups. This aligns with successful interventions in Ghana (Ampofo, 2022) and suggests that structured training can enhance MER effectiveness across diverse educational systems.

The Singapore Examinations and Assessment Board (SEAB) produces exceptionally detailed Mathematics reports that include: item-by-item analysis of learner performance, annotated examples of learner work, specific teaching strategies for addressing common errors (Lim & Ho, 2021). This comprehensive approach has contributed to Singapore's consistently strong

performance in international assessments like TIMSS and PISA. Notably, Singaporean teachers receive protected time during school hours specifically for analysing examination reports which a practice that could alleviate time pressure challenges identified in Zambia (Mulawo, 2017) and the UK (Jones, 2019).

The United States presents a more decentralised model, with variation in MER use across states. A comparative study by Martinez (2022) found that states with standardised systems for disseminating and training teachers on assessment reports (like Massachusetts and Texas) showed significantly higher implementation rates than states without such systems. However, similar to findings in Nigeria (Ojo & Adekunle, 2021), many U.S. teachers reported that reports often arrived too late in the academic year to inform instruction effectively (Martinez, 2022).

In terms of practical experiences, teachers report varied levels of engagement with MER. Some studies highlight how experienced teachers integrate Examiners' feedback into year-long curriculum plans, while less experienced teachers may struggle to interpret and implement the suggestions meaningfully (Bennett, 2011). Teacher experiences are often shaped by their exposure to professional development, access to online platforms like the ECOL website, and time allocated for reflective teaching practices.

Teachers have also noted that MER tend to focus more on summative outcomes rather than formative strategies for improvement (Sadler, 2010). Nonetheless, positive experiences are reported when schools foster a culture of collaborative professional learning, wherein teachers analyse MER together and use them to inform shared instructional strategies. Importantly, teachers who involve learners in discussions around MER content report improved learner engagement and metacognitive awareness. These underscore the potential of MER as not just diagnostic tools for teachers, but also formative tools for learners if their integration is deliberate and strategic.

In conclusion, while MER hold great promise for enhancing educational outcomes, their impact depends on the support in the education system, teacher training and institutional commitment. The experiences of teachers in Tanzania and Zambia highlight both the challenges and opportunities in utilising examination feedback effectively. By addressing these barriers and promoting collaborative, reflective teaching practices, education systems can transform MER from mere administrative documents into powerful tools for pedagogical improvement.

2.4 Learners' Perceptions on the Use of Mathematics Examiners' Reports

The learners' perceptions are also intended to mitigate the critical conditions of Mathematics performance which threaten the development of reasoning, critical thinking, and decision-making skills among the learners, who are prospective workforce for global, regional, and national sustainable development (Narayani, 2015). These critical conditions of Mathematics performance reportedly get worse from basic to tertiary and higher education, hence this picture of poor achievement in Mathematics and natural science education is as a result of many challenges (Mulawo, 2017). Mathematics skills are essential for scientific innovations, technology development and business operation towards sustainable development (Algani, 2022). It is then argued by Masuku (2024) that public examination feedback (PEF) developed such a crucial skill as scientific reasoning, hence PEF was assessed and was identified as making a greater contribution to teachers' test design, revision processes, and lesson planning when it is accessed and used.

Perceptions are regarded by several researchers as a key factor to be considered when attempting to understand and explain variability in learner performance in Mathematics (Hagan et al., 2020). They further mention that poor performance of learners globally in Mathematics is mostly linked to perception than any other variable. Learners do have perceptions about the usefulness of candidates' item response analysis reports on improving their performance in Mathematics.

The study by Shahanga and Kasambala (2024) suggested the need to find ways for effective utilisation of Mathematics Examiners' Reports (MER) for improving Mathematics performance. Additionally, they indicated that learners perceive feedback reports as useful, but they do not make effective use of them due to lack of awareness, availability, and no accessibility, hence the reports' influence on Mathematics performance is little (Bee & Kur, 2014). Furthermore, Shahanga and Kasambala (2024) indicate that learners perceive the feedback reports as important to enable identification of common mistakes in mathematical operations and how to avoid them. They also posit that learners acknowledge that the reports may help them to make proper work arrangement and develop skills for solving mathematical questions.

Similarly, Rehema (2021) and Shahanga and Kasambala (2024) found that when learners are questioned why they were unaware of these reports, most said they had never seen the reports

despite their usefulness in enhancing their mathematical skills. Furthermore, the majority of learners cited the importance of these reports in helping them recognise and prevent typical errors in mathematical procedures. Learners perceived that the reports could assist individuals in developing abilities to solve mathematical problems (Rehema, 2021). Furthermore, Rehema (2021) viewed that learners' ignorance of reports' availability at school and online hinders their usage and accessibility, leading to little improvement in Mathematics performance. Therefore, Shahanga and Kasambala (2024) highlight the critical need for the efficient use of reports to boost effectiveness.

The study by Adewale (2021) aimed at diagnosing and remediating learners' common learning difficulties in senior secondary Mathematics from the Chief Examiner's Report. The study highlighted that learners had common learning difficulty in geometry as the majority of them had difficulty in more topics under geometry hence remedies on the identified area of common learning difficulties in other senior secondary Mathematics learning themes were provided. It was recommended that diagnostic and remedial teaching and learning strategy be applied by teachers to remediate learners' common learning difficulties in Mathematics (Adewale, 2021).

Learners' awareness and perceptions of MER are often limited. Studies indicate that while learners may acknowledge the value of Examiners' feedback, many find the reports too complex or inaccessible due to unfamiliar terminology and abstract explanations (Carless, 2006). This is particularly problematic in Mathematics where conceptual understanding is critical, and misinterpretations can lead to compounding errors.

Learners also tend to view Examiners' reports as teacher-centred documents rather than learning tools designed for them. This perception is often reinforced when teachers do not explicitly share or explain the content of MER during instruction. However, when learners are exposed to simplified annotated versions of Examiners' feedback, their performance and self-regulation skills show marked improvement (William, 2018).

Moreover, learner engagement with MER is influenced by their prior experiences with assessment. Learners who have internalised a fixed mindset about their mathematical abilities may ignore or avoid Examiners' feedback altogether. Conversely, learners with a growth mindset are more likely to use the feedback constructively, especially when supported by teacher guidance (Dweck, 2006).

To maximise learner engagement, MER must be integrated into the instructional process, not simply presented as post-mortem exam feedback. This involves teacher facilitation, learner training on how to interpret feedback, and the use of MER in formative assessment tasks such as peer reviews, test corrections, and concept re-teaching sessions.

2.5 Theoretical Framework

The goal of the current study was to explore the perceptions and experiences of Mathematics teachers and Grade 10 learners on the use of Mathematics Examiners' Reports (MER) in the teaching and learning of secondary school Mathematics. The focus was the attendance on common errors and weaknesses of learners that are reflected from the responses in examinations questions for improved performance. The conception of the current study was framed by the Feedback Intervention Theory FIT) which is a psychological theory developed by Kluger and DeNisi that serves as a guide in the study to interpret or reflect on the meaning of findings to provide deeper insight and assumes that the information from relevant feedback of individuals influence the achievement of the specific measurable goal one aims to achieve (Kluger & DeNisi, 1996). There are three relevant theoretical constructs relating to this study.

There are two ways to present a framework: graphically and narratively. This research study describes the framework narratively (Crawford, 2020). The theoretical framework of this study is focused on the following four key concepts: Mathematics Examiners' Report, teachers' perceptions and experiences, learners' perceptions including teaching and learning of Mathematics. Mathematics Examiners' Report is the feedback tool that contains common errors and weaknesses of learners provided by examination bodies to inform instructional practices. Teachers and learners have their own views and beliefs about these reports. They provide evidence to improve instructional practices and learning outcomes (Nenty, 2019: Ofqual, 2018).

Teachers' perceptions and experiences as how teachers being primary users view MER and how they actually use MER in practice, determine how suggestions and recommendations from MER are implemented in classrooms. When teachers view MER as useful, then they are likely to be used in the teaching and learning of Mathematics to improve performance. Then positive engagement with feedback enhances alignment of instruction with learner needs but limited awareness or negative perceptions reduce its impact (Mavuso, 2014). Therefore, learners get involved for the development of their learning skills. Learners' perceptions likewise, learners

being either direct recipients of MER when exposed to them or indirect recipients when teachers adjust their teaching. Their perceptions influence how they respond to MER, understand their mistakes, and engage with learning. If learners perceive teaching as just for assessment, it may undermine conceptual understanding (Akhter & Akhter, 2018). Therefore, teaching and learning of Mathematics becomes the outcome or dependent variable in this framework to improve through effective use of MER.

Teaching and learning of Mathematics which is a dependent variable that improves through the effective use of MER that is an independent variable and are used to form a framework. Guided by FIT, MER functions as a feedback mechanism that highlights discrepancies, redirects locus of attention, and specifies task properties. Teachers' and learners' perceptions and experiences with MER direct to how effectively this feedback is used. In turn, the cycle of feedback utilisation fosters better instructional decisions, targeted learning, and improved Mathematics achievement. These could be demonstrated in the following model:

MER → FIT Constructs → Teachers/Learners' Use → Teaching & Learning Outcome

The three constructs of FIT are presented with the descriptions relative to their relevance to the use of MER, how they relate to methodology and data analysis of the current study. Firstly, in relation to discrepancies or errors, FIT claims that behaviour is regulated through the control of errors in the system, hence the system is motivated to reduce the perceived discrepancies (Kluger & DeNisi, 1996). The common errors and weaknesses that are reflected on the Examiners' feedback reports, when given enough attention, could make provision for new skills and knowledge in solving the problems related to various Mathematics concepts. The preparation and distribution of the reports would then not be a waste of resources. The theory supports teachers' perceptions of the reports focused on common errors, content gaps, learners' misconceptions, where the teachers view the reports positively because such feedback enhances instructional planning and teaching methods (Heitzmann et al., 2019). In the interviews and questionnaires teachers and learners are asked with the focus on how they use with MER in correcting mistakes and improving learning outcomes. This aligns with FIT's claim that identifying and addressing discrepancies motivates improvement, which relates to the study methodology. This construct is used in analysis to code and categorise data from the responses of the participants.

The second construct is the Locus of attention. Thus, after receiving feedback, an individual is very likely to be thinking about something different from what he or she was thinking about before receiving the intervention (Kluger & DeNisi, 1996). Moreover, on its focus, FIT emphasizes that performance improves most when feedback directs attention to the task level that is how to perform better, rather than the self or just the result. When concepts are treated as recommended, considering all steps to be undertaken then performance improves. Data collection tools include questions on how MER influenced lesson planning, instructional decision-making towards MER intervention, and learner preparation. This allows the study to assess whether the reports shifted attention to strategies to teach and learn more effectively. This construct is used to evaluate the effectiveness and depth of how the MER is used by analysing responses through this lens of being effective or less effective.

Thirdly, FIT is anchored on task properties that is the use of MER for the current study, which suggests that only those feedback-standard gaps that receive attention actively participate in change of behaviour (Kluger & DeNisi, 1996). The suggestions and recommendations from the MER on specific concepts, where learning is not adequate, and are meant for directed attainment of expected standard outcome. Therefore, teachers and learners understand where they need to focus their efforts. A study by Heitzmann et al. (2019) found that feedback interventions can enhance teachers' diagnostic competencies by specifying learning targets and providing evaluations of the current state of the learning process, thereby closing the gap between actual and desired performance. Since this construct is central to the use of the MER, FIT would predict that the MER only change behaviour if its recommendations are specific, actionable, and relevant to the teachers' and learners' tasks. Then questions directly test through asking teachers about the content and clarity of the reports. The construct explains the variations in the findings because it helps analyse why some parts of the MER are used and others are not.

Feedback Intervention Theory (FIT) provides a robust framework for understanding how Mathematics Examiners' Reports can influence teaching and learning (Nkambule (2019). Furthermore, the study highlighted that assessment feedback, when effectively utilised, could support teachers in improving their pedagogical practices, particularly in enhancing content knowledge and teaching strategies. Some studies have also applied FIT to these Examiners' reports' utilisation like one such study by Shahanga and Kasambala (2024) where the principles of FIT offer insights into its applicability, thus FIT mainly explains how feedback utilised by teachers improve instruction, and shared with learners to reflect on their performance.

Additionally, a study by Heitzmann et al. (2019) emphasized the importance of feedback in fostering self-efficacy among teachers, which can indirectly affect learners' perceptions and engagement with feedback. The Feedback Intervention Theory emphasizes the use of feedback as a tool for intervention strategies towards improved performance (Kluger & DeNisi, 1996 cited in Shahanga & Kasambala, 2024). The theory helps to explore whether the feedback is helpful to those who benefit from it to understand the errors and how to improve **(**Mlemba et al. (2024**).**

In the context of MER, FIT suggests that feedback must be clear, actionable, and oriented towards improving specific cognitive processes in Mathematics. When Examiner reports highlight common errors and model effective strategies, they can trigger task-focused reflection that enhances learning. However, if feedback is vague, overly general, or too focused on performance outcomes, it may reduce motivation or promote disengagement. It also emphasizes the role of the feedback environment. For MER to be effective, they could be embedded within a system that encourages feedback-seeking behaviour, provides scaffolding for interpretation, and minimises cognitive overload. This is particularly important in contexts like Lesotho, where resource constraints may limit access to additional learning materials or teacher support. The theory therefore supports the need for deliberate integration of MER into instructional design, professional development, and learner engagement strategies. It also aligns with the recommendation that feedback should be an ongoing, dialogic process rather than a one-off event. FIT in this study is used to interpret and reflect on the meaning of findings to provide insight.

In conclusion, this chapter reviewed the literature sourced from different researchers on the utilisation of Mathematics Examiners' Reports, though more focus was on the perceptions and experiences of teachers and learners. The literature was sourced globally and regionally since a study of this kind has not yet been done in Lesotho. The chapter reviewed how consistently the examining bodies in respective nations prepare and provide the reports in the fight against common errors and weaknesses of learners which contribute to poor performance in Mathematics, hence the importance of undertaking the research.

Chapter 3

Research Methodology

3.0 Introduction

The previous chapter reviewed the literature along with the theoretical framework adopted in the study. This chapter provides the methodology followed in the study. It focuses on the design which informs the population and sampling. The data collection instruments; data analysis methods and procedures are also presented. The processes followed in the pilot study are as well shown. In addition, trustworthiness issues and ethical considerations are highlighted.

Although the study is located within an interpretivist paradigm, the concepts of validity and reliability are considered relevant as indicators of the soundness of interpretation rather than measures of objectivity (Arslan, 2025). In this qualitative context, validity refers to real measures undertaken and accuracy within which participants' meanings and experiences are represented, while reliability denotes the consistency and transparency of the analytical process (Ahmed, 2024). These concepts are retained to ensure alignment with the educational assessment context in which issues of validity and reliability are conceptually central. Thus, they are employed interpretively, not according to the positivist, to ensure rigor when generating and interpreting findings (Noble & Smith, 2025).

3.1 Research Design

The current qualitative study adopted the interpretivist paradigm as it enabled the researcher to gain an understanding of individuals' perceptions and interpretations of their world and to construct meaning even interpret the situation in terms of the meanings the participants bring to such (Tafai & Tsakeni, 2022). The mixed methods and qualitative methods designs were adopted in most of the various reviewed research studies that related to the current study. The current study then followed a qualitative research approach as a way of discerning in-depth meanings of events, occurrences, or phenomena from the perceptions of participants (Chivanga & Monyai, 2021). The teachers and learners were able to state their own perceptions and experiences on the use of Mathematics Examiners' Reports in their own understanding. Likewise, Rakotsoane (2018) says that qualitative research is about recording, analysing and

seeking to uncover the deeper meanings and significance of human behaviour and experiences, while also engaging with diverse perspectives and emotions.

According to Daniel (2016), a qualitative research approach views human thoughts and behaviour in a social context and covers a wide range to understand and appreciate human behaviours, which include interaction, thought, reasoning, composition and norms, which are studied holistically due to in-depth examination of views and beliefs. The close relationship from relevant conversations and interactions between the researcher and the participants, like teacher to learners, makes the participants contribute to the research (Daniel, 2016). The researcher respectfully approached the participants so that they could provide the data while at school: the environment in which they were comfortable particularly in a selected classroom allocated for their freedom to participate. Creswell and Creswell (2018) agree that a qualitative research enables the researcher to collect data in the participants' natural settings where the researcher is the key instrument for data collection. Supporting this, Chivanga and Monyai (2021) show that the qualitative methodologies enable researchers to conduct their studies in the settings in which the experience of interest occurs. The researcher is able to interpret their own direct experiences, and those of the participants who are affected by the use or non-use of reports, hence the researcher has access to perceptions and experiences which are often not possible to gain through using other research methodologies (Chivanga & Monyai, 2021).

3.2 Population and Sampling

The population in this study refers to all Grade 10 Mathematics teachers and learners in secondary schools within Maseru Urban. The participants become the sample within the population because they are believed to provide data to address the research problem (Taherdoost, 2016). Therefore, a Grade 10 Mathematics teacher and nine learners from each of the four schools in Maseru urban, participated within the target study population which is the totality of people, as sampling units or elements within which research is concerned (Chivanga & Monyai, 2021).

Sampling is defined by Jwili (2015) and Ahmed (2024) as the process involving the selection of a subset from a bigger population to become the basis for predicting or estimating the existence or prevalence of something unknown, like perceptions, beliefs or experiences about the bigger group, making a sample population of interest. A key factor in educational effectiveness is fair distribution and access to and application of curriculum resources, such as Mathematics Examiners' Reports (MER). However, significant differences in resource

availability and pedagogical exposure often persist between urban and remote schools (Shahanga & Kasambala, 2024). To effectively investigate how MER are used to enhance performance, a purposive sampling method was necessary. This approach allowed the research to be strategically situated in school contexts where the phenomenon of interest with the active use of MER was most prevalent, thereby allowing perceptive of the practices and experiences of Mathematics teachers.

This study therefore employed a purposive sampling, a non-probability technique to select schools and participants most capable of providing rich, relevant data for the research questions (Tafai & Tsakeni, 2022). Guided by reviewing the Lesotho General Certificate of Secondary Education (LGCSE) Schools' Performance Results and Statistics report from 2020 to 2023, four schools were deliberately chosen to represent key performance profiles: two consistently high-performing schools and two schools showing a clear pattern of gradual improvement over that period. This non-random selection ensured the inclusion of Grade 10 Mathematics teachers and learners from environments where the phenomena of academic success and improvement were actively occurring. The teachers and learners who were willing to avail themselves for interviewing and to allow the researcher to capture relevant data. Furthermore, the study was intentionally conducted in both public and private urban schools to capture a range of perspectives from contexts with potentially varying access to educational resources, a factor noted as influential in shaping learner views and experiences (Akhter & Akhter, 2018).

The teachers who participated in the current study provided the following information about the highest qualifications at the time of data collection:

Participants	Qualifications	Period of service	Subject specialisation.
Teacher A	Diploma in Education Secondary	10	Mathematics& Physics
Teacher B	Master of Education	37	Maths & Geography
Teacher C	Bachelor of Science in Education	2	Mathematics& Physics
Teacher D	Diploma in Education Secondary	10	Mathematics& Physics

Figure 1: Educational and Teaching Background of Participants.

The demographic items were also designed and included to provide background information on the participants and to report the findings for better interpretation (Lodico et al., 2010). These demographic items provided the information about the selected participants, such as the period of service, gender, highest qualification, teaching experience and subject specialisation. The information was meant to ensure relevance of the sample and reflect groups of participants that are represented or underrepresented in the sample under investigation.

3.3 Data Collection Instruments

There were instruments utilised to gather data from Grade 10 Mathematics teachers and learners such as: teachers' questionnaire, teachers' interviews and the learners' focus group interviews. The questions per instrument are referred to as items, where each of the instruments are in English as a medium of instruction in school setting. These research instruments are devices that were developed by the researcher to collect data to answer the research questions upon which the study is premised (Babbie, 2013). It is further indicated by Babbie (2013) that in a qualitative research method, data is collected using conversational methods, usually questionnaires since they are non-numerical as in this current study. In support of the view, the current study is questionnaire-oriented hence focuses on the experiences of the interviewees (Schumacher & McMillan, 2010). Validity and reliability of the instruments were verified, through pilot hence were corrected to measures what they intend to, for consistency of results over time and the ways of recording data were uniform for pilot and main study, like audio recordings to enhance reliability.

Table 1: Data collection Instruments and analysis considerations.

Research Question	Qualitative Data Collection Instruments	Key Analysis Considerations & Potential Methods
1. How do teachers perceive the use of the Mathematics Examiners' Report as a tool to enhance teaching and learning?	Teachers' Questionnaire Teachers' Interviews	Thematic analysis from open-ended responses to identify recurring themes from the views and beliefs on use of MER.

2. What are teachers' experiences on the use of the Mathematics Examiners' Report on their teaching of Mathematics?	Teachers' Questionnaire Teachers' Interviews	Thematic analysis to identify experiences from coding of transcripts of stories and specific practices related to use of MER
3. How do learners perceive the use of the Mathematics Examiners' Reports as a tool to inform their learning process?	Learners' Focus Group Interviews	Thematic analysis to identify perceptions of group members on the shared views.

The instrumentation provided in this methodology section is mapped to the research questions, by presenting the data collection tools and the analysis considerations related to each research question.

3.3.1 Research Questionnaire

The teachers' questionnaire had 14 sub-questions from the five main questions identified by their sections to ensure relevance of data to respond to the research questions such as demographic information, knowledge of MER, MER usefulness and frequency of its use, teachers' perceptions and experiences of teachers, including perceptions of learners. According to Etich (2019) semi-structured questions are a type of interview in which the interviewer asks only a few predefined questions, while the rest of the questions are not planned. It accommodates a large range of different responses from respondents. (*See Appendix G*).

3.3.2 Interviews

The interview questions for teachers and learners were structured using sections from the main research questions. The interviews for teachers had 12 questions within different sections such as, demographic information, preparing for teaching, utilisation of MER, perceptions on MER use, teachers' and learners' experiences on MER use, teachers' challenges on MER use, MER influence on instruction and suggestions for improvement. (*See Appendix I*).

There were four focus group interviews with nine learners per group per school which enabled the learners to contribute collaboratively into the study, with their views on the use of Mathematics Examiners' Reports in their learning process. The focus group interviews were

meant to enable learners to suggest ways to improve their performance in Mathematics. There were 11 questions under the following sections: demographic information, familiarity with MER, understanding of feedback-MER, use of feedback experiences, perceptions, influence on learning, and suggestions for making MER useful for learners. (*See Appendix H*).

The qualitative approach in this study used open-ended questions aligned with interpretivist epistemology by capturing subjective perspectives from teachers and learners and ontologically interpretivists acknowledge participants' unique realities by allowing free expression with one's own words instead of predefined response. For interpretivist, the interview also emphasizes knowledge through dialogue as the epistemological fit and to probe deeper into individual description for ontological alignment. Focus groups reveal ontologically that reality emerges through social intersection. Epistemologically, focus groups indicate that group dynamic generates rich insights because ideas are diverse.

3.4 Data Collection Methods

Primary data collection was done during the second session of the secondary school calendar in October towards end-of-year final examinations. The current study focused on the experiences and perceptions of teachers and learners on the use of MER from which the qualitative research embraces openness and employs methods such as open-ended questionnaire, in-depth interviews and focus group interviews among others to ensure a comprehensive exploration of the situation under study (Lim, 2024).

The data in this current study was collected using the three instruments that were tested through the pilot study. Those comprised the teachers' questionnaire, teachers' interviews and focus group interviews for learners. The instrumentation was used to collect data to answer the three research questions on the perceptions and experiences of teachers and learners. The schedules to visit the teachers and learners at the schools were recorded and followed by the researcher who was flexible enough to abide by the changing schedules when there was a need to do so as requested by the participants.

The heads of Mathematics departments were asked by the principals to ask one colleague to participate in the study. The very same day, the teachers who accepted the invitation met the researcher to get the consent form signed. The teachers' questionnaire was the first instrument

to be distributed. The teachers were given the questionnaire by the researcher to fill it on their own without any interference. The questionnaires were to be collected on the scheduled day.

It was suggested by the researcher that the participated teachers submit the questionnaires before the interview sessions so that the follow-up questions could be identified and clarified should there be a need. The teachers' interviews were held in the schools' premises using the allocated rooms. The teachers were aware and allowed the researcher to audio record the interviews using mobile phone. The recordings were carried out in a space that were allocated by the Mathematics department for interviews: Maths room, ICT lab, Deputy Principal's office, and the free classroom. Face-to-face interviews were meant to collect richly detailed qualitative data from the participants by asking relevant questions which yielded valid and reliable first-hand information (Paley, 2016).

Similarly, the focus group interviews were recorded for further data processing and analysis. There were nine learners per school in the groups. They were interviewed by the researcher in the same room but in the absence of the teachers. The learners collaboratively listened to one another as they responded to the set items that were meant to get information about their perceptions of the use of Mathematics Examiners' Reports in the teaching and learning of Mathematics.

There were nine learners expected per focus group interview per school making a total of 36 though in School D there were eight with one absent due to late-coming because the scheduled time for interview was 7.00 am during the morning study. Hence, there were four boys and four girls in School D, four boys and five girls in School C, three boys and six girls in School B and four boys and five girls in School A raising the total to 35 learners.

3.5 Data Processing and Analysis

Data Processing and Analysis from the Questionnaire, Interviews and Focus Group Interviews

Thematic analysis was used to analyse the data, which would be interpreted using three constructs of FIT, with data from the teachers' questionnaire, interviews and the learners' focus group interviews. The interviews were transcribed from the audio recorder, and were repeatedly read for the researcher to be familiar with the data. The Table of Analysis Framework (*Table 3*); was used to identify patterns corresponding to each of the research questions. Coding in the current study was conducted manually in Microsoft Word tables, from reading line-by-line on

the transcripts. The codes were in the form of labels of abbreviations attached to meanings on each piece of data (Creswell, 2013). The codes were assigned meanings under each of the three research questions. All codes were derived from meaningful features of the data that were highlighted using different colours. Those sections were then grouped into potential sub-themes or categories to bear specific labels (Creswell, 2013: Gay et al., 2012). The initial grouping involved teachers' perceptions, teachers' experiences, learners' perceptions and learners' challenges perceived by teachers derived from the data. Other labelling followed as the table below reflects. Thus, codes were developed using deductive coding from the research questions and literature review including inductive coding from participants' data to structure the data analysis and interpret the results as perceived and experienced by teachers and learners in the teaching and learning of secondary school Mathematics. According to Mphunyane (2021) in coding, data is categorised by attaching labels for better identification and interpretation.

For example, research question two: What are teachers' experiences on the use of the Mathematics Examiners' Reports on their teaching of Mathematics?

A question was asked from the teacher's interview schedule to Teacher C (T-C), under questions that informed research question two:

2.When do you use Mathematics Examiner Report's suggestions and recommendations in your teaching practices?

> *Eh! I would say almost every day, every time in class. (TE-MERUT)*
> *Not long ago in grade 10 treating angles in trigonometry, my recommendation would be don't round off along the way before you get to the final answer. (TE-MERUT)*
> *Another recommendation from the examiner's report will be that don't waste time using pencil, so I do recommend that immediately. (SMER)*
> *Another recommendation is the issue of significant figures and the issue of decimal places on angles. The examiners clearly state that the students must always write their angles correct to one decimal place. (SMER) & (T-MERUT)*
> *For significant figures it is usually stated that they should leave their answers to two significant figures or if it is not stated, if it is not stated it should be to three significant figures. (SMER) & (T-MERUT)*
> *Eh! For assessment purposes I keep on ironing out day in and day out. (MERU)*

5. What challenges do teachers face when using Mathematics Examiners Reports?

The challenges I get are usually from the learners.

Just like on the same example of rounding off, eh! Learners usually don't have that proper foundation of rounding off. (BCCL)

They don't even know what significant figures are. (BCCL)

Table 2: Analysis of Teacher Interview Transcript

Research Question	Theme	Sub-theme/Category - Description & Acronym	Sub-Categories
RQ.2. What are teachers' experiences on the use of the Mathematics examiner's report on their teaching of Mathematics?	1.Teacher C's experiences on the use of MER. (TE)	1.Frequency on MER use by teacher (TE-MERUT) 2.MER use on teaching addition and division of fractions (TE-MERU Fractions) 3.Topics on which MER was used by teacher? (TE-Topics MERUT) 4.Suggestions of MER. (TE-SMER)	 3.1 Guidance on specific areas. 4.1 Instructions
3.Emergent Themes	1.Learners' challenges Perceived by Teacher C (LC)	1. Basic concepts challenging learners (LC-BCCL)	1.1Rounding off 1.2 Significant figures

An initial coding framework for analysis was developed where deductive coding started with a pre-defined set of codes derived from research questions of the current study. While applying

the deductive framework, attention was given to new, unexpected, or nuanced concepts emerging from the data. These were captured through open coding, reading line-by-line to identify and categorise themes. The patterns emerged, these initial inductive codes were grouped, and elevated to sub-themes. This process ensured that the participants' unique voices and unanticipated insights were captured. The emergent themes were coded as: learners' challenges Perceived by Teacher. The codebook was continuously updated, with new codes added. After the first cycle of coding, all transcripts were re-analysed with the final, consolidated codebook. Related codes were then clustered to form overarching themes and sub-themes.

3.6 Pilot Study

The pilot study focused on the perceptions and experiences of teachers' and learners' use of the Mathematics Examiners' Reports on the common errors and weaknesses of learners in their learning of secondary school Mathematics. This pilot study was used as a small-scale preliminary activity meant to provide early warnings about the problems and changes of the schedules and procedures to reduce the likelihood of failure to improve data quality in main study (Lee 2025). Similarly, Strydom et al. (2005) reinforces that piloting is aimed at providing an indication of the necessary changes for the success of the main investigation, modification of strategies and procedures or determining the weaknesses and strengths of the investigation including reducing the expenses or shortening the duration of the study.

The pilot study was conducted at a selected school from the target population. Its purpose was to identify ambiguities in the instruments and refine the items for greater clarity and relevance. This process was meant to enhance the validity of the tools, ensuring they accurately measured the intended constructs, and their reliability, by promoting consistency in how they would be administered and interpreted.

3.6.1 Methodology

This current qualitative pilot study under the interpretivist lens was carried out in one local secondary school in Maseru district which was purposively sampled to test the approach, instruments and their items, data collection methods and procedures.

3.6.1.1 Sampling

The sample school met the criterion the researcher had chosen for school selection from the population of the Grade 10 Mathematics teachers and learners. It could be conveniently reached and was one of the well performing schools according to the ECOL LGCSE Results Analysis

Report of 2023 when the pilot study was carried out in the year 2024. The six Grade 10 learners were selected by the teacher, and comprised those who performed below average, two average performers and two well performing learners.

3.6.1.2 Instrumentation and data collection

Firstly, the teachers' questionnaire was administered to two Mathematics teachers followed by the recorded teachers' interviews and the Grade 10 learners' focus group interviews thereafter. The teachers were given two weeks to respond to the questionnaire while their interviews were held on the day the questionnaires were collected. Only one teacher was present during the interviews while the other had left unexpectedly and agreed to be interviewed telephonically.

3.6.1.3 Pilot Findings

The data collected was analysed thematically and the following were observed as teachers' perceptions, experiences and learners' perceptions on the use of Mathematics Examiners' Reports. The teachers perceived MER important for classroom practices to help teachers address learners' understanding of different concepts. The MER are perceived by teachers to guide learners to answer the questions to improve secondary school Mathematics. These MER are said to be indicators of learners' weak points and misconceptions including what learners have commonly missed and achieved. The teachers' experiences were to teach concepts using the Examiner's recommendations for classroom instruction and they made learners aware of the errors made by the previous groups so that such mistakes could be avoided during assessment. The learners perceived MER as reports by the Examiner after the Mathematics external examinations. The learners further pointed out that the Examiner evaluates teachers' and learners' work, focusing on areas not well taught or covered although the learners had not utilised reports at all. The teachers suggested the need to have MER prepared specifically for learners, since the present MER seem to be prepared for teachers with reference to the language and the descriptions used. The teachers suggested that ECOL could provide the most recent reports as early as possible to utilise them not long after the release of examinations results for classroom practices.

3.6.1.4 Ethical considerations

Adherence to ethical research standards was prioritised throughout the study. Prior to data collection, informed consent was secured from all participants. Two certified Mathematics teachers and six Grade 10 learners were provided with detailed consent forms outlining the study's purpose, procedures, potential risks, and benefits, as well as their right to withdraw at any time without penalty. Given that the learner participants were minors, written parental

consent was also obtained, ensuring ethical protection for vulnerable subjects (Cohen et al., 2017). The principle of confidentiality was rigorously upheld; all participants were assured that their identities would be anonymized in all transcripts and publications through the use of pseudonyms and that all data would be stored securely.

The pilot study was conducted to enhance the validity and reliability of the research instruments. The semi-structured teacher interview schedule and the learner focus group interview guide were administered to a small, comparable cohort not involved in the main study. This pilot phase confirmed the overall clarity and appropriateness of the questions for eliciting meaningful data on the use of Mathematics Examiners' Reports. However, minor modifications were implemented to refine the phrasing of several prompts and to adjust the sequencing of questions to improve logical flow.

A methodological adaptation was necessitated by unforeseen circumstances when one teacher participant was unexpectedly unavailable for an in-person meeting. To maintain the integrity of the sampling strategy and data collection schedule, this specific interview was conducted telephonically. The same interview protocol was followed, and the audio was recorded with the participant's explicit consent. This approach successfully yielded a transcript of comparable depth and quality to the face-to-face interviews, demonstrating the flexibility of the research design while upholding consistent data collection standards.

3.6.2 The Importance of Piloting and Changes Implemented

The pilot study activity specifically informed the instrumentation of the main investigation, hence shed light in many ways.

The ways such as eliminating some parts of the interview items which were repeatedly raised. The following examples can be cited:

Question 2 of the questionnaire was as follows and later improved for the main study data collection:

“Are you familiar with the Mathematics Examiner’s Reports? When did you first see them?” & (describe them).

Improved Question 2: Under the sub-theme; Knowledge of the Mathematics Examiner’s Report.

Are you familiar with the Mathematics Examiner’s Reports? When did you first see them?

The last part of the item was left unanswered “describe them” because the next question which is 3 a), requested a response in the form of a “description”. It was also noticed that the first and

second respondents could not respond to that last part of the item and the corrected is on the attachment list, (*Appendix – I).*

Question **3.**

a) What is your own understanding of the Mathematics Examiner's Reports?

Additionally, increasing the number of learners for focus group interviews was considered to guard against absenteeism, which changed from six to nine for the main study. The activity was also me

ant to ethically achieve the practicality of interacting with participants, meeting the set appointments and patiently adjusting to what the participants were comfortable with, like being physically or telephonically interviewed. Lastly, the LGCSE Schools' Performance Results and Statistics of 2020 to 2023 as provided by ECOL in the Ministry of Education and Training was considered in selecting schools that would participate in the study.

Several important lessons were learned from the pilot study, which informed both the procedures and the instrumentation of the main study. One key insight was the necessity of exercising patience and flexibility in accommodating participants' availability. In cases where participants had initially accepted interview appointments but later became unavailable, it was essential for the researcher to propose alternative arrangements, such as rescheduling the interviews or conducting them telephonically on a different date, such options that were subsequently accepted by the participants. Furthermore, the pilot study highlighted the importance of informing participants of interview appointments well in advance, followed by timely reminders closer to the scheduled date, to enhance participation and minimize cancellations.

On the other hand, the pilot study also informed several aspects of the instrumentation. The questionnaire and focus group items were refined and modified to ensure that they effectively elicited the intended data. In addition, the number of learners in each focus group was increased from six to nine to capture a broader range of perspectives and enhance the richness of the data collected.

The analysis undertaken in the pilot study was primarily confined to predetermined themes developed to address the research questions, with limited consideration of emergent themes that surfaced during data examination. This methodological limitation implied that certain segments of the data, which might have offered additional insights or broadened the scope of

the findings, were under explored. It then informed the analysis of the main study to use all findings from data.

3.7 Validity and Reliability

The validity of the current study was ensured through different strategies to enhance credibility by having accounted for patterns well and trustworthiness of the findings. Whereby validity is defined as the degree to which a scale measures what it is intended to measure (Bennigan & Watson, 2009). The instruments were tested through piloting to ensure clarity, appropriateness of language and were uniform in providing the intended data (Malepa-Qhobela, 2017). The collected data from teachers and learners in the school settings allowed diverse perceptions and experiences related to the use of Mathematics Examiners' Reports for triangulation (Cohen et al., 2018). Additionally, Cohen et al. (2018) triangulation helps to reduce potential researcher's biasness and hence increase confidence in the validity of the study due to multiple data collection sources that were used.

Those changes that were done to modify the instruments then contributed to the trustworthiness of the resulted data which could allow generalisability of results. The feedback received was incorporated into the data collection instruments (Abreh et al., 2018). Those instruments were the teachers' questionnaire and interviews including the learners' focus group interview. The validity within the current study has also been ensured through administration of the instruments at the four sample schools for main investigation.

Reliability refers to the stability of a measurement scale, that is, how far it will give the same results on separate occasions, and it can be assessed in different ways (Bennigan & Watson, 2009). One way for the current research to achieve this consistency is through documenting the procedures followed in the study (Yin, 2014). Similarly, this current study achieved reliability by following procedures when it was planned and carried out (Yin, 2014). These procedures include requisitions for permissions from the university, Lesotho's Ministry of Education and Training and the participating schools. Collection and analysis of data was described in detail to help achieve reliability. Reliability or dependability were enhanced through a consistent and systematic coding process, and guided by Braun and Clarke's thematic analysis approach of the year 2006. These strategies collectively ensured that the findings were both credible and replicable within similar educational settings.

3.8 Ethical Considerations

Ethical issues are important to consider in research for protection of the participants. The researcher obliged, therefore, by ensuring that the stakeholders were informed. Permission to carry out the study was also granted and the participants were respected and protected throughout the process of data collection. They were given the chance to propose their views concerning the types of interviews they would be comfortable with, such as face-to-face or telephonic. In addition, their permission was sought to record the interviews even when the interview was telephonic.

The researcher's educational institution wrote to the Ministry of Education and Training for permission to carry out the research at the schools, *(See Appendix A).* Then following the institutional clearance, the researcher's letter *(See Appendix B)* also was presented to seek the permission from the Regional Inspector Central who then issued the letter to the school principals by the researcher (*See Appendix C*). The researcher was allowed to undertake the research process, after providing the researcher's letter to the school principals, to carry out the study at the school as an approval for attachment, (See *Appendix D).* The teachers were then identified by the heads of departments to participate in the study, as assigned by the principal. (*Appendix E)* shows the participants/teachers' consent form, which sought their participation in the study, were distributed simultaneously with the teachers' questionnaires. The consent forms for the learners were also handed to one of the teachers to distribute to the identified learners for the parents' approval of the participation in the focus group interviews for minors. *(See Appendix F).*

On the day that was agreed to collect the consents and questionnaires and to carry out interviews, the researcher ensured that the participants were informed about their freedom to participate in the study by repeating the ethical issues before the teachers' interviews and the focus group interviews. Those concerned groups were informed about the confidentiality of all they were to provide for the success of the study upon indicating their willingness to participate in the study. They were made aware that their real names would not be used throughout the study. They were informed that participation was voluntary and they were free to withdraw from the study without any consequences or penalty. Additionally, there was no harm of any kind that the participants regardless of age would be exposed to. The researcher therefore asked the participants to be free to report to the researcher if by any chance they felt some of the information required during the interviews, with respect to their experiences, was sensitive.

The interviews were all conducted in private and secure spaces. After the collection and analysis of data on completion of the study, the external editor was involved and the is the letter from the editor. *(See appendix J).* It is emphasised by Creswell and Creswell (2018) that the outward auditor also reviews the research studies as one important role to consider.

3.9 Conclusion

This chapter discussed the design of the current qualitative study along with how the participants were selected. The testing of the instruments through piloting was presented, which resulted in some of the items in the teachers' questionnaire being modified. The research design adopted the interpretivist paradigm as explained in the chapter. The data analysis framework that guided the analysis of data was displayed. Lastly, the validity, reliability and ethical considerations were dealt with. The research methodology in the previous chapter was outlined while the preceding chapter now focuses on the presentation of the key findings from the data to answer the three research questions. The discussion chapter would interpret the findings relative to the reviewed literature and the theoretical framework for each research question including the emergent themes from the data.

Chapter 4

Presentation of Findings

4.0 Introduction

The aim was to explore Grade 10 Mathematics teachers' and learners' perceptions and experiences on the use of the Mathematics Examiners' Reports (MER), in the teaching and learning of secondary school Mathematics on attending to common errors and weaknesses of learners. In this chapter the analysed data of the main study is presented as findings from the questionnaires, interviews and focus group interviews. Each research question with preconceived theme is addressed through different categories and sub-categories and are highlighted. The table of analysis has presented the following results, with research questions, themes, categories and sub-categories. The participants are named using T-A for Teacher, T-B for Teacher B, T-C for Teacher C. As such, Collins (2018) posits that a theoretical framework enables interpretation of data through constructs that structured the study. The three constructs of the Feedback Intervention Theory (FIT) are aligned with the interpretations of the findings per research question as presented in the discussion chapter.

4.1 Research Question One

How do teachers perceive the use of the Mathematics Examiners' Report as a tool to enhance teaching and learning of secondary school Mathematics?

This research question explored how teachers perceive the use of the Mathematics Examiners' Report as a tool to enhance teaching and learning of Mathematics in secondary schools. The presented sub-sections are, description of Mathematics Examiner's Report, teachers' knowledge about Mathematics Examiners' Reports, how Mathematics Examiners' Reports are used, suggestions on use of Mathematics Examiners' Reports and teachers' views on learners' knowledge of Mathematics Examiner's Report.

4.1.1 Conceptualisation of Mathematics Examiner's Reports

The data highlights that the report is thought to be a teaching resource because teachers have views about its importance and how it could be utilised. Teacher C (T-C) mentioned that there is a good picture of learners' responses to the examination questions stated in the Examiner's Report. This further emphasises not only the weaknesses but strengths are also presented for

the current learners to follow and benefit. Thus, generally MER reflect strengths and weaknesses of learners.

T-C: *It is a detailed review written and compiled by the Examiner outlining a good picture of candidates' responses to the examinations. The reports include strengths and weaknesses of learners noticed.*

T-A: *This needs to be highlighted so that those learners about to be assessed could learn from such because the strengths and weaknesses are also part of the report that could benefit learners.*

There are responses that are expected by the Examiner for candidates to obtain the allocated points, including the incorrect answers with wrong approaches when answering questions. It is clear that the components of the MER show both positive and negative sides which could benefit learners for attainment of good results.

T-B: *It shows the expected answers and their workings or method. Then the report includes incorrect answers and wrong approach in answering the questions.*

Teachers highlighted in their descriptions, the learners' misconceptions and the suggestions on how they are cleared, as an additional point on MER as detailed document. It is then a guiding tool to elimination of what could hinder learners' understanding of new concepts and Examiners' expectations which could be a possibility when there are misconceptions.

T-B: *They are used to equip teachers and learners with correct or proper ways to tackle some misconceptions.*

T-A: *In the Examiners' report, the errors that have been done by learners during their examinations are given. There are errors and misconceptions that learners made and gives the suggestions on how to clear them*.

T-C: *Examiners' reports give the general overview of expectations from learners and very detailed.*

There is an indication that MER are helpful for learners and teachers specifically to be equipped on their approaches to classroom practices from the information in the previous examinations. It is therefore indicated that the report is considered a tool necessary for classroom practices to clear misconceptions.

T-B: *It is intended to help teachers think deeply about approaches to put into practice when teaching certain concepts in class based on the misconceptions of learners from previous exams.*

T-A: *It helps to clarify ways of helping learners to understand the concepts during teaching and learning process.*

These descriptions of the three teachers (T-A, T-B and T-C) indicate that the MER has detailed information about the learners, especially what they achieved, their strengths and weaknesses. MER a guiding instructional tool for teachers to help learners understand concepts according to the expectations of the Examiner to attain points. This is supported by Mulawo (2017) that teachers perceive reports to point concepts that learners perform poorly in the examination question. therefore, MER are perceived to be prepared for teachers and learners to inform their teaching and learning approaches.

4.1.2 Teachers' Knowledge and Awareness of Mathematics Examiners' Reports

The teachers have indicated various ways in which they knew and became aware of the Mathematics Examiners' Reports. The highest qualification obtained by T-B was a postgraduate degree in Master of Education.

T-C indicated that it was during the teacher training programme at the university while pursuing Bachelor's degree when the report was introduced in one of the education courses as a teacher supporting tool in the elimination of common errors and weaknesses of learners. The response indicated that the teacher training institution they attended incorporated the use of the report in the teaching of Mathematics, which seemed to be different from the researcher's own previous experience.

T-C: *I am familiar with the reports. I first saw them at the university as a learner.*

T-C had about two years of teaching experience in the year 2024 when the interview was undertaken and was trained as a Mathematics teacher. T-B who was the head of the Mathematics department (HOD) had about 37 years and an external Marker, and therefore long knew about the MER:

T-B: *I first saw the report in 1989 or 1990.*

T-C: *My colleagues in the previous school where I worked, used the reports when teaching.*

T-A indicated that MER was commonly used among them as colleagues in the previous school where they began teaching. In Clarke (2012), it is posited that teachers' competence while using MER increases when used collaboratively.

T-D was surprisingly at the best performing of the four schools that were selected for data collection. The Grade 11 external examinations performance in T-D's school was the highest of all the other three schools at that time, with reference to the LGCSE Schools' Performance Results and Statistics of 2020 to 2023 as provided by ECOL. Performance was the key criterion used by the researcher to select the four schools that participated in the current study. The two secondary schools with outstanding performance and the other two were contrasted to limit biasness in the data.

It was only T-D who differed and indicated that they did not know about the reports and had never heard about them. The questionnaire from T-D was submitted to the researcher blank just like it was before it was administered. This information was clarified during the interview session which the participant still attended and then the researcher responded when T-D asked what exactly the MER was. Initially, it was assumed that T-D chose to leave the questionnaire blank or could not create time to fill it, but it was later clear that the participant did not know about the MER.

T-D: *What actually is this Examiner's Report? I really don't know about it.*

Then T-D without knowledge and access of MER, after being provided with the description had views about the reports that they rectify mistakes and evaluate teaching therefore useful. In support of this issue Guskey (2002), mentioned that the use of MER is often dependent on the leadership support to the teachers for reflection.

T-D: *Oh! It helps a teacher to identify or evaluate her or his teaching. It is useful because it rectifies the mistakes.*

That was the view after the clarification provided by the researcher. The participant was thankful for the information and no further questions were directed to the researcher. All the four participants had specialised in Mathematics but had different teaching experiences and educational qualifications. Three out of the four participants knew about MER while one did not. All their similarities and differences did not determine their knowledge of MER in the teaching and learning of Mathematics regardless of school location although most of the participants were familiar with the existence of the reports.

4.1.3 Utilisation of Mathematics Examiners' Reports

Teachers indicated that there are ways MER are used for the learners with the goal to eliminate future mistakes. These reports are used as the teachers' responsibility for their identification and remediation to the learners' common mistakes and weaknesses like premature rounding of numbers, as one example. Thus, MER serve as useful documents meant for identification, remediation and elimination of common errors and weaknesses.

T-C: *They are useful and used by teachers to identify common mistakes and weaknesses of learners and attempt to eliminate such in the future*.

T-B: *MER are used to guide teachers on attempts to avoid repeated misconceptions, for accuracy and the extent to which a particular answer has to be given, like premature rounding off and level of accuracy*.

Teachers also indicated that the MER are used for assessment purposes as one way to timely introduce the expectations of the Examiner to prepare learners for national external examinations, because they are considered valuable. T-A also viewed the reports as the feedback used to inform learners about their performance. It was further highlighted that the reports were used for both teaching and assessments purposes quite often to develop certain skills in the learners to accurately follow the guidelines to improve their performance in Mathematics. Generally, MER are prepared as feedback for instruction and assessment purposes to improve performance.

T-C: *Eh! I use the reports quite often for assessment purposes and I keep on ironing out day in and day out. Thus, I use reports for both teaching and assessments purposes.*

T-A: *They are useful because they provide feedback on how the learners performed, also help to consider mistakes and errors encountered so that they can be clarified to the learners. Teachers have to provide good explanations on how learners should answer questions, especially when we are preparing learners to write their final examinations.*

T-C: *We must develop skills, eh! In the learners because they must develop certain skills that will help them follow correct guidelines.*

T-B: *MER are generally used to equip both teachers and learners with correct even proper ways to tackle some misconceptions.*

The MER are perceived by the participants to be useful feedback to identify common errors, weaknesses, mistakes, and misconceptions for remediation. All these are meant to prepare well

for overall assessment as an obligation for teachers. Identification and elimination of common mistakes and weaknesses daily for use on timely preparation for examinations, development of skills to strive for improved performance.

4.1.4 Teachers' Suggestions for Effective Use of Mathematics Examiners' Reports

The common mistakes or misconceptions highlighted in the Mathematics Examiners' Reports need to be quickly dealt with as they are dangerous. Teacher C offered a suggestion to improve learners' Mathematics performance. These suggest that it should not take long for teachers to attend common errors and weaknesses of learners to avoid recurring incorrect responses.

T-C: *These common mistakes or misconceptions need to be dealt with as they are dangerously misdirecting learners.*

T-C further suggested that the reports be short and straightforward to avoid them being a huge paperwork to read. The report had to be broken into chunks and concise to avoid it being tedious and not being user-friendly. T-C further suggested one other issue of accessibility of the contents of the Examiner's Report. It is therefore implied that MER be prepared in sections of different concepts for access with focus and ease.

T-C: *Eh! I would recommend that reports be short and very straight forward. Must not be a huge paperwork to read, must be very short just straight to the point. I think they should break it down into chunks, not long and tedious, so must be user-friendly and concise. Should be accessible in broken chunks. Suppose in a twenty-page document, when I want to read only about rounding off, I should just click on "Rounding off".*

T-B was also concerned about accessibility of MER to learners and had a view that teachers should make reports accessible to the learners. T-A also contributes towards improvement on the use of MER relative to inclusion into the syllabus as one of teaching documents. Thus, incorporating MER into the syllabus would make it accessible to learners as the syllabus because it is used daily.

T-B: *They must be accessible to the learners and teachers should make them accessible to the learners.*

T-A: *What I can suggest is that Examiners' reports should be considered in the syllabus that is given to the teachers to teach learners. So that continually when one assesses learners, there is an Examiner's report for each and every assessment.*

T-A additionally reported that since the Examiners' Reports have their own language, which becomes a big challenge for most teachers, workshops are needed to help teachers understand the language. Teachers' workshops should also incorporate marking learners' examinations to get used to marking examination questions. The CPD on understanding MER use and marking of examination questions are a need for teachers.

T-A: *The challenge teachers identify is allocation of marks. Again, the Examiners' reports have their own language, so most teachers are not given workshops for marking learners' examinations because they are not markers, so it is a big challenge to understand the language that has been used in those reports.*

The length, clarity and concept accessibility of Mathematics Examiners' Report with the use of internet were raised as concerns by the participants. These suggest that teachers should attend common errors and weaknesses of learners to avoid recurring incorrect responses. It is therefore implied that reports be prepared in sections of different concepts for access and ease. Then incorporating MER into the syllabus would make it accessible to learners as the syllabus is used daily for teaching and learning of secondary school Mathematics. Necessarily, CPD on understanding MER use and marking of examination questions are a need for teachers to improve their teaching strategies.

4 1.5 Teachers' Views on Learners' Knowledge of Mathematics Examiner's Reports

The teachers had views on what learners knew about MER. The two teachers, Teacher-A (T-A) and Teacher-C (T-C) mentioned that Mathematics Examiners' Reports are not made accessible to learners hence those learners did not understand the reports and the learners were said to have no idea about the reports, whether they existed or not. This reflects lack of exposure or awareness among learners on the use of MER for elimination of common errors and weaknesses.

T-A: *They are not exposed to the reports, they are lazy to read and understand when exposed them, instead they just look at the correct answers not even considering how they are derived.*

T-C: *They are not exposed to the reports therefore they have no understanding of them. They have no idea what the reports are, or if they exist or not. Then they do not have suggestions for making the reports more useful for their learning.*

It appears therefore, that the contents of the reports are unknown to some learners like teachers do, hence suggestions and recommendations about the common errors and weaknesses may not be attended to by the learners in future examinations.

T-A: *Learners are unable to understand some of the suggestions from the reports on their own without the teacher who understands better and can help the learners to understand what they are supposed to do.*

It is also partially agreed that only a few learners were aware of the reports. Those few learners became interested after they were made aware of the reports. Their interest helped them to perform above average because they knew what the reports entailed, such as answers provided by the Examiner, then they notified the other classmates. The implication is that those learners who accessed the MER know about the contents of the reports and further sensitised their classmates about their importance.

T-B: *Most of the learners are not aware of the report while a few are aware of them. Even when teachers tell them to check on the reports, only those few interested learners who perform above average tend to know what the reports entail.*

The perceptions of the teachers were explored and the MER is perceived a teaching and learning tool that is not exposed to learners. This means that the contents of the MER are unknown to learners hence the recurrence of incorrect examinations questions. Conversely, those who accessed MER are familiar with the contents which they felt need to be shared among learners.

4.2 Research Question Two

What are teachers' experiences on the use of the Mathematics Examiners' Reports on their teaching of Mathematics?

The research question aims to understand how teachers engage with the Examiners' Reports, the extent to which it influences their instructional decisions while striving to improve the teaching and learning of Mathematics. The teachers' experiences with using the Mathematics Examiners' Reports in their teaching were explored and various responses emerged. The following sub-categories, under the preconceived theme; teachers' experiences, are discussed to show what teachers experienced, frequency on Mathematics Examiners' Report use by teacher, Mathematics Examiners' Report use on teaching addition and division of fractions, topics on which Mathematics Examiners' Report was used by teacher and suggestions from Mathematics Examiners' Reports.

4.2.1 Frequency on Mathematics Examiners' Reports Use by Teachers

The Mathematics teachers provided their different ways in which they used MER for assessment and instructional purposes on specific concepts. They ensured that learners are guided on recommended ways to answer the examinations questions specifically directed to those concepts commonly missed. Teachers have experienced the use of MER and their motivation allow them to frequently implement the recommendations in MER regarding foundational concepts such as rounding off numbers.

T-C: *I use them almost all the time. During assessment sessions, the learners I teach always receive tips and guidance on specific areas of answering questions correctly. Not long ago in Grade 10 while treating angles in trigonometry, my recommendation would be "don't round off along the way before you get to the final answer".*

T-C also indicated that learners are guided with the Examiners' reports whenever it is remembered during instruction. Through the experience of marking external examinations for many years, T-B witnessed that there are more misconceptions every year, subsequently, they always make sure they support their teaching with Examiners' reports most often as a department in their school. This suggests that the teacher uses the report most often in the teaching of Mathematics and believes in its supportive role of MER in the classroom.

T-C*: What I do is to guide learners with Examiners' reports when I remember to do so because there are many things to work on in the examination questions*.

T-B: *I was a marker for many years so I know there are more misconceptions every year, as a result, we always make sure that we present our teaching with Examiners reports every year as the department. I use the suggestions almost every time, when need be.*

T-A similarly mentioned that the Examiners' Reports are used almost all the time when preparing learners to write final examinations also during the teaching and learning process. They use the errors committed by past learners to support the current ones. Teachers also used MER more often in preparation for external examinations, supporting assessment strategies.

T-A*: When preparing learners to write their final examinations, I use the Examiner's report because it helps with correction errors and suggestions on how to help learners to stop repeating the mistakes. Most of the time the mistakes are common, so a good explanation on how learners answer questions well, is made on time.*

The three teachers (T-C, T-B and T-A) were able to provide incidents when they put into practice the use of the MER exclusive of T-D who had never used MER. They were motivated

to use MER regularly to support foundational concepts in preparation for more complex concepts. The MER were also used for final examinations purposes.

4.2.2 Application of Mathematics Examiners' Reports in Teaching Addition and Division of Fractions

Findings revealed a general concern regarding the extent to which Mathematics Examiners' Reports (MER) are applied in the teaching of key mathematical concepts such as fractions. Teachers suggested that, although MERs provide valuable insights and recommendations intended to address common learner misconceptions, their use in instructional practice remains limited. The following excerpts illustrate teachers' experiences concerning how, and to what extent, MER recommendations are utilised to inform the teaching and learning of mathematical concepts:

T-C: *They are not usually used but I remember one Examiner's report recommendation, for example, showing a missing sign in -4/2 where 2 was the answer instead of -2*. P*ersonally, I have not used the Examiner's report suggestion for teaching and learning of addition and division of fractions*.

T-A, on this issue, only indicated that in the syllabus it is stated that a teacher can teach the learner in a certain way although the Examiner's Report does not reflect what the syllabus has suggested then a need for one resource to back up another for better performance of learners. Likewise, in the case of T-B, any of the resources available are used that can limit misconceptions. T-B added that the suggestions and recommendations of MER influenced the learning of division of directed numbers mostly on negative signs, by the rule which T-B mentioned, as like signs give positive. This was considered to be very useful. Teachers believe that MER are resource tools that could be used concurrently with other resources to work towards the common understanding in awarding points when marking examinations questions more especially on addition and division of fractions:

T-A: *When considering a question in addition of fraction, in most cases the syllabus shows that when adding fractions, first find the Lowest Common Multiple (LCM), but in the Examiners' reports it is said even if a learner did not find LCM but multiplied the numerator, still the learner be awarded the marks.*

T-B: The report is not necessarily a core resource for addition and subtraction of fractions. Internet worksheets are mostly used for addition and division of fractions instead.

The suggestions and recommendations of MER were utilised for reference during instruction to attend division of directed numbers. Teachers realised while implementing the recommendations that MER are resource tools that could be used concurrently with other resources to further understand awarding of marks to learners when marking examinations questions such as addition and division of fractions.

4.2.3 Curriculum Topics Informed by Mathematics Examiners' Reports

There appeared to be some concepts that T-C raised on which the Mathematics Examiners' Report was used in their classroom teaching. The topics such as the treating of angles' sizes in trigonometry, on which the teacher's recommendation was made to the learners. This indicates that rounding off angles' sizes to one decimal in trigonometry and to stop the use of a pencil to solve problems, were specifically emphasised in classroom teaching and learning. Also to highlight use of three significant numbers when it is not specified:

T-C:

> *Not long ago in Grade 10 while treating angles in trigonometry, my recommendation would be "don't round off along the way before you get to the final answer." Another recommendation from the Examiner's report is that 'don't waste time using pencil', so I too do recommend that immediately. Another recommendation is the issue of significant figures and the issue of decimal places on angles. The Examiner clearly state that the learners must always write their angles correct to one decimal place. For significant figures, it is usually stated that they should leave their answers to two significant figures or if it is not stated, it should be to three significant figures.*

It is therefore implied that the recommendations of the Examiner while teaching trigonometry regarding angle size is important. The angle size always to one decimal place and number of significant figures when mentioned or not.

4.2.4 Instructional Suggestions from Mathematics Examiners' Reports

The Examiners' Reports have suggestions and recommendations to eliminate common errors and weaknesses. T-C seems to be informed by the suggestions and recommendations from their early introduction to the Mathematics Examiners' Report usage for classroom instruction and assessment. T-C indicated that the recommendation is passed immediately onto the learners just as it is. The learners are advised to use their pens straight away to avoid time wasted on rewriting. Another recommendation by T-C is the issue of significant figures and the issue of

decimal places on angles sizes. It is implied that teachers identified suggestions and recommendations they used from the MER for either assessment or classroom instruction:

T-C: *Don't waste time using pencil*.

T-C: *The Examiners clearly state that the learners must always write their angles correct to one decimal place. For significant figures it is usually stated that they should leave their answers to two significant figures or if it is not stated, it should be to three significant figures.*

T-A reflected that sometimes the Examiners' Reports are far different from what is expected from the syllabus. For example, the Examiners Reports seem to view the learners' processing of answers in a different way because they say even if a learner did not find the LCM but multiplied the numerator, the learner is still awarded the marks. This shows inconsistency in the resources to direct teachers for teaching and learning of fractions while teachers understand their importance in tackling learners' underachievement.

T-A: In the syllabus, you will be told that you can teach the learner in a certain way but the Examiners' report does not reflect what the syllabus has reflected. For example, when you take a question on addition of fraction, most of the time you will find in the syllabus that when you add fraction first and then find the LCM but the Examiner's report says even if a learner did not find the LCM but multiplied the numerator you still award that child the marks.

It is implied that teachers identified suggestions and recommendations they used from the MER for both assessment or classroom instruction. There reflects inconsistency in the resources such as MER and the syllabus in the teaching and learning of fractions while teachers understand their importance in tackling learners' underachievement. This aligns with the believe that Mathematics Examiners' Reports as resources that provide information about learners' performance, common errors and areas of weakness identified during external examinations. MER are intended to inform and support teachers in refining their instructional practices as per concept in the Mathematics syllabus aligning the instructional practices with assessment expectations.

4.3 Research Question Three

How do learners perceive the use of Mathematics Examiners' Reports as a tool to inform their learning of Mathematics?

The research question serves to unfold the perceptions of learners on the use of Examiners' Reports as a tool to inform their learning of Mathematics. The learners presented their different

views about MER under the preconceived theme: learners' perceptions on the use of MER, in the following sub-themes or categories of learners' perceptions, Mathematics Examiners' Reports as a teachers' guide, description of Mathematics Examiner's Report, use of report, learners' views about Mathematics Examiners' Report, benefits from Mathematics Examiners' Report and learners' suggestions on Mathematics Examiners' Report use. The schools are named as School-A (S-A), School-B (S-B), School-C (S-C) and School-D (S-D).

4.3.1 Understanding of Mathematics Examiners' Reports from Learners' Perspective

The learners from the two focus group interviews in the two schools (S-A and S-D) could not provide any information about MER while the other two groups from S-B and S-C did. In both focus groups that contributed data, only a few of the learners in each group demonstrated awareness of the significance of the Mathematics Examiners' Reports (MER). Concerning the other participants, the reports were entirely unfamiliar, as they indicated that it was their first time learning of their existence. Consequently, these learners were unable to provide meaningful input or reflections, even when prompted to elaborate further.

The description of the MER was provided as a report prepared by teachers on general performance from Mathematics final examinations. This is an indication that the learners knew about the existence of MER:

> *They are reports prepared by teachers after writing Mathematics final examinations.*
>
> *The report that is derived from general performance in Mathematics in a particular year of study for the LGCSE candidates.*
>
> *It shows the answers that were expected, common errors that were done by candidates and advice on the recommendations what teachers and learners should do so that their performance will be improved.*

The learners had knowledge about MER and that it consists of answers that were expected from the learners in the examination questions. The MER also highlight the common errors that were made by candidates and the recommendations that teachers and learners should implement to address mistakes in the future. It therefore shows MER to have expectations of the Examiner about learners and the common errors that need to be eliminated to improve Mathematics performance.

4.3.2 Mathematics Examiners' Reports as a Pedagogical Guide for Teachers

The learners perceive the guidance of the Mathematics Examiners' Reports in two different ways. Firstly, the reports guide teachers on how to approach certain topics. Secondly, they inform teachers on certain aspects of the topics that need emphasis for learners to fully comprehend. Then learners appealed that they all should use the reports and ask teachers for further understanding:

> *It guides teachers on how to approach certain topics and it also tells teachers certain aspects of the topics that have to be emphasized so that learners are able to comprehend fully.*
>
> *All learners should use the reports and ask teachers when they don't understand.*

The learners also explained that they do not find the reports helpful because they mostly guide teachers more than learners:

> *I do not find them as helpful because it mostly guides teachers more than learners.*

The learners' perceptions of MER are, a guide to address specific concepts and an informative tool for teachers to attend to the concepts that learners do not understand hence, a valuable resource to be utilised by all other learners. It is further thought to guide learners with the assistance from the teachers because of the instructions that are perceived to be understood by teachers to support learners through suggestions and recommendations provided in MER.

4.3.3 Learners' Perceptions of the Use of Mathematics Examiner's Reports

According to learners' views, there were those who had used the reports and those who had never used them. They indicated that they had only used suggested answers from the reports to compare with their answers. The learners also showed that sometimes they only referred to the answers when the teacher was not present to determine the possible common mistakes:

> *I have only used suggested answers which I compare with my answers.*
>
> *I only use those answers when the teacher is not there to ask. I once used the suggestions on some questions where candidates were made aware of the possible common mistakes. The provided suggestions improved my Mathematics skills to add more onto what I already know.*

The learners needed clarification about ways to access the MER. This implied that learners did not know about accessing MER.

Where exactly do we get them?

The researcher responded to the question and they nodded with appreciation. When the researcher asked for clarification on ways in which the learners knew about the Examiners' reports. The response was provided that showed there are some teachers who helped learners access MER for their learning:

From my Mathematics teacher.

The interviews proceeded covering all the prepared items. Although there was awareness of the reports, not all learners had used their suggestions and recommendations to enhance learning of Mathematics to improve the outcome. For example, the following response was captured on how learners could benefit from the Examiner's comments:

> *I have not used the suggestions and recommendations from Mathematics Examiners' report to improve my study habits. I only know about its importance*.

Generally, learners know about the existence and importance of MER although they were not familiar with their accessibility. Their enthusiasm seems to be an indicator that MER would be a tool for all through the guidance of the Mathematics teachers.

4.3.4 Learners' Attitudes towards Mathematic Examiners' Reports

The Examiners' reports are viewed by learners as unhelpful to them in the absence of the teacher when no one interprets contents of such. The learners viewed those reports as presented with the language that is understood by teachers hence, they are for teachers and their contents and descriptions are understood mostly by teachers while the learners can only see answers:

> *I do not find them as helpful because it mostly guides teachers more than learner.*
>
> *They are not helpful to the learners but for teachers and they have only answers and long descriptions understood by teachers.*
>
> It is implied that language used in the MER is a barrier against learners to access the contents of the feedback.

4.3.5 Perceived Benefits of Mathematics Examiners' Report for Learners

There were learners who accessed the reports and indicated that they had helped significantly because there were certain common mistakes that they always made, but they became aware of these mistakes and were able to avoid them after receiving advice from the Mathematics Examiners' Reports.

They have helped a lot on certain common mistakes that I always made, but I'm now aware of what to avoid because I saw that in the Mathematics reports. They helped me work towards the correct answers.

The reports helped the learners who accessed them to get their responses right in their learning to improve their performance in Mathematics. The learners realised the mistakes they made and the comments from MER had positive impact on their learning of Mathematics.

4.3.6 Learners' Recommendations on the Use of Mathematics Examiners' Reports

The interviewed Grade 10 learners suggested that MER should be a detailed document with workings and solutions, as their proposal about MER structure and components, because some the questions do not have detailed workings, instead, they give expected answers only and learners cannot see how answers were derived. They also regard the reports as helpful for teachers to improve their teaching skills to use throughout the year before learners write external examinations. The learners need more of the contents of MER accessible to their understanding which could also help improve pedagogical skills of teachers.

Some of the questions don't have detailed workings. They give expected answers only and learners cannot be able to see how to get the answer. So, I suggest that there should be an expected detailed working with the solution for each question. It can also help teachers to improve their teaching skills.

The learners also suggest that MER be utilised during the course of the year but the year before their final year which could help them get used to the expectations of the Examiner. They suggested that all learners should use the reports and ask teachers when they do not understand and for teachers to explain the suggestions provided in the, where varying perceptions emerged across the focus groups:

The reports can be used the year before we write exams, throughout the year.

All learners should use the reports and ask teachers when they don't understand. The teachers should also explain the suggestions of the reports to learners.

The learners appeal for a need to have MER as a user-friendly document with the instructions clarified for them. They consider display of the workings with the solutions to be important, which could impact teachers' pedagogical skills positively, especially when MER are utilised by both groups, teachers and learners throughout the year before their final examinations.

4.4 Emergent Themes from Data Analysis

4.4.0 Learners' Challenges as Identified by Teachers

There was another theme that emerged in the data gathered from the Mathematics teachers regarding the learners' challenges as perceived by the teachers. The teachers provided information about the challenges that learners face in their learning of basic concepts in Mathematics and those learners who have accessed the Mathematics Examiners' Reports but who find it difficult to reflect on them. Thus, MER seemed to be prepared not for learners because they do not understand its contents.

4.4.1 Foundational Concepts that Pose Difficulties for Learners

Several Mathematics concepts challenge learners but only a few were raised by the participants in this current study, as basic and outstanding. These include: rounding off decimal numbers to a specified number of decimal places, significant figures, division of directed numbers with negative signs and presentation of answers without the workings. These are the components of many other Mathematics concepts that teachers feel learners must have a proper foundation:

T-C: *The challenges I get are usually from the learners. Just like on the same example of rounding off, eh! Learners usually don't have that proper foundation of rounding off. They don't even know what significant figures are. That is the challenge learners have because they seem to lack knowledge on what to do*.

T-A: *MER make learning easier especially on concepts that challenge most of the learners, like on their struggle with division of negative directed numbers*.

The other challenge raised by T-A was that some learners do not show the workings hence lose a lot of marks when the answers are wrong, which means that learners fail to be awarded total marks when they are not showing their understanding of the detailed steps to the final answer.

T-A: *For example, if a learner is given a question and the answer is wrong and does not show the working, the learner loses a lot of marks. They tend to depend on marked papers, with one other challenge being one question that is described differently per year.*

The concepts such as rounding off decimal numbers to a specified number of decimal places, significant figures, division of directed numbers with negative signs and presentation of answers without the workings have raised concerns to Mathematics teachers. The learners face

more challenges that need intervention from the teachers for learners to attain satisfactory achievement in these areas.

4.4.2 Learners' Contemporary Reflections on the Use of Mathematics Examiner's Reports

The secondary school Mathematics teachers in their interviews mentioned that a few learners had accessed the Mathematics Examiners' Reports but found it difficult to reflect on it. They consider the MER not easily accessible for learners to understand its contents. T-B felt that learners take MER as useful though a complicated document because it is not written in a simpler way for learners to understand, also that MER could be incorporated in the syllabus for consistent recommendations:

T-B: *They take it as the complicated document as it is not written in a simpler way so that they can understand it. This also suggests that reports could be considered in the syllabus.*

The teachers showed a considerable concern towards merging MER use with the Mathematics syllabus. It is thought would allow engagement on the use of MER for learners to benefit maximally, incorporating all other aspects necessary for improvement of performance in secondary school Mathematics teaching and learning.

Chapter 5

Discussion of Findings

5.0 Introduction

The discussion section of this current study interprets and explains the findings according to the three research questions and emergent themes relative to the presented framework while the previous chapter presented the findings from the thematically analysed data. Those research questions guided the exploration of the perceptions and experiences of Mathematics teachers and learners on the use of Mathematics Examiners' Reports (MER) on common errors and weaknesses in the teaching and learning of secondary school Mathematics. The next and last chapter presents the conclusion and recommendations of the current study also stating the limitations to suggest further research in this area.

The study contributes to the Feedback Intervention Theory (FIT) by showing how Mathematics Examiners' Reports (MER) function as a form of feedback within the teaching and learning of Mathematics. According to FIT (Kluger & DeNisi, 1996), feedback is most effective when it helps learners and teachers focus on improving the task rather than on personal factors or feelings of failure. The study shows that when teachers use MER to identify learners' common errors and adjust their teaching strategies, feedback operates at the task level and supports better learning outcomes. However, when MER is not used or is misunderstood, opportunities for improvement are missed. The study therefore extends FIT by demonstrating that the usefulness of feedback also depends on school conditions, teacher support, and professional development. In this way, the research adds to Mathematics education theory by showing how external feedback, such as MER, can guide teaching practices and help close performance gaps in Mathematics.

In the integration of FIT, the study does not only describe perceptions and experiences but also interprets them through the lens of feedback effectiveness, illustrating how MER can direct attention, inform corrective actions, and ultimately support improved Mathematics learning outcomes. This engagement ensures that the theoretical framework is coherent with the research objectives and questions, guiding both data collection and analysis:

research questions 1: How do teachers perceive the use of MER as a tool to enhance teaching and learning? FIT informs this by examining whether teachers view MER feedback as actionable for improving instruction. 2: What are teachers' experiences on the use of MER in their teaching? FIT frames the understanding of how teachers act on feedback, including the constraints and facilitators influencing their practice. 3: How do learners perceive MER as a tool to inform their learning? FIT underlines the conditions necessary for learners to internalize and benefit from feedback, such as clarity, guidance, and relevance to learning tasks.

5.1 Research Question One

This section discusses the findings in relation to Research Question One: *How do teachers perceive the use of the Mathematics Examiners' Report (MER) as a tool to enhance teaching and learning of secondary school Mathematics?* The MER is generally perceived by teachers as a valuable instructional tool, although its use and impact are influenced by factors such as teacher awareness, training, accessibility and institutional support.

The findings show that Mathematics Examiners' Reports (MER) are understood by teachers as useful teaching resources rather than just post-examination summaries. This supports the earlier assumption in the statement of the problem that MER could be used to improve the teaching and learning of Mathematics if teachers make better use of them. Teachers in this study viewed MER as detailed documents that show how learners performed in Mathematics examinations, including both their strengths and weaknesses. The reports were also seen to describe common learner errors, misconceptions, and the correct methods expected by examiners. Such information helps teachers identify areas where learners struggle and plan lessons that focus on correcting misunderstandings. This agrees with findings from previous studies, such as Mulawo (2017), which noted that teachers use examiner feedback to find out which Mathematics concepts learners perform poorly in. Additionally, Rushton (2014) emphasized that MER often detail common errors in Mathematics, such as calculation mistakes or misreading questions, which can guide teachers in addressing specific areas of difficulty. In the Lesotho context, the Examinations Council of Lesotho (ECOL) produces annual MER to identify learners' strengths and weaknesses and provide targeted recommendations for instructional improvement (Hewitt-Bradshaw, 2012).

The findings on teachers' knowledge, awareness, utilisation, and views regarding learners' access to Mathematics Examiners' Reports (MER) confirm the earlier assumptions that while MER hold great potential for improving the teaching and learning of Mathematics, their use remains inconsistent and underdeveloped in practice. The statement of the problem suggested that limited awareness and lack of structured use of MER among teachers and learners contribute to repeated learner errors and weak performance in Mathematics examinations. The present data support this assumption by showing that although most teachers knew about MER through teacher training, experience as markers, or collaboration with colleagues, some teachers, such as T-D, were unaware of their existence or purpose. This finding reflects unequal exposure to professional development opportunities and inconsistent institutional support for the use of MER, as also raised by Guskey (2002), who emphasised the role of school leadership and professional learning in enabling reflective teaching practice.

The results further reveal that teachers who were knowledgeable about MER perceived them as valuable teaching and assessment tools used to identify, correct, and prevent common learner errors in Mathematics, such as premature rounding and misconceptions about accuracy. These findings align with literature reviewed earlier (e.g., Clarke, 2012; Mulawo, 2017), which highlights that collaborative and informed engagement with examiners' reports strengthens teachers' pedagogical decisions and helps target persistent learning difficulties. The teachers' suggestions to make MER more accessible, concise, and integrated into the Mathematics syllabus also reaffirm earlier assumptions that structural and institutional factors influence the effectiveness of feedback in Mathematics education.

The perspective of Feedback Intervention Theory (Kluger & DeNisi, 1996) is that MER act as a feedback tool that helps teachers and learners close the gap between what is currently understood and what is expected. The teachers' comments show that the reports guide them to reflect on their teaching methods and improve their classroom practices. By using the reports to address learner errors and reinforce correct problem-solving approaches, teachers make feedback more meaningful and focused on improving understanding. Therefore, the findings confirm the assumption that when teachers and learners engage with MER, feedback becomes an important part of learning Mathematics, supporting progress toward better performance in future assessments. It is also demonstrated that MER function as a form of external feedback that directs teachers' and learners' attention to gaps between current and expected performance. Teachers' use of MER to clarify misconceptions, guide examination preparation, and inform

instructional strategies reflects feedback that operates at the task and process levels, helping learners focus on understanding rather than just memorising procedures. However, the lack of learner access to MER, as indicated by most teachers, shows a break in the feedback loop that FIT emphasises as essential for performance improvement. Only a few learners who had been introduced to the reports developed awareness of examiners' expectations and performed better, illustrating how feedback, when internalised, enhances self-regulation and learning outcomes

5.2 Research Question Two

This section discusses the findings related to Research Question Two: *What are teachers' experiences on the use of the Mathematics Examiners' Reports (MER) in their teaching of Mathematics?* The teachers who are familiar with MER tend to integrate its recommendations into their teaching practices, though with variations in frequency, depth, and topical relevance. The teachers' experiences reflect both the potential and limitations of MER as a professional resource in the Mathematics classroom.

The findings on the frequency and application of Mathematics Examiners' Reports (MER) by teachers confirm the earlier assumption that the reports, when consistently used, can serve as an effective feedback tool to improve both teaching and learning of Mathematics. As outlined in the statement of the problem, it was assumed that the underutilisation of MER contributes to persistent learner errors and misconceptions in external examinations. The data reveal that most teachers (T-A, T-B, and T-C) reported using MER frequently, especially when preparing learners for final examinations and when addressing common mathematical misconceptions such as rounding off errors and incorrect use of signs in fractions and trigonometry. Addition and division of fractions as foundational concepts in secondary school Mathematics where learner misconceptions frequently occur and MER recommendations can provide guidance for teaching and learning. This supports the literature reviewed earlier Clarke (2012) and Mulawo (2017), which emphasised that regular engagement with examiner feedback promotes teachers' awareness of common learner difficulties and encourages corrective teaching approaches.

Accordingly, Nicodemus and Kihwele (2024) highlighted challenges such as underutilization of feedback due to accessibility issues, also noted that some teachers who accessed and used the feedback reported improvements in their classroom teaching practices. Similarly, Hoth (2022) emphasizes the importance of teachers' ability to recognize and correct misconceptions

to improve student learning outcomes. The teachers' frequent use of MER to strengthen foundational concepts also suggests motivation and professional commitment to improving learners' problem-solving accuracy and conceptual understanding. However, the finding that one teacher (T-D) was unaware of MER and that others used them inconsistently reflects the challenge of unequal access and institutional support noted in previous research.

In relation to Feedback Intervention Theory (Kluger & DeNisi, 1996), these findings illustrate that MER function as a feedback mechanism directing teachers' and learners' attention to the gap between current and desired performance. Teachers' frequent reference to MER during lessons and assessments represents feedback at the task and process levels, as they guide learners on specific examination expectations and correct problem-solving procedures. However, the partial use of MER in some mathematical topics, such as addition and division of fractions, shows that feedback is not always fully integrated into instructional practice, limiting its potential to improve deeper conceptual understanding. The observed inconsistencies between MER recommendations and syllabus guidelines, as raised by T-A, suggest a need for alignment between assessment feedback and curriculum instruction to enhance the reliability of feedback use. Generally, the findings support the underlying assumption that frequent and informed use of MER can enhance feedback loops in Mathematics classrooms, promote error correction, and contribute to improved learner performance, yet this potential is realised only when teachers are both knowledgeable and supported to integrate MER systematically across topics.

5.3 Research Question Three

This section discusses the findings in relation to Research Question Three*: How do learners perceive the use of Mathematics Examiners' Reports as a tool to inform their learning of Mathematics?* The learners' perceptions of Mathematics Examiners' Reports (MER) as tools to inform and enhance their learning are explored. They are key insights into the level of awareness, use, perceived benefits, and suggested improvements for MER among learners in Lesotho secondary schools.

The findings reveal that learners' understanding and use of Mathematics Examiners' Reports (MER) are largely dependent on teacher mediation, confirming the earlier assumption that while MER have the potential to improve learning outcomes, learners' limited access and awareness restrict their effectiveness. As indicated in the statement of the problem, a key

concern was that learners often repeat common errors due to insufficient engagement with assessment feedback. The data show that most learners were unaware of MER prior to the study, and those who had accessed them relied primarily on teachers to interpret the reports' content, which includes expected answers, common errors, and recommendations for addressing misconceptions. Thus, Learners require teacher mediation to make sense of feedback, reinforcing the importance of guided interpretation (Selvaraj et al., 2021). Additionally, found that learners often regard assessment feedback, including examiner reports, as less useful when they cannot understand it independently. This aligns with highlighting that feedback tools are most effective when learners are guided in interpreting them (Mulawo, 2017; Clarke, 2012). Learners perceived MER as primarily a pedagogical guide for teachers rather than a direct learning resource, due to the technical language and limited explanation of solutions, suggesting a barrier to independent use. As William (2018) reinforces the idea that feedback is most effective when learners are actively supported in interpreting it.

From the perspective of Feedback Intervention Theory (Kluger & DeNisi, 1996), MER serve as a feedback mechanism that informs learners about performance gaps and errors, but the feedback loop is incomplete when learners cannot access or understand the content without teacher support. The few learners who were exposed to the reports reported positive benefits, including awareness of recurring mistakes and improved accuracy in answering questions, illustrating that MER can enhance learning when feedback is internalised and acted upon. Learners recommended that MER be made more user-friendly, with detailed workings and accessible explanations, and used progressively throughout the year, reinforcing the assumption that structured and guided engagement with examiner feedback can strengthen both learners' understanding and teacher pedagogical practices. Overall, these findings support the theoretical expectation that feedback is most effective when it is clear, actionable, and accessible, highlighting the critical role of teachers in mediating the use of MER for improved Mathematics learning outcomes.

5.4 Discussion of Emergent Themes

The emergent themes drawn from teacher interviews provide critical insight into the pedagogical challenges surrounding the use of Mathematics Examiners' Reports (MER) and the foundational difficulties that learners encounter. These themes are challenges with basic concepts and learner reflections on MER that highlight structural and instructional limitations that may hinder learner progress in Mathematics. The findings on learners' challenges, as

perceived by teachers, confirm the assumption in the statement of the problem that weak foundational knowledge and limited engagement with feedback tools hinder learner performance in Mathematics. Teachers reported that learners struggle with essential concepts such as rounding off decimal numbers, significant figures, division of directed numbers with negative signs, and presenting answers with full workings.

These foundational gaps limit learners' ability to fully benefit from Mathematics Examiners' Reports (MER), as even when they access the reports, the technical language and presentation make reflection and independent understanding difficult. This observation aligns with literature suggesting that feedback tools are most effective when learners possess sufficient prior knowledge to interpret them (Mulawo, 2017; Clarke, 2012). Further, William (2018) emphasised that feedback only improves learning when learners notice, understand, and act on it. Hence Nicodemus and Kihwele (2024), found that even when feedback reports are accessible, teachers and learners limited pedagogical and assessment literacy can prevent effective utilisation. Teachers emphasised that integrating MER into the Mathematics syllabus could provide structured, consistent guidance and make the recommendations more accessible, supporting learners in addressing common errors and misconceptions.

From the perspective of Feedback Intervention Theory (Kluger & DeNisi, 1996), the findings indicate that MER functions as a feedback mechanism aimed at bridging the gap between learners' current and desired performance. However, the effectiveness of this feedback is limited when learners cannot understand the content independently, highlighting the critical role of teachers in mediating the reports and translating technical recommendations into actionable learning strategies. Incorporating MER into syllabus-based instruction could strengthen the feedback loop, enabling learners to engage more effectively with the reports, internalise corrective strategies, and build foundational skills necessary for improved achievement in Mathematics. Therefore, these findings support the theoretical expectation that feedback is most effective when it is clear, structured, and embedded within accessible instructional practices.

Chapter 6

Conclusion

6.0 Introduction

This study explored learners' and teachers' perceptions and experiences of Mathematics Examiner's reports (MER) as tools for improving the teaching and learning of Mathematics in secondary schools. The chapter concludes and focuses on the overall findings related to the research questions and the emergent data from Grade 10 Mathematics teachers and learners who participated. The findings underscore a dual perception, while MER are mostly recognised by teachers as valuable instructional tools capable of identifying common learner errors and weaknesses and guiding pedagogical practices, their use remains limited and inconsistent, especially among learners.

6.1 Limitations for the Current Study

The limitations of a study are the factors that may have affected the quality, comprehensiveness, or applicability of the findings. They include methodological, contextual, or practical constraints such as sample size, research design, time and resource limitations, researcher bias, or restricted access to participants or data sources (Creswell & Creswell, 2018). Recognising these limitations helps to clarify the boundaries within which the study's conclusions should be interpreted and identifies areas for future research improvement.

Although this study provided valuable insights into the perceptions and experiences of secondary school Mathematics teachers and learners regarding the utilisation of Mathematics Examiners' Reports (MER), several limitations must be acknowledged. Firstly, the study was limited to a small number of schools and participants selected through purposive sampling, which restricts the generalisability of the findings to all secondary schools. The experiences and views shared may therefore reflect context-specific practices influenced by school performance levels, teacher expertise, and resource availability.

Secondly, the study relied mainly on self-reported data from interviews, which are subject to personal bias, selective recall, and social desirability effects, especially when discussing professional practices. Thirdly, the study did not directly assess how learners' performance changed following exposure to MER; thus, conclusions about the impact of MER on learning

outcomes remain interpretive rather than empirical. Additionally, most learners were found to have limited access to or understanding of MER, which constrained the depth of their perspectives and limited comparative analysis between teacher and learner experiences. Lastly, the study focused on qualitative perceptions rather than quantitative measures of utilisation frequency or effectiveness, suggesting that further mixed-method or longitudinal research could strengthen understanding of how sustained engagement with MER influences teaching strategies and learner achievement in Mathematics.

6.2 Implications

The findings of this study carry important implications for Mathematics education, particularly regarding the integration and pedagogical use of Mathematics Examiners' Reports (MER) as a form of feedback. Firstly, the study highlights the need for the Ministry of Education and Training, curriculum developers, and examination bodies to formally incorporate MER into the Mathematics curriculum and teacher professional development programmes. Doing so would ensure that both teachers and learners systematically engage with examiner feedback as a formative instructional tool rather than as a post-assessment document. Secondly, the findings suggest that teachers require continuous support and training on how to interpret and translate the technical language of MER into classroom-friendly instructional strategies that address identified learner misconceptions. This would enhance the formative value of MER and align with the principles of Feedback Intervention Theory (FIT), which emphasises that feedback is most effective when it is clearly interpreted and directly linked to learning goals.

Furthermore, the study implies that learners need to be guided in how to engage with MER to foster self-assessment and reflective learning practices. The identified foundational gaps in basic mathematical concepts indicate that learners may not fully benefit from examiner feedback unless such feedback is simplified, contextualised, and reinforced through classroom instruction. At the policy level, the study underscores the importance of ensuring both the accessibility and pedagogical usability of MER through digital and print platforms, enabling broader and equitable access across schools. Finally, these findings reinforce that meaningful feedback utilisation depends on the interaction between teacher interpretation, learner engagement, and institutional support, elements that must work together to transform MER from an evaluative document into a dynamic resource for improving Mathematics teaching and learning outcomes.

6.3 Conclusion

In response to the research questions, the study concludes that teachers perceive Mathematics Examiners' Reports (MER) as valuable instructional tools that enhance the teaching and learning of Mathematics. Teachers use MER to identify common learner misconceptions and adjust their teaching strategies to address areas of weakness, particularly in challenging concepts such as rounding off, directed numbers, and the use of signs in trigonometric expressions. Their experiences show that MER support reflective teaching and targeted remediation, although challenges such as limited accessibility and lack of official integration into classroom practices remain. From the learners' perspective, the study reveals limited awareness and use of MER. Most learners depend on teachers to interpret the reports, as the technical language and lack of detailed workings make independent use difficult. However, those who have accessed MER recognise their value in identifying common errors and improving understanding of key concepts.

Importantly, learners suggested that the structure and components of MER be improved by including detailed workings, step-by-step solutions, and clearer explanations of answers. They also recommended that MER be used throughout the school year, preferably before the final year of study, to familiarise learners with exam expectations. These suggestions highlight the need to make MER more user-friendly and accessible for learners. Overall, the findings affirm that MER have significant potential to strengthen the teaching and learning of Mathematics when both teachers and learners are supported to use them effectively. Guided by Feedback Intervention Theory (FIT), the study concludes that meaningful feedback, when clearly presented and well-integrated into instruction, can enhance learner performance and promote reflective Mathematics teaching and learning.

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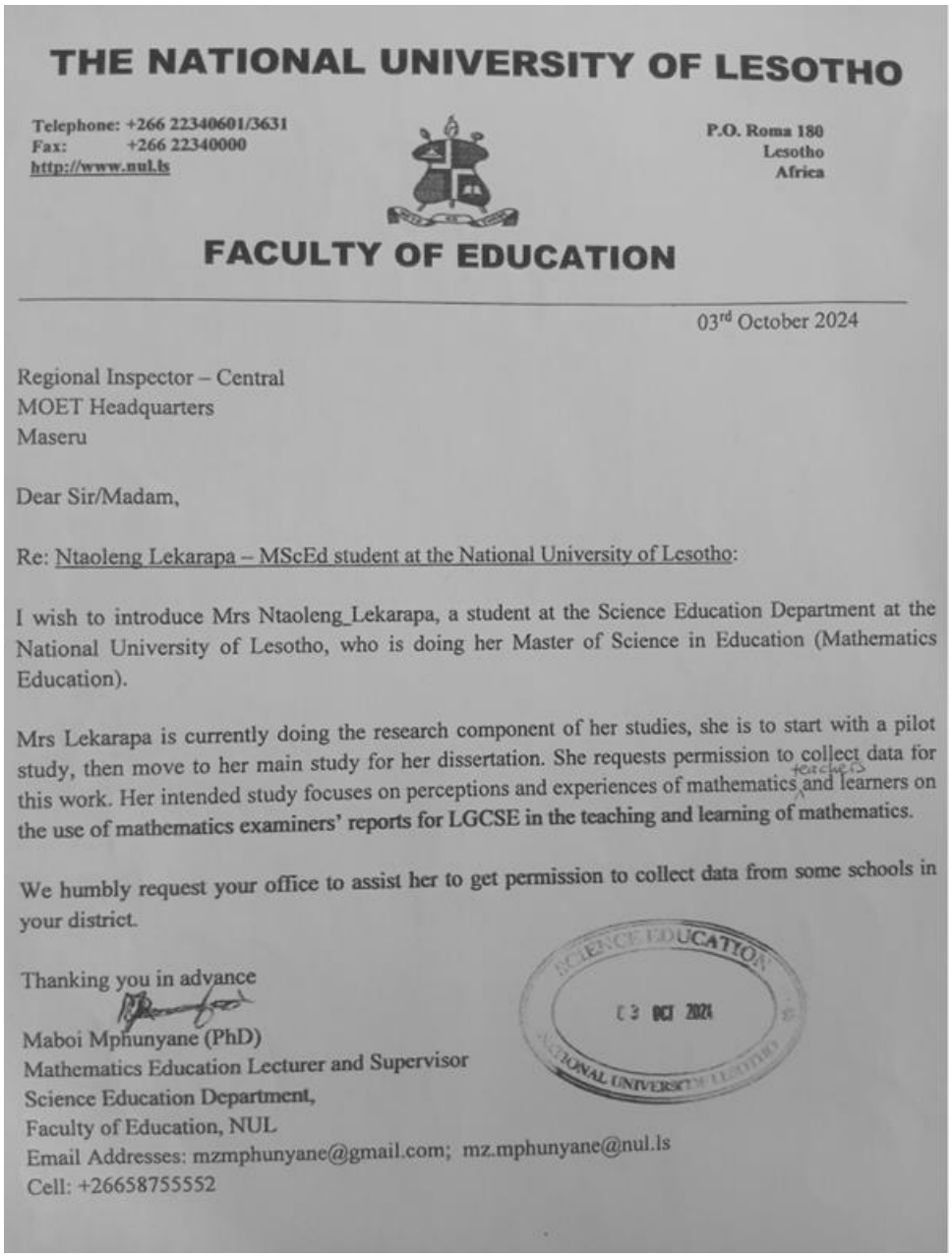
APPENDICES

Appendix A: Letter from Educational Institution



THE NATIONAL UNIVERSITY OF LESOTHO

Telephone: +266 22340601/3631
Fax: +266 22340000
http://www.nul.ls

P.O. Roma 180
Lesotho
Africa

FACULTY OF EDUCATION

03rd October 2024

Regional Inspector – Central
MOET Headquarters
Maseru

Dear Sir/Madam,

Re: Ntaoleng Lekarapa – MScEd student at the National University of Lesotho:

I wish to introduce Mrs Ntaoleng_Lekarapa, a student at the Science Education Department at the National University of Lesotho, who is doing her Master of Science in Education (Mathematics Education).

Mrs Lekarapa is currently doing the research component of her studies, she is to start with a pilot study, then move to her main study for her dissertation. She requests permission to collect data for this work. Her intended study focuses on perceptions and experiences of mathematics and learners on the use of mathematics examiners' reports for LGCSE in the teaching and learning of mathematics.

We humbly request your office to assist her to get permission to collect data from some schools in your district.

Thanking you in advance

Maboi Mphunyane (PhD)
Mathematics Education Lecturer and Supervisor
Science Education Department,
Faculty of Education, NUL
Email Addresses: mzmphunyane@gmail.com; mz.mphunyane@nul.ls
Cell: +26658755552

Appendix B: Letter to the Ministry of Education and Training

National University of Lesotho
P.O. Box Roma
Roma 180
/July 2024

The Principal Secretary
Ministry of Education and Training
Maseru 100

Dear Sir/Madam

RE: REQUEST FOR PERMISSION TO CONDUCT AN EDUCATIONAL RESEARCH STUDY.

I wish to conduct a research study titled: **Exploring Secondary School Mathematics teachers & Learners Perceptions and Experiences on Mathematics Examiners Reports Utilisation,** in the two secondary schools in Maseru Urban. I will appreciate the permission to conduct the study on Grade 11 secondary school Mathematics teachers and learners. The safety of the information will be highly guaranteed and will only be used for this academic study. The promise on the assurance of anonymity of the participants will be maintained.

I will appreciate the permission to begin as soon as possible to meet the requirements of the institution. I hope that the findings of this study will inform the Ministry and other stakeholders on the perceptions and experiences of teachers and learners on the use of Mathematics Examiners reports. The use of these reports for effective formative practices in the elimination of Mathematics errors and weaknesses.

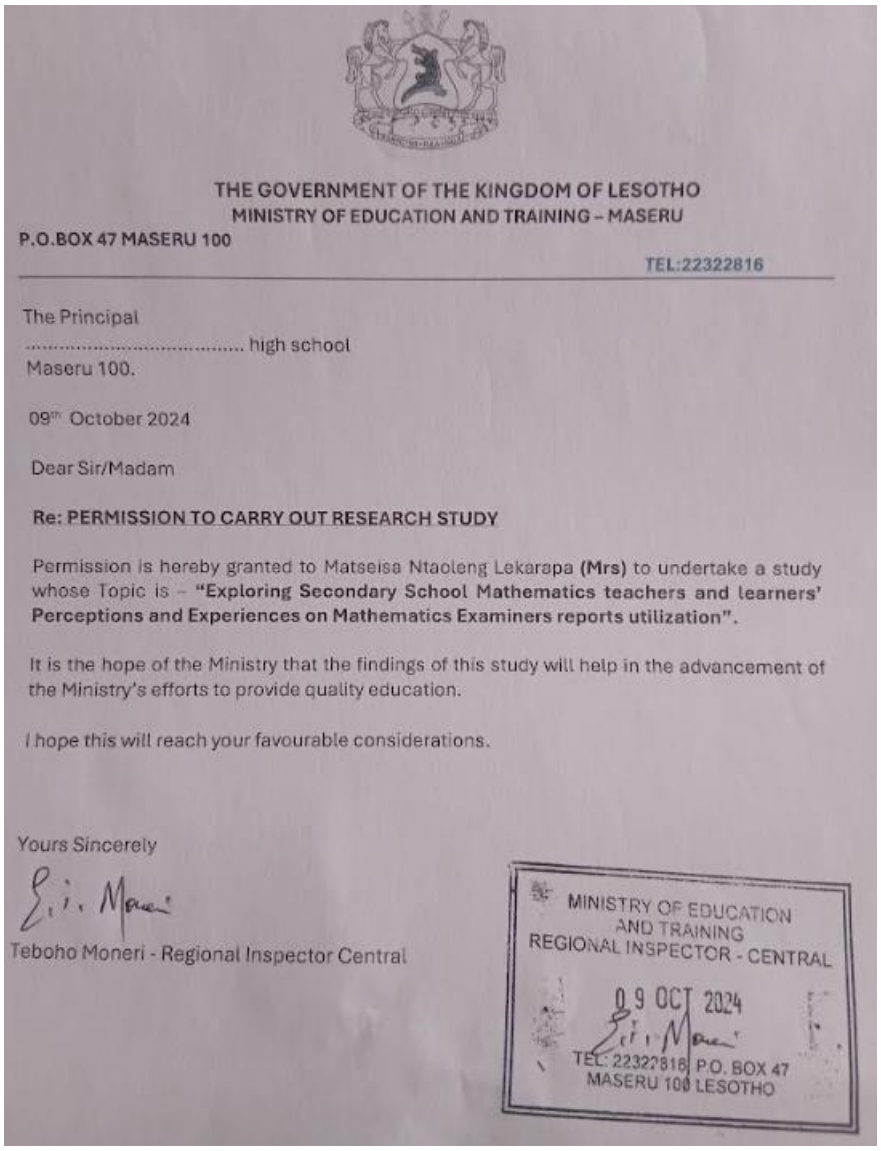
I would like to thank you in advance for your consideration in this regard.

Yours sincerely

……

Matseisa Ntaoleng Lekarapa: lekarapantao@gmail.com (+266 58789691/ 62089691).

Appendix C: Letter from the Regional Inspector Central



THE GOVERNMENT OF THE KINGDOM OF LESOTHO
MINISTRY OF EDUCATION AND TRAINING – MASERU
P.O.BOX 47 MASERU 100
TEL:22322816

The Principal
..... high school
Maseru 100.

09th October 2024

Dear Sir/Madam

Re: PERMISSION TO CARRY OUT RESEARCH STUDY

Permission is hereby granted to Matseisa Ntaoleng Lekarapa **(Mrs)** to undertake a study whose Topic is – **"Exploring Secondary School Mathematics teachers and learners' Perceptions and Experiences on Mathematics Examiners reports utilization".**

It is the hope of the Ministry that the findings of this study will help in the advancement of the Ministry's efforts to provide quality education.

I hope this will reach your favourable considerations.

Yours Sincerely

Teboho Moneri - Regional Inspector Central

MINISTRY OF EDUCATION
AND TRAINING
REGIONAL INSPECTOR - CENTRAL
09 OCT 2024
TEL: 22322816 P.O. BOX 47
MASERU 100 LESOTHO

Appendix D: Letter to the School Principal

National University of Lesotho
P.O. Box Roma
Roma 180

/July 2024

The principal

Dear Sir/Madam

RE: REQUEST FOR PERMISSION TO CONDUCT A RESEARCH STUDY IN YOUR SCHOOL.

I wish to conduct a research study at your school titled: **Exploring Secondary School Mathematics teachers & Learners Perceptions and Experiences on Mathematics Examiners Reports Utilisation.** I will appreciate the voluntary participation of the Two Grade 11 secondary Mathematics teachers and three Grade 11 learners. The safety of the information will be highly guaranteed and will only be used for this academic study. The promise on the assurance of anonymity of the participants will be maintained.

I will appreciate to be allowed to begin as soon as possible to meet the requirements of the institution. I hope that the findings of this study will be helpful to you including other stakeholders. Considering this, the actions might be taken for effective teaching and learning of secondary school Mathematics on elimination of errors and weaknesses of learners.

I would like to thank you in advance for your cooperation in this regard.

Yours sincerely

……

Matseisa Ntaoleng Lekarapa: lekarapantao@gmail.com (+266 58789691/ 62089691).

Appendix E: Participants' consent form

Participant's consent form

I kindly invite you to participate in the research study titled: **Exploring Secondary School Mathematics teachers & Learners Perceptions and Experiences on Mathematics Examiners Reports Utilisation.**

Study investigator: Matseisa Ntaoleng Lekarapa, lekarapamatseisa@gmail.com (+266 58789691/ 62089691). National University of Lesotho, Faculty of Education, Department of Science Education Candidate.

The participation will be interviewed and handed questionnaires to answer the questions about your perceptions and experiences on the use of Mathematics Examiners reports to address errors and weaknesses in the teaching and learning of Mathematics. The information and the anonymity will be strictly assured to protect the participant's privacy.

It is entirely voluntary to participate in this study and the participant may withdraw at any given time. However, your participation is highly appreciated.

The participant can ask questions to the researcher for clarity or any other concern about their participation in the study.

Consent

Your signature below indicates your acceptance to participate voluntarily in this study and understood the above provided information.

I……. signature ……..……date…….

Appendix F: Participants Consent form for minors

Participant's consent form for minors

I kindly invite your child to participate in the research study titled: Exploring Secondary School Mathematics teachers & Learners Perceptions and Experiences on Mathematics Examiners Reports Utilisation.

Study investigator: Matseisa Ntaoleng Lekarapa, lekarapamatseisa@gmail.com (+266 58789691) @ National University of Lesotho, Department of Science Education.

The participants will only be interviewed to answer the questions about their perceptions on the use of Mathematics Examiners reports to address errors and weaknesses in the teaching and learning of Mathematics. The information and the names of the participants will be strictly confidential to protect the participant's privacy.

It is entirely voluntary to participate in this study and the participant may withdraw at any given time. However, your participation is highly appreciated.

The participant can ask questions to the researcher for clarity or any other concern about their participation in the study.

Consent

Your signature below indicates your acceptance to allow your child to participate voluntarily in this study and understood the above provided information.

I……Signature……..…Date ……

Appendix G: Questionnaire for teachers

1. Demographic information

Participant identification				
Grade				
Gender	Male	Female	Others	
Age	21 -30	31 – 40	41 – 50	50 & above
Highest qualification				
Teaching experiences				
Subject specialisation				

2. Knowledge of the Mathematics Examiner's Report.

Are you familiar with the Mathematics Examiner's Reports? When did you first see them?

3. Mathematics Examiner's reports

a) What is your own understanding of the Mathematics Examiner's reports?

b). Why are the Mathematics Examiner's reports **used** or **not used**?

c). How often do you use the suggestions / commends of the Mathematics Examiners report in your teaching practices? Elaborate.

4. Perceptions and experiences of teachers.

a) Do you regard the Mathematics Examiner's reports as **useful** or **not useful** in the teaching and learning of Mathematics? Explain.

b) How are the Mathematics Examiner's reports used for teaching and learning of **addition and division of fractions?**

5. Perceptions of learners.

a) Are the learners in your school exposed to the Mathematics Examiner's reports? What is their understanding of the reports?

b). How have the suggestions and recommendations from the Mathematics Examiners' Reports influenced/(changed) learning of Mathematics**? e. g. On simplifying fractions with negative sign.**

c). What do learners suggest for making Mathematics Examiners' Reports more useful for their learning?

lekarapamatseisa@gmail.com (58789691/62089691)

Appendix H: Focus group interview for learners

1. **Demographic information**

Participant identification (Pseudonym)				
Grade				
Gender				
Age	13- 15	16 – 18	19 – 21	22 – 24

2. **Knowledge of the Mathematics Examiner's Report.**

Are you familiar with the Mathematics Examiner's Report? (description of the report).

3. **Understanding of the feedback**

Do you understand the suggestions provided by the Mathematics Examiner's Reports? (explain).

4. **Use of the feedback - Experiences**

Have you ever used the suggestions and recommendations from Mathematics Examiner's reports to improve your study habits?

5. **Perceptions**

How important do you find the suggestions from Mathematics Examiner's reports in helping you understand Mathematics?

6. **Influence on learning**

How have the suggestions and recommendations on common errors and weaknesses influenced/(changed) your learning Mathematics? OR (will change if begin to use them)

7. **Suggestions for improvement**

What do you suggest for making Mathematics Examiners' Reports more useful for learners?

Appendix I: Interview Questions for Teachers

1. **Demographic information**

Participant identification (Pseudonym)				
Grade				
Gender	Male	Female	Others	
Age	21 -30	31 – 40	41 – 50	50 & above
Highest qualification				
Teaching experiences				
Subject specialisation				

Teachers' interviews for further clarifications of responses through probing by the researcher.

1. **Preparation for teaching**

How well do you prepare to teach Mathematics? Explain.

2. **Utilisation of Mathematics Examiners reports**

When do you use Mathematics Examiners reports suggestions/ recommendations in your teaching practices?

3. **Perceptions**

Why are the Mathematics Examiners Reports used?

4. **Experiences**

How are the Mathematics Examiners reports used by teachers and learners?

5. **Challenges**

What challenges do teachers face when using Mathematics Examiners reports?

6. **Impact on instruction**

In what way have the Mathematics Examiners Reports influenced your instructional practices?

7. Suggestions for improvement

What suggestions do you have for making Mathematics Examiners Reports more useful for teaching and learning of Mathematics?

lekarapamatseisa@gmail.com (58789691/62089691)

Appendix J: Letter from the Editor

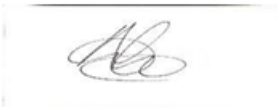
To: The Supervisors
Department of Science Education
Faculty of Education
NUL

Date: 05 July 2025

Re: proof of language editing

This letter proves that I read and edited Ntaoleng Lekarapa's Masters Dissertation titled: ***Mathematics Examiners' Reports Utilisation: Exploration of Secondary School Mathematics Teachers' and Learners' Perceptions and Experiences***

Sincerely,



_____

Mahao Mahao (PhD)
Senior Lecturer - Department of Language and Social Education
National University of Lesotho

AppendixK Tables of Analysis Framework

Table of Analysis Framework T-A

Teacher A – (T-A)			
Research question	**Theme**	**Category & Acronym**	**Sub-Category**
RQ.1. How do teachers perceive the use of the Mathematics Examiners' report as a tool to enhance teaching and learning of secondary school Mathematics?	1.Teacher A's perceptions	1.Description of Mathematics Examiners' report	1.1 Learners' strengths & weaknesses inclusion 1.2 Learners' errors
		2.When teacher knew about Mathematics Examiners' report.	2.1. Report awareness
		3.How MER are used.	3.1 Learners' performance 3.2 Clarifies learners' mistakes and errors 3.3 Assessment: answering questions
		4.Suggestions about use of MER.	4.1. MER to align with syllabus. 4.2 Language of MER 4.3 Need for workshop on MER.
		5.Teacher's views about learners' knowledge of MER.	5.1 No exposure & understanding of MER.

			5.2 No knowledge of MER existence.
RQ.2. What are teachers' experiences on the use of the Mathematics Examiners' report on their teaching of Mathematics?	1.Teacher A's experiences	1.Frequency on MER use by teacher 2.MER use on teaching addition and division of fractions 3.Topics on which MER was used by teacher? 4.Suggestions of MER.	1.1 Almost all assessment sessions. 1.2 During teaching and learning 2.1 Addition of fractions 3.1 Guidance on specific areas. 4.1 Instructions 4.2 Collaboration of syllabus and MER.
Emerging Themes	1.Learners' challenges Perceived by Teacher A	1. Basic concepts challenging learners 2.Current learners' reflection on MER.	1.1 Rounding off 1.2 Significant figures

Table of Analysis Framework T-B

Teacher B – (T-B)			
Research question	**Theme**	**Category & Acronym**	**Sub-Category**
RQ.1. How do teachers perceive the use of the Mathematics Examiners' report	1.Teacher B's perceptions.	1.Description of Mathematics Examiners' report	1.1 Expected answers & their working/methods 1.2 Incorrect answers

as a tool to enhance teaching and learning of secondary school Mathematics?			1.3 Wrong approach in answering a question. 1.4 Help on teachers' approaches to teaching practices 1.5 Learners' misconceptions.
		2.When teacher knew about Mathematics Examiners' report.	2.1. Reports' awareness
		3.How MER are used.	3.1 Equip teachers & learners. 3.2 Guides teachers to avoid repeating misconceptions & accuracy.
		4.Suggestions about use of MER.	4.1. Reports' accessibility to learners by teachers.
		5.Teacher's views on learners' knowledge about MER.	5.1 Learners lack MER awareness. 5.2 Exposed learners' lack of interest. 5.3 Learner brought to attention of others about MER answers.
RQ.2. What are teachers'	1.Teacher B's experiences.	1.Frequency on MER use by teacher	1.1 Every time when needed.

experiences on the use of the Mathematics Examiners' report on their teaching of Mathematics?		2. Sources used on teaching addition and division of fractions 3.Topics on which MER was used by teacher? 4.Suggestions about use of MER.	2.1 internet work sheets use for fractions. 2.2 Other textbooks. 3.1 Guidance on specific areas: Premature rounding. 4.1 Curb misconception.
Emergent Themes	1.Learners' challenges Perceived by Teacher B.	1.What are basic concepts challenging learners? 2.Current learners' reflection on MER.	1.1 Rounding off 1.2 Negligence to show working result to loss of marks. 2.1 A few below average aware of MER know what it entails.

Table of Analysis Framework T-C

Teacher C – (T-C)			
Research question	**Theme**	**Category & Acronym**	**Sub-Category**
RQ.1. How do teachers perceive the use of the Mathematics Examiners' report as a tool to enhance	4.1. Teacher C's perceptions on the use of MER.	Conceptualisation of Mathematics Examiner's Reports	Learners' strengths & weaknesses inclusion Expected responses

teaching and learning of secondary school Mathematics?		Teachers' knowledge and awareness of Mathematics Examiners' Reports Utilisation of Mathematics Examiners' Reports Teachers' suggestions for effective use of Mathematics Examiners' Reports 4 1.5 Teachers' views on learners' knowledge of Mathematics Examiner's Reports	MER as very detailed document. Report awareness Identification and elimination of common mistakes and weaknesses. Assessment Daily use during examinations' preparations. Development of skills to follow guidelines. Immediate attention to common mistakes and misconceptions. Report Length. Report clarity Concept accessibility. Internet use.

			No knowledge of MER existence. No exposure and understanding of MER.
RQ.2. What are teachers' experiences on the use of the Mathematics Examiners' report on their teaching of Mathematics?	4.2 Teacher C's experiences on the use of MER.	4.2.1 Frequency on Mathematics Examiners' Reports use by teachers 4.2.2 Application of Mathematics Examiners' Reports in teaching addition and division of fractions 4.2.3 Curriculum topics informed by Mathematics Examiners' Reports 4.2.4 Instructional suggestions from Mathematics Examiners' Reports	Guidance on specific areas. Instructions
Emerging Themes	4.3. Learners' challenges Perceived by Teacher C	4.3.1 Foundational concepts that pose difficulties for learners	Rounding off Significant figures

		4.3.2 Learners' contemporary reflections on the use of Mathematics Examiner's Reports	

Table of Analysis Framework FG

Focus Group Interviews		
Research Question	**Theme**	**Category**
RQ3. How do learners' perceive the use of Mathematics Examiners' report as a tool to inform their learning of Mathematics?	4.3 Learners' perceptions	4.3.1 Understanding of Mathematics Examiner's Reports from learners' perspective 4.3.2 Mathematics Examiners' Reports as a pedagogical guide for teachers 4.3.3 Learners' perceptions of the use of Mathematics Examiner's Reports 4.3.4 Learners' attitudes towards Mathematics Examiners' Reports

		4.3.5 Perceived benefits of Mathematics Examiners' Report for learners 4.3.6 Learners' recommendations on the use of Mathematics Examiners' Reports